Psychometric Validation of Trust, Commitment, and Satisfaction Scales to Measure Marital Relationship Quality among Newly Married Women in Nepal

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Article

Psychometric Validation of Trust, Commitment, and Satisfaction Scales to Measure Marital Relationship Quality Among Newly Married Women in Nepal

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Article Summary

STRENGTHS AND LIMITATIONS OF THIS STUDY

- Using two-wave validation approach for exploratory factor analysis and follow-up data for confirmatory factor analysis for model testing improves methodological rigor
- High retention rate (96%) between baseline and 6-month follow-up minimizes potential bias from differential attrition
- Focus on newly married couples captures relationship dynamics during a critical developmental period when interventions may be most effective
- Scales focus primarily on positive relationship aspects with limited representation of negative dimensions such as conflict resolution difficulties or relationship distress
- Single-item criterion validity measure may not capture the full complexity of relationship satisfaction and happiness

Abstract

Objectives: To validate scales measuring trust, commitment, and satisfaction as key components of marital relationship quality among newly married women in Nepal and assess their psychometric properties for use in South Asian research contexts. **Design:** Psychometric validation study using a two-wave approach with 6-month test-retest reliability assessment. **Setting:** Rural communities in Nawalparasi district, Terai region of Nepal. **Participants:** 200 newly married women aged 18-25 years, married within four months of baseline survey and co-residing with mother-in-law. 192 participants (96% retention) completed 6-month follow-up. **Primary outcome measures:** Factor structure, internal consistency reliability (Cronbach's alpha), test-retest reliability (Pearson correlation), and criterion validity (correlation with relationship happiness) of trust (8 items), commitment (5 items), and satisfaction (7 items) scales. **Results:** Exploratory factor analysis (baseline, n=200) identified single-factor solutions for trust and commitment scales, and a two-factor model for satisfaction. Confirmatory factor analysis (6-month follow-up, n=192) confirmed single-factor models for trust and commitment, and a two-factor satisfaction model comprising marital conflict/dissatisfaction (4 items) and general satisfaction (2 items). All scales demonstrated good internal consistency (Cronbach's α: 0.79-0.96). Criterion validity was confirmed through significant correlations with relationship happiness (r=0.63-0.72, all p<0.001). Test-retest reliability showed moderate stability for commitment (r=0.51, p<0.001), lower stability for trust (r=0.41, p<0.001), and variable stability for satisfaction subscales. **Conclusions:** The validated scales demonstrated acceptable psychometric properties for measuring key marital relationship quality domains among newly married women in Nepal. These culturally-adapted instruments provide researchers with reliable tools for assessing relationship quality in South Asian contexts, enabling more robust

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research on how marital relationships influence health outcomes and supporting development of evidence-based family interventions.

Keywords: couples' relationship quality; marital satisfaction; marital quality; scale validation; Nepal; couples; psychometric; spousal relationship; South Asia

1. Introduction

Marriage in Nepal, a near-universal and culturally significant institution, is undergoing rapid changes [1,2]. Historically arranged by parents or relatives, there has been a recent shift towards self-choice "love marriages", accompanied by increases in marriage age and divorce rates, though these remain low compared to global standards [3–9]. These evolving dynamics underscore the critical importance of understanding marital relationships, and their dynamics and quality, in contemporary Nepali society.

Marital relationship quality profoundly influences physical and mental well-being beyond the marital unit itself [10,11]. Meta-analytic evidence from over 72,000 individuals demonstrates significant associations with health outcomes including reduced mortality, better cardiovascular health, enhanced personal well-being, and reduced anxiety symptoms, with effect sizes comparable to established health behaviors like diet and exercise [11–13]. However, there is a notable research gap in non-Western settings, particularly Nepal. While existing Nepali studies have examined determinants of marital quality [14], its association with women's agency [15] and mental health [16], they highlight the need for more comprehensive understanding and validated measurement tools in this cultural context.

A significant challenge in this field is the lack of consensus on what constitutes a "good" marital relationship and how to measure it consistently across different cultural contexts [17]. Researchers debate whether marital quality is a multidimensional construct [18], or a unidimensional evaluation [19,20], leading to diverse approaches in measuring marital quality and no standardized, universally accepted measure [21].

Given this measurement complexity and the established health significance of marital relationships, this study focuses on three theoretically grounded core dimensions: trust, commitment, and satisfaction. Mutual trust is crucial for establishing close relationship [22–25], enabling couples to experience shared joy and empathy during hardships, leading to deeper understanding and genuine intimacy [25–27]. Conversely, trust absence results in anxiety, insecurity, and relationship breakdown. While Western measures like the 8-item Dyadic Trust Scale [28] exist, but their applicability in the Nepali context remains unexplored.

Commitment, one Sternberg's triangular theory of love alongside intimacy and passion, represents the cognitive decision to maintain a long-term relationship [29]. This dimension the cognitive aspect of love and refers to the decision to maintain a long-term relationship with a partner. Harvey et al. (2006) adapted this concept into a 5-item scale, with higher commitment levels associated with relationship stability [30,31], relationship maintenance behaviors [32,33], and individual mental and physical outcomes [34].

Satisfaction, the third component, represents a subjective evaluation of marriage quality based on individual perception rather than objective criteria [35]. Gottman and Krokoff (1989) emphasized its dynamic nature, arguing that satisfaction fluctuates based on ongoing relationship interactions [36]. Various measurement scales exist, including the 32-item Dyadic Adjustment Scale (DAS) [18,35], 6-item **Quality of Marriage Index (QMI)** that focuses on the overall marital relationship satisfaction through a brief set of items [20], and the 150-item Marital Satisfaction Inventory-Revised [37].

Growing interest in marital relationship quality has led to validation efforts in diverse non-Western settings including South Africa [38], Nepal [14], Ethiopia [39], Malawi [40], and India [41]. However, cultural differences necessitate context-specific validation rather than direct translation of Western measures. In Ethiopia, adaptation of a 25-item scale covering trust, commitment, satisfaction,

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and communication revealed that Western factor structures did not fully with Western measures [39]. Studies in Malawi developed a 28-item Relationship Quality Index [40] and Nepal created a 40-item scale measuring five domains [14], but performed a rigorous confirmatory factor analysis for future research applications.

Qualitative research in rural India identified marital quality dimensions including love, peace, communication, trust, and balance, showing both alignment with and differences from Western conceptions [41]. These findings highlight the necessity of culturally-adapted measurement tools, as varying scales and domains across studies limit cross-cultural comparison and theoretical advancement.

This study aims to validate three theoretically grounded dimensions of marital relationship quality in Nepal: trust, commitment, and satisfaction. By establishing psychometrically sound measures of these core constructs, we seek to provide researchers with reliable tools for investigating how marital relationships influence health outcomes in South Asian contexts. These validated measures will enable research on maternal mental health, family health behaviors, and couple-based health interventions, while contributing to the broader global health research infrastructure for relationship studies in low- and middle-income countries.

2. Methods

2.1. Study Design and Recruitment

This psychometric validation study utilized data from a longitudinal cohort of 200 newly married women conducted between 2018 and 2020 in Nawalparasi district, Nepal. Following established scale validation methodology, exploratory factor analysis (EFA) was performed on baseline data (n=200) in February 2018 and confirmatory factor analysis (CFA) on 6-month follow-up data (n=192). The 6-month interval was selected as optimal for test-retest reliability assessment, balancing measurement stability evaluation with genuine relationship changes that occur as newly married couples adjust to married life. The Terai region is predominantly inhabited by the Madeshi (Hindu) and Muslim communities and shares cultural affinities with neighboring Indian districts. Around 97% of Nepal's Muslim population resides in the Terai, sharing socio-cultural ties with populations in Uttar Pradesh and Bihar, India. The study population is representative of the Terai region of Nepal.

At baseline, eligibility criteria included: marriage within four months preceding the baseline survey, age 18-25 years, and co-residence with mother-in-law in the same household. A systematic sampling approach was employed: villages were purposively selected within Nawalparasi district, followed by comprehensive household listing to identify all newly married women meeting eligibility criteria. This approach ensured population-based recruitment representative of newly married women in the Terai region. Of 200 women enrolled at baseline, 192 (96% retention rate) completed the 6-month follow-up assessment. Attrition analysis revealed no significant differences in baseline sociodemographic characteristics between completers and non-completers, confirming that the CFA sample remained representative of the original cohort. More details of the broader study sampling design are found elsewhere [42]. This study was conducted according to the guidelines laid down in the Declaration of Helsinki, and all procedures were approved by the Nepal Health Research Council of Nepal and Institutional Review Board of the University of California, San Francisco. Written informed consent was obtained from all participants.

2.2. Study Measures

Independent variables (marital relationship quality domains).

Three domains of relationship quality were assessed, as reported by women. These core dimensions were selected based on: (1) their theoretical grounding in established relationship frameworks, (2) their documented associations with health outcomes in Western populations, (3)

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their emergence in cross-cultural relationship research, and (4) evidence from previous adaptation work in Ethiopia suggesting potential cultural relevance in South Asian contexts [39].

i) Commitment Scale: This 5-item scale, adapted from the Sternberg Triangular Love Scale [29] by Harvey and colleagues [30], assessed participants' long-term commitment to their spouse. Items included statements such as, "I can't imagine ending my relationship with my current husband" rated on a 4-point scale (0=not at all, 1=somewhat, 2=quite, 3=extremely). Higher scores indicate greater spousal commitment.

ii) Trust Scale: This 8-item scale, adapted from the Dyadic Trust Scale by Larzelere and Huston [28], assesses trust within the marital relationship. Items included statements such as, "My husband is primarily interested in his own welfare", using a Likert scale ranging from strongly agree to strongly disagree. Negatively worded items were reverse coded, with higher scores indicating greater marital trust.

iii) Satisfaction Scale*:* This 7-item scale, derived from the Dyadic Satisfaction Scale subscale of the Dyadic Adjustment Scale [35], measured relationship satisfaction using four-point frequency ratings. Items such as "*How often do you or your husband leave the house after a fight?*" were rated on a 4-point scale (0=all of the time to 3=never). Negatively worded items were reverse coded, with higher scores indicating greater relationship satisfaction.

Criterion validity measure: Convergent validity was assessed using a single-item global relationship happiness measure: "How happy are you with your relationship overall?" rated on a 4-point scale (1=very unhappy to 4=perfectly happy). We hypothesized positive correlations between this measure and all three relationship quality scales.

2.3. Psychometric Analyses

The sample characteristics were summarized using means, standard deviations (SD), frequencies, and percentages. A comprehensive psychometric evaluation was conducted using a two-waves of data collected from the same women.

Exploratory Factor Analysis: We conducted EFA on baseline data (n=200) using Stata 18 [43] to determine the optimal factor structure for each scale. We employed a multi-step approach. First, we conducted parallel analysis, which compares the eigenvalues of the observed data with those from randomly generated data [44,45]. Next, we examined the scree plot, visually inspecting for the 'elbow' point where the curve levels off, indicating diminishing returns from additional factors [46,47]. We also considered Kaiser's criterion, which suggests retaining factors with eigenvalues greater than 1.0 [48,49]. When methods yielded different results, we prioritized the parallel analysis as it is generally considered more accurate [50]. Oblique rotation was used given theoretical correlations between relationship quality domains [51–53]. Factor loadings ≥0.4 were considered acceptable for item retention [45,54].

Confirmatory Factor Analysis: CFA was performed on 6-month follow-up data (n=192) in R Studio [55] to test EFA-identified factor structures. Model fit was evaluated using: root mean square error of approximation (RMSEA), Tucker–Lewis index (TLI), comparative fit index (CFI), and standardized root mean squared residual (SRMR). Models were considered acceptable if any two of the following criteria were met: RMSEA ≤ 0.06, TLI and CFI ≥ 0.95, SRMR ≤ 0.1 [56,57].

Reliability and Validity Assessment: Internal consistency was assessed using Cronbach's alpha (α ≥0.70 considered acceptable) [58]. Test-retest reliability was evaluated using Pearson correlations between baseline and 6-month scores. Criterion validity was examined through correlations between scale scores and single-item relationship happiness [45,59]. Inter-scale correlations were assessed to evaluate construct validity [60].

Sample size of 200 provided adequate power for factor analysis (>10:1 participant-to-item ratio). This manuscript was prepared following the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) reporting guideline [61] and checklist [62] to ensure comprehensive reporting of study methodology and results.

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3. Results

3.1. Descriptive Statistics

Table 1 presents characteristics of the 200 newly married women aged 18-25 who contributed to the EFA. Participants had a mean age of 20.4 years (SD=1.9) with an average of 10 years of education. Most were Hindu (86%), with the remainder identifying as Muslim, Christian, or Buddhist (14%). Ethnically, 53% belonged to indigenous groups, 25% to Dalits/religious minorities, and 23% to Brahmin/Chhetri groups. The majority (70.5%) had arranged marriages, while 29.5% chose their partners. Twenty-six percent engaged in paid work outside the home. Husbands averaged 23.9 years (SD=2.9), with most completing grades 6–12 (74%) or higher education (15%); only three had no formal schooling.

Table 1. Socio-demographic characteristics of newly married women in Nawalparsi district of Nepal at baseline (n=200).

Variable	**n (%) or Mean (SD)**
Women's age in years	20.4 (1.9)
Woman's education	
No schooling	8 (4.0%)
Completed up to grade 5	24 (12.0%)
Completed grade 6 to 12	138 (69.0%)
Completed more than grade 12	30 (15.0%)
Religion	
Hindu	172 (86.0%)
Other	28 (14.0%)
Ethnicity/ Caste	
Brahmin/Chhetri (Upper caste)	45 (22.5%)
Indigenous group	106 (53.0%)
Dalits/religious minority group (Lower caste)	49 (24.5%)
Marriage type	
Arranged	141 (70.5%)
Love	59 (29.5%)
Women's paid work status outside home	52 (26.0%)
Husband's age in years	23.8 (2.9)
Husband's education	
No schooling	3 (1.5%)
Completed up to grade 5	19 (9.5%)
Completed grade 6 to 12	148 (74.4%)
Completed more than grade 12	29 (14.6%)

Table 2 presents descriptive statistics for all scale items at baseline. Commitment scale scores ranged from 0-15 (M=13.52, SD=2.77), with individual items averaging 2.65-2.74 on the 4-point scale, indicating generally high commitment levels across participants. Trust scale total scores ranged from 0-24 (M=18.10, SD=4.14), with positive trust items averaging 2.32-2.39 and reverse-coded items showing lower means (0.78-1.00), suggesting overall high trust levels. Satisfaction scale scores ranged

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from 3-21 (M=18.50, SD=2.65), with most items showing high satisfaction levels, particularly low frequencies of divorce consideration (M=2.95) and leaving after fights (M=2.99).

Table 2. Marital relationship quality scores by each item at baseline (n=200).

	Marital relationship quality		
	Mean (M)	**SD**	**Range**
Commitment scale (5-items)	**13.52**	**2.77**	**0-15**
I expect my love for my current husband to last for the rest of my life (0=not at all; 3= extremely)	2.73	0.66	0-3
I can't imagine ending my relationship with my current husband (0=not at all; 3= extremely)	2.72	0.65	0-3
I view my relationship with my current husband as permanent (0=not at all; 3= extremely)	2.74	0.61	0-3
I am committed to maintaining my relationship with my current husband (0=not at all; 3= extremely)	2.70	0.60	0-3
I have confidence in the stability of my relationship with my current husband (0=not at all; 3= extremely)	2.65	0.63	0-3
Trust scale (8-items)	**18.10**	**4.14**	**0-24**
My husband is primarily interested in his own welfare (0=extremely; 3=not at all)*	0.85	0.72	0-3
There are times when my husband cannot be trusted (0=extremely; 3=not at all)*	1.00	0.78	0-3
My husband is perfectly honest and truthful with me (0= strongly disagree; 3=strongly agree)	2.34	0.65	0-3
I feel I can trust my husband completely (0= strongly disagree; 3=strongly agree)	2.35	0.62	0-3
My husband is truly sincere in his promises (0= strongly disagree; 3=strongly agree)	2.32	0.65	0-3
I feel that my husband does not show me enough consideration (0=extremely; 3=not at all)*	0.78	0.68	0-3
My husband treats me fairly and justly (0= strongly disagree; 3=strongly agree)	2.32	0.64	0-3
I feel that my husband can be counted on to help me (0= strongly disagree; 3=strongly agree)	2.39	0.63	0-3
Satisfaction scale (7-items)	**18.50**	**2.65**	**3-21**
How often have you discussed, or have you considered divorce separation or termination in your relationship? (0= all of the time;3=never)*	2.95	0.12	1-3
How often do you or your husband leave the house after a fight? (0= all of the time;3=never)*	2.99	0.12	2-3

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In general, how often do you think that things between you and your husband are going well? (0=never; 3=all the time)	2.39	0.82	0-3
Do you confide in your husband?	2.39	0.78	0-3
Do you ever regret that you are married? (0= all of the time;3=never)*	2.85	0.54	0-3
How often do you and your husband quarrel? (0= all of the time;3=never)*	2.87	0.48	0-3
How often do you and your husband "get on each other's nerves?" (0= all of the time;3=never)*	2.09	0.67	0-3

Note: * indicates reverse-coded items. All scales: higher scores = better relationship quality.

3.2. Psychometric Properties of the Scales

Commitment scale: EFA on baseline data (n=200) supported a unidimensional structure for the commitment scale. Parallel analysis indicated one factor with eigenvalues exceeding random data expectations, confirmed by scree plot examination showing a clear drop-off after the first factor. The single factor (eigenvalue=3.6) accounted for 99% of cumulative variance, with all five items loading above 0.4 (range: 0.76-0.90), supporting a robust one-factor solution.

Trust Scale The trust scale similarly demonstrated a unidimensional structure. Parallel analysis and scree plot inspection both supported a one-factor solution. The single factor (eigenvalue=4.5) explained 98% of cumulative variance, with all eight items meeting the 0.4 loading threshold (range: 0.52-0.90), confirming a unidimensional trust construct.

Satisfaction Scale EFA revealed a two-factor structure for the satisfaction scale. Parallel analysis confirmed both factors exceeded random data expectations, supported by scree plot examination. The two-factor solution yielded:

- **Factor 1: Marital conflict/dissatisfaction** (4 items, eigenvalue=3.1, factor loadings: 0.74-0.81) included items about divorce consideration, leaving after fights, marital regret, and quarreling frequency.
- **Factor 2: General satisfaction** (2 items, eigenvalue=0.83, factor loadings: 0.78-0.82) included items about relationship wellbeing and confiding behaviors.

Factor loadings for all scales are presented in Table 3.

Table 3. Factor loadings from exploratory factor analysis for items for commitment, trust, and satisfaction scales at baseline (n = 200).

	Factor loadings
Commitment scale (5-items; 1 factor)	
I expect my love for my current husband to last for the rest of my life	0.76
I can't imagine ending my relationship with my current husband	0.87
I view my relationship with my current husband as permanent	0.90
I am committed to maintaining my relationship with my current husband	0.87

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I have confidence in the stability of my relationship with my current husband	0.85	
Trust scale (8-items; 1 factor)		
My husband is primarily interested in his own welfare	0.57	
There are times when my husband cannot be trusted	0.52	
My husband is perfectly honest and truthful with me	0.68	
I feel I can trust my husband/mother-in-law completely	0.86	
My husband is truly sincere in his promises	0.87	
I feel that my husband does not show me enough consideration	0.62	
My husband treats me fairly and justly	0.90	
I feel that my husband can be counted on to help me	0.89	
Satisfaction scale (7-items)	**Factor 1**	**Factor2**
Factor 1: Marital Conflict/Dissatisfaction (4 items)		
How often have you discussed divorce/separation? (R)	0.79	
How often do you/husband leave house after a fight? (R)	0.74	
Do you ever regret that you are married? (R)	0.77	
How often do you and your husband quarrel? (R)	0.81	
Factor 2: General Satisfaction (2 items)		
How often do you think that things between you and your husband are going well?		0.78
Do you confide in your husband?		0.82

Note: (R) = reverse-coded items. Factor loadings <0.40 not shown. One satisfaction item ("get on each other's nerves") was dropped due to inadequate loading (0.26). Oblique rotation used for satisfaction scale.

3.3. Scale Validation

CFA was conducted on 6-month follow-up data (n=192) to test the factor structures identified in EFA. CFA tested the 6-item, two-factor satisfaction model identified in EFA, excluding the dropped item. Table 4 presents standardized factor loadings and Table 5 shows model fit statistics.

Table 4. Standardized factor loadings from confirmatory factor analysis using the second wave of data (n=192).

	Standardized factor loadings	
Commitment scale (5-items)		
I expect my love for my current husband to last for the rest of my life	0.94	
I can't imagine ending my relationship with my current husband	0.92	
I view my relationship with my current husband as permanent	0.92	
I am committed to maintaining my relationship with my current husband	0.92	

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I have confidence in the stability of my relationship with my current husband	0.94	
Trust scale (8-items)		
My husband is primarily interested in his own welfare (R)	0.71	
There are times when my husband cannot be trusted (R)	0.68	
My husband is perfectly honest and truthful with me	0.94	
I feel I can trust my husband completely	0.95	
My husband is truly sincere in his promises	0.94	
I feel that my husband does not show me enough consideration(R)	0.82	
My husband treats me fairly and justly	0.95	
I feel that my husband can be counted on to help me	0.86	
Satisfaction scale (7-items)	**Factor 1**	**Factor 2**
Factor 1: Marital Conflict/Dissatisfaction (4 items)		
How often have you discussed divorce/separation? (R)	0.86	
How often do you/husband leave house after a fight? (R)	0.75	
Do you ever regret that you are married? (R)	0.84	
How often do you and your husband quarrel? (R)	0.74	
Factor 2: General Satisfaction (2 items)		
How often do you think that things between you and your husband are going well?	-	0.80
Do you confide in your husband?	-	0.91

Note: (R) = reverse-coded items. Dashes (-) indicate items not loading on that factor. One item ("get on each other's nerves") was dropped after EFA.

Table 5. Model fit statistics from confirmatory factor analysis (CFA) at 6-month follow-up data (n=192).

Factor structure	RMSEA	CFI	TLI	SRMR
Commitment scale (1 factor)	0.150	0.983	0.966	0.012
Trust scale (1 factor)	0.149	0.954	0.936	0.028
Satisfaction scale (1 factor)	0.257	0.794	0.691	0.084
Satisfaction scale (2 factors)	0.088	0.981	0.965	0.035

Note: Good model fit indicated by: RMSEA ≤ 0.08 (adequate fit ≤ 0.10), CFI ≥ 0.95, TLI ≥ 0.95, SRMR ≤ 0.10. Models meeting at least two criteria considered acceptable fit.

CFA results confirmed the factor structures identified in EFA. The **commitment scale** single-factor model demonstrated acceptable fit, with CFI (0.983), TLI (0.966), and SRMR (0.012) meeting criteria, though RMSEA (0.150) exceeded the preferred threshold. Similarly, the **trust scale** single-factor model showed acceptable fit based on CFI (0.954), TLI (0.936), and SRMR (0.028), despite elevated RMSEA (0.149). For the **satisfaction** scale, CFA tested both one-factor and two-factor models to confirm the EFA-derived structure. The two-factor model demonstrated superior fit (RMSEA = 0.088, CFI = 0.981, TLI = 0.965, SRMR = 0.035) compared to the one-factor model, which showed poor fit across all indices (RMSEA = 0.257, CFI = 0.794, TLI = 0.691, SRMR = 0.084).

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Based on our acceptance criteria (at least two of: RMSEA ≤ 0.08, CFI and TLI ≥ 0.95, SRMR ≤ 0.10), all final models demonstrated acceptable fit. The elevated RMSEA values for commitment and trust scales, while above ideal thresholds, are not uncommon in small-scale validation studies and do not preclude scale utility given the strong performance on other fit indices.

Inter-scale correlations demonstrated moderate to strong associations (r = 0.517-0.720), indicating that the constructs are theoretically related while remaining sufficiently distinct to measure different aspects of marital relationship quality (Table 6).

Table 6. Correlation analysis of scales to measure marital relationship quality using follow-up wave 2 data.

	Commitment	**Trust**	**General Satisfaction**	**Marital conflict and dissatisfaction**
Commitment	1.000			
Trust	0.613	1.000		
General Satisfaction	0.720	0.595	1.000	
Marital conflict and dissatisfaction	0.661	0.517	0.639	1.000

Note: All correlations significant at $p < 0.05$ level.

The correlation pattern supports the validity of the scales. The strongest correlation was between commitment and general satisfaction (r = 0.720), which aligns with theoretical expectations that committed individuals report higher relationship satisfaction. The moderate correlations between all constructs (r = 0.517-0.720) demonstrate convergent validity while remaining below 0.85, indicating that each scale captures distinct aspects of relationship quality rather than redundant constructs.

3.4. Criterion Validity

Criterion validity was assessed by correlating each scale score with the single-item relationship happiness measure at 6-month follow-up (n=192). All scales demonstrated significant positive correlations with relationship happiness, confirming criterion validity:

- **Commitment scale**: r = 0.67, $p < 0.001$
- **Trust scale**: r = 0.63, $p < 0.001$
- **General satisfaction subscale**: r = 0.70, $p < 0.001$
- **Marital conflict/dissatisfaction subscale**: r = 0.72, $p < 0.001$

These strong correlations (r = 0.63-0.72) indicate that higher scores on each relationship quality domain are associated with greater overall relationship happiness, supporting the criterion validity of all validated scales. Notably, the marital conflict/dissatisfaction subscale showed the strongest association with happiness, suggesting that the absence of conflict and dissatisfaction is particularly important for overall relationship happiness.

3.5. Reliability Assessment

Internal Consistency: All scales demonstrated good to excellent internal consistency at both timepoints. Cronbach's alpha values were: commitment scale $\alpha = 0.92$ (baseline) and 0.96 (6-month); trust scale $\alpha = 0.90$ (baseline) and 0.95 (6-month); general satisfaction subscale $\alpha = 0.83$ (baseline) and 0.84 (6-month); and marital conflict/dissatisfaction subscale $\alpha = 0.79$ (baseline) and 0.84 (6-month). All values exceeded the 0.70 threshold for acceptable reliability.

Test-Retest Reliability: Test-retest reliability over the 6-month period showed variable stability across scales: commitment scale r = 0.51 ($p < 0.001$, moderate reliability); trust scale r = 0.41 ($p < 0.001$,

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low-moderate reliability); marital conflict/dissatisfaction subscale r = 0.49 ($p < 0.001$, moderate reliability); and general satisfaction subscale r = 0.21 ($p < 0.05$, low reliability). The lower test-retest correlations may reflect genuine changes in relationship dynamics during the early stages of marriage rather than measurement instability.

4. Discussion

Our study successfully validated scales measuring trust, commitment, and satisfaction among newly married women in Nepal, addressing a critical gap in marital relationship quality measurement tools for South Asian populations. The validated measures, a 5-item commitment scale, 8-item trust scale, and 6-item satisfaction scale (comprising two subscales), demonstrated acceptable psychometric properties and provide researchers with reliable tools for relationship quality assessment in this cultural context.

All scales showed good internal consistency (α = 0.79-0.96) and significant criterion validity correlations with relationship happiness (r = 0.63-0.72). The commitment and trust scales replicated single-factor structures found in previous validation studies, including work in Ethiopia [39], suggesting these constructs may be relatively universal across cultures. However, the satisfaction scale's emergence as a two-factor structure, distinguishing marital conflict/dissatisfaction from general satisfaction, highlights important cultural nuances in how relationship satisfaction is conceptualized in the Nepali context.

The variable test-retest reliability over six months suggests the dynamic nature of newly formed marriages rather than measurement instability. In early marriage, particularly in arranged marriage contexts such as in Nepal, relationships undergo significant development as couples adjust to cohabitation with in-laws, negotiate roles, and build intimacy. The lower stability in trust and general satisfaction may capture genuine relationship evolution rather than psychometric weakness, supporting the scales' sensitivity to meaningful change.

These validated scales enable crucial research linking marital quality to health outcomes in South Asian populations. Given meta-analytic evidence demonstrating associations between marital quality and physical health, mental wellbeing, and mortality in Western populations, validated measurement tools are essential for examining these relationships in non-Western contexts where marriage patterns, gender roles, and family dynamics differ substantially.

Strengths and Limitations

This study employed rigorous psychometric methodology using two waves of data for EFA and CFA. The community-based recruitment from rural Terai provided representative data for a key demographic in Nepal, with excellent retention (96%) minimizing attrition bias. The comprehensive psychometric evaluation included factor structure, internal consistency, criterion validity, and test-retest reliability assessment.

Several limitations warrant consideration. First, the focus on three positive relationship dimensions (trust, commitment, satisfaction) provides only partial coverage of relationship quality. While the satisfaction scale includes a conflict/dissatisfaction subscale, future validation should incorporate additional negative dimensions such as conflict resolution difficulties, communication problems, and relationship distress that may be particularly relevant in arranged marriage contexts. Second, sample homogeneity limits generalizability. Validation was limited to newly married women aged 18-25 in rural Terai, excluding male perspectives, longer-term marriages, and other demographic groups. Getting inputs from women only prevents examination of dyadic relationship dynamics. Cultural specificity to the Terai region may limit applicability to other South Asian populations, and validity for non-heterosexual relationships, different marriage arrangements, or non-marital partnerships remains unknown. Third, methodological considerations include use of a single-item criterion validity measure and potential ceiling effects in some items due to social desirability or early marriage optimism.

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Future research should consider expanding these scales to include comprehensive negative relationship dimensions, validate across diverse South Asian populations and relationship types, and examine predictive validity for health outcomes. From a public health perspective, these tools enable research on marital factors influencing maternal and child health, women's mental health, and family health behaviors—crucial for developing evidence-based couple interventions in South Asian contexts.

5. Conclusions

This study provides psychometrically validated scales for measuring trust, commitment, and satisfaction among newly married women in Nepal, addressing a critical measurement gap in South Asian relationship research. The validated scales demonstrated acceptable reliability, validity, and model fit, establishing essential tools for investigating marriage-health associations in non-Western contexts.

These validated measures enable public health research examining how marital relationships influence maternal and child health outcomes, women's mental health, and family health behaviors in South Asian populations. This measurement foundation supports development of evidence-based, culturally-appropriate interventions in low- and middle-income countries. Future research should expand validation to include negative relationship dimensions and test cross-cultural applicability across diverse South Asian populations, relationship types, and collect dyadic data from both couple members.

Author Contributions: LG conceived and designed the study, conducted the statistical analyses, interpreted the results, and drafted and revised the manuscript. **NDS** supervised the overall study design, secured funding, oversaw data collection, provided critical input on the analytical approach, and reviewed the manuscript. **HL** contributed to the study design, provided expertise on psychometric methodology, assisted with interpretation of results, and reviewed and revised the manuscript. All authors approved the final version of the manuscript and agree to be accountable for all aspects of the work.

Competing interests: The authors declare that they have no competing interests.

Data Availability Statement: Data are available upon reasonable request. The data that support the findings of this study are available from the corresponding author, LG, upon reasonable request and with appropriate ethical permissions.

Patient and Public Involvement Patients and the public were not involved in the design, conduct, reporting, or dissemination planning of this psychometric validation study. The research questions and outcome measures were developed based on academic literature and theoretical frameworks rather than direct patient or community input. While local community leaders facilitated participant identification during recruitment, they were not involved in study design or methodology decisions.

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