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Comparison of the Effectiveness of Narrative Therapy for Internet Addiction and Cognitive-Behavioral Therapy on Social Anxiety and Rejection Sensitivity in Adolescent Girls with Symptoms of Internet Addiction

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A B S T R A C T

Objective: Internet addiction can create various problems for adolescents. Accordingly, the present study was conducted to compare the effectiveness of narrative therapy for internet addiction with cognitive-behavioral therapy on social anxiety and rejection sensitivity in adolescent girls with symptoms of internet addiction.

Methods and Materials: This research employed a quasi-experimental design with three phases: pre-test, post-test, and follow-up, including a control group. The statistical population consisted of all female students with symptoms of internet addiction in Lenjan County, Isfahan City, during the winter of 2025. From this population, 60 students were purposefully selected and assigned to three groups (20 participants in each group). The Social Anxiety Scale (Connor et al., 2000) and the Rejection Sensitivity Questionnaire (Downey & Feldman, 1996) were used to measure the dependent variables across the three phases. The two treatment groups each received eight sessions of therapy, lasting 75 to 95 minutes per session, while the control group did not receive any intervention. Data were analyzed using repeated measures ANOVA and Bonferroni post-hoc tests through SPSS version 26.

Findings: The results showed that, for social anxiety, there was a significant difference between the narrative therapy for internet addiction group and the cognitive-behavioral therapy for internet addiction group compared with the control group ($p < .01$). However, there was no significant difference in the effectiveness of the two therapies ($p > .01$). For the variable of rejection sensitivity, a significant difference was observed only between the cognitive-behavioral therapy for internet addiction group and the control group ($p < .01$). No significant difference was found between the effectiveness of the two treatments on rejection sensitivity ($p > .05$).

Conclusion: Given the effectiveness of both narrative therapy for internet addiction and cognitive-behavioral therapy in reducing social anxiety and rejection sensitivity, it is recommended that these two therapies be used in psychotherapy and counseling centers for adolescent girls with symptoms of internet addiction.

Keywords: *narrative therapy for internet addiction, cognitive-behavioral therapy, social anxiety, rejection sensitivity, adolescent girls*

1. Introduction

Internet use has become integral to adolescents' academic, social, and recreational lives, yet a substantial body of evidence indicates that a meaningful subset of teenagers develop maladaptive, compulsive patterns commonly described as internet addiction or problematic internet use—a syndrome associated with clinically significant distress and impairment across social, academic, and health domains (Cheng et al., 2025; Jin & Jiang, 2025). The epidemiological signal is strong and rising: a comprehensive meta-analysis of 164 studies in Chinese adolescents estimates notable prevalence levels with marked heterogeneity by assessment tool and region, underscoring both the magnitude of the problem and the measurement challenges that complicate surveillance and intervention planning (Zheng et al., 2025). In Iran, cross-sectional data similarly suggest that high school students are not exempt, with measurable rates of elevated risk that demand locally validated assessment and targeted prevention and treatment strategies (Hashemian et al., 2025). Pandemic-related disruptions and prolonged online engagement further amplified exposure and vulnerability patterns in many settings, and recent Southeast Asian evidence during Coronavirus disease restrictions illustrates how contextual stressors can intertwine with developmental factors to increase problematic use (Sangaran et al., 2024). Beyond simple prevalence counting, network-analytic work among college students reveals that internet addiction symptoms are embedded within broader constellations of affective and functional difficulties, with nodes related to quality of life occupying central positions—implicating transdiagnostic processes as potential therapeutic leverage points (Chen et al., 2025). Bibliometric mapping of the field over the last two decades confirms a rapid expansion of research themes from descriptive epidemiology to mechanism-focused and intervention-oriented lines, including cognitive-behavioral and narrative frameworks, and highlights the need for comparative trials that refine "what works for whom" with culturally sensitive implementation (Cheng et al., 2025).

Two psychosocial constructs repeatedly surface as particularly salient for adolescents with problematic internet use: social anxiety and rejection sensitivity. A systematic review and meta-analysis among adolescents and young adults demonstrates a robust association between problematic internet use and social anxiety, echoing clinical impressions that online contexts may function as avoidant safety behaviors for socially anxious youth while simultaneously reinforcing isolation and maintaining anxiety cycles (Ding et al., 2023). Longitudinal and path models extend this picture by identifying loneliness and coping styles as mediators linking social anxiety to internet addiction, suggesting that interpersonal withdrawal and maladaptive emotion regulation strategies are not mere correlates but active conduits of risk (Dong et al., 2024). Work from sub-Saharan Africa indicates that family functioning can moderate the social anxiety–internet addiction link, underscoring how family systems variables shape adolescents' trajectories of digital engagement and distress (Nwufo et al., 2022). The family–peer nexus appears again in studies showing that parental rejection and psychological control are significant risks for excessive internet use, dovetailing with rejection sensitivity models in which perceived interpersonal threat amplifies online dependency as a compensatory strategy (Tao et al., 2022; Tom et al., 2023). Mechanistically, rejection sensitivity has been shown to mediate the pathway between interparental conflict and adolescent internet addiction—with school connectedness acting as a buffering moderator—supporting school-based and relationally oriented interventions alongside individual therapy (Tao et al., 2022). In adolescents, rejection sensitivity itself is linked to problematic internet behaviors and may be intertwined with emerging personality pathology, implying that interventions must attend to hypersensitive interpersonal schemas as both targets and maintaining factors (Fontana et al., 2018). At the same time, broader psychosocial outcomes—such as happiness and well-being—are inversely related to social anxiety and internet addiction in school-based samples, suggesting that treatment gains may translate into positive mental health rather than merely symptom reduction (Yilmaz et al., 2025).

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Convergent neurocognitive evidence lends further plausibility to these clinical associations. Event-related potential work in individuals with elevated internet addiction scores reveals alterations in emotion recognition processes, potentially contributing to misinterpretations in social exchanges, heightened perceived threat, and compensatory retreat to online environments (Arafat et al., 2025). Such findings align with theoretical integrations that frame adolescent internet addiction as a multilevel phenomenon spanning individual cognitive-affective biases, interpersonal contingencies, and macrosystem forces, and call for treatment packages that can flexibly address narrative identity, schema-level vulnerabilities, and behavioral regulation in tandem (Jin & Jiang, 2025). Historically, early Iranian and regional observations highlighted loneliness as a pivotal correlate of problematic internet use, a theme that remains conspicuous in contemporary mediation models and continues to justify therapeutic attention to social connection and belonging (Zarbakhsh Bahri et al., 2012). Sex and gender patterns have also been discussed, with earlier university-based research in Tehran noting differences in internet addiction status between men and women; while not directly generalizable to mid-adolescence, such patterns reinforce the need for sex-sensitive sampling and analysis in intervention trials (Hosseini Beheshtian, 2011).

Against this background, cognitive-behavioral therapy (CBT) has emerged as a leading evidence-based approach for problematic internet use and gaming-related disorders in youth. Cluster-randomized clinical data demonstrate that CBT-based school interventions can prevent gaming disorder and unspecified internet use disorder, indicating that structured cognitive and behavioral skills training can be effective even before full syndromal presentations consolidate (Lindenberg et al., 2022). Meta-analytic syntheses spanning East Asian programs show meaningful benefits of group counseling, CBT, and even adjunctive sports interventions on internet addiction outcomes, suggesting that multiple pathways to change—from cognitive restructuring to behavioral activation—are viable and potentially synergistic (Liu et al., 2017). Clinical trials and practice-based studies echo these findings, with group CBT improving depression and anxiety among adolescents with problematic internet use, and therapist thematic analyses documenting how CBT targets cue reactivity, cognitive distortions, and avoidance cycles in internet addiction treatment (Kim et al., 2018; van Rooij et al., 2010). More recently, CBT has been associated with reductions in internet addiction and common comorbidities in university and professional student samples, reinforcing its cross-context applicability (Ksiksou et al., 2023). A contemporary meta-analysis focused on internet gaming disorder confirms that CBT produces significant improvements in addictive symptoms, though heterogeneity in protocols and moderators points to the value of adjunctive or alternative modalities for specific profiles, such as socially anxious, rejection-sensitive adolescents (Reangsing et al., 2025).

Narrative therapy offers a complementary lens by centering identity, meaning-making, and the re-authoring of "problem-saturated" stories—processes that may directly engage the interpersonal schemas and hypersensitive threat appraisals characteristic of social anxiety and rejection sensitivity. Conceptual reviews on narrative identity in addictive disorders argue that the addiction narrative frequently colonizes personal identity, narrowing perceived possibilities for action and foreclosing adaptive social participation; therapeutic externalization and the construction of alternative, agentic plots are hypothesized to weaken the grip of the addictive identity (Deriu et al., 2024). Empirically, narrative therapy–based group counseling for adolescents has reduced internet addiction symptoms in school settings, highlighting feasibility and acceptability for youth populations (Gong et al., 2022). Regionally, narrative therapy has improved social anxiety and self-esteem among female middle-school students, aligning with its focus on transforming self-stories in interpersonal contexts (Ghavamie et al., 2014). Among adults with stimulant use disorders, randomized clinical data show benefits for depression, anxiety, and quality of life, providing transdiagnostic support for narrative mechanisms of change that may generalize to behavioral addictions (Shakeri et al., 2020). Narrative frameworks have also been adapted to expressive arts groups for adolescents with eating disorders, again emphasizing identity reconstruction and relational agency—mechanisms plausibly germane to socially anxious, rejection-sensitive youth with problematic internet use (Horton & Everett, 2023). In an Iranian adolescent sample, narrative therapy improved emotion regulation and reflective functioning, which are theoretically proximal to both social anxiety amelioration and reduced sensitivity to interpersonal threat, and thus relevant to the present study's outcomes (Dafian & Yousefi, 2024). Complementary comparative work shows that positive psychology–based therapy and CBT can both reduce internet addiction and risky behaviors, suggesting that multiple strengths-based or skills-based frameworks can be therapeutic; positioning

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narrative therapy within this evolving comparative landscape is therefore timely (Rousta et al., 2024).

The specific selection of social anxiety and rejection sensitivity as primary outcomes in the present trial is grounded in converging evidence that these constructs are both central correlates and plausible mechanisms in adolescent problematic internet use. In adolescents and young adults, social anxiety not only co-occurs with internet addiction but, through loneliness and coping patterns, may precipitate and maintain compulsive online engagement (Ding et al., 2023; Dong et al., 2024). Rejection sensitivity, in turn, has been implicated in the interpersonal pathway to problematic internet use—amplified by family conflict and mitigated by school connectedness—thus offering a precise, socially embedded target for intervention (Tao et al., 2022). Personality-linked facets of rejection sensitivity may further heighten risk by biasing threat detection and feedback processing in peer contexts (Fontana et al., 2018). Importantly, adolescent studies from different cultural settings consistently document that higher social anxiety and rejection-laden family dynamics are associated with greater problematic internet use, indicating cross-cultural resonance with local relevance (Nwufo et al., 2022; Tom et al., 2023). The present study therefore compares two theoretically distinct yet potentially complementary treatments—narrative therapy and CBT—on these outcomes in adolescent girls manifesting elevated internet addiction symptoms.

From a methodological standpoint, rigorous quasi-experimental and experimental designs in adolescent school settings must balance internal validity with feasibility, including careful sampling, ethical safeguards, and attention to measurement intervals and follow-up—considerations emphasized in standard research methods texts relevant to educational and psychological sciences (Gall et al., 2014). The present study follows these principles while situating its hypotheses within contemporary theory and evidence. Specifically, we anticipate that both CBT and narrative therapy will reduce social anxiety through distinct yet overlapping pathways: CBT by restructuring maladaptive cognitions, reducing avoidance, and building behavioral competencies; narrative therapy by externalizing the problem, re-authoring identity, and strengthening agentic, socially engaged self-plots.

2. Methods and Materials

2.1. Study Design and Participants

The present study was a three-group quasi-experimental design including a narrative therapy group for internet addiction, a cognitive-behavioral therapy group, and a control group, conducted in three stages: pre-test, post-test, and two-month follow-up. The statistical population included all female students in lower and upper secondary schools of Lenjan County in Isfahan City during the winter of 2025, who scored between 40–69 on the Internet Addiction Questionnaire (Young, 1998). Sixty female students with symptoms of internet addiction from the statistical population were purposefully selected based on inclusion criteria, with 20 participants in each group, and then randomly assigned to three groups using simple randomization (lottery method). Selecting 20 participants for each group followed the recommendation of a minimum of 15 participants per group in experimental studies (Gall et al., 1996/2014).

The inclusion criteria consisted of obtaining written informed consent from the participating girls and their parents, willingness to participate in the study, acceptance and commitment to group therapy principles and rules, absence of chronic psychological disorders such as bipolar disorder or schizophrenia, and not being under psychiatric treatment. The exclusion criteria included lack of cooperation or unwillingness to continue participation in training sessions, failure to complete assignments, and absence from two or more therapy sessions. Ethical principles such as confidentiality, using data solely for research purposes, the full freedom of participants to continue or withdraw from participation, providing participants with accurate information upon request, and offering training to the control group after the completion of both experimental groups' training were observed.

After random assignment of participants into the three groups (two experimental and one control), adolescent girls with symptoms of internet addiction completed the Social Phobia Inventory and Rejection Sensitivity Questionnaire at the pre-test stage. Following this, the two therapy groups participated in their respective group therapy programs at a school. After the intervention, all three groups completed the post-test measures, and again two months later during follow-up. The narrative therapy for internet addiction and the cognitive-behavioral therapy were each delivered in eight weekly group sessions of 75 to 95 minutes, conducted by a therapist with more than 10 years of experience in psychotherapy and psychoeducation. The control group

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received no intervention until the completion of both experimental treatments.

The narrative therapy package for internet addiction was developed for the first time in this study and used after initial validation. The package development process began with a deductive thematic network analysis of literature and theoretical frameworks, based on the Attride-Stirling (2001) approach. Basic and organizing categories related to themes and therapeutic techniques specific to narrative therapy and internet addiction, especially for adolescents, were extracted. At this stage, the Content Validity Ratio (CVR), calculated by three independent coders, was equal to 1. Subsequently, therapeutic techniques for each theme were extracted using conventional content analysis. A panel of six expert psychologists with more than 10 years of experience in education and therapy determined the sequence and integration of techniques across the eight sessions. The initial package was then reviewed by six psychology experts, and after revisions, the overall agreement coefficient was .918. Following expert approval, a pilot study was conducted with eight adolescent girls with symptoms of internet addiction, which confirmed the preliminary effectiveness and validity of the designed package. The cognitive-behavioral therapy group was treated using Young's (2007) therapeutic package for internet addiction, which had already been tested for effectiveness in Iran by Pourrosta et al. (2025).

2.2. Measures

Social Phobia Inventory (SPIN): To measure social anxiety, the Connor et al. (2000) questionnaire, which consists of 17 items, was used. The clinical implications of this questionnaire indicate that it provides information across three domains: clinical symptoms of fear, avoidance, and physiological symptoms. Its advantages are brevity, simplicity, and ease of scoring. Each item is rated on a 5-point Likert scale (0 = not at all, 1 = a little, 2 = somewhat, 3 = very much, 4 = extremely). The total score ranges from 0 to 68, with higher scores indicating higher levels of social anxiety. The Social Phobia Inventory has demonstrated high reliability and validity. Test–retest reliability among groups diagnosed with social anxiety disorder ranged from .78 to .89, and internal consistency (Cronbach's alpha) in a normative group was reported as .94. Construct validity was confirmed by comparing the results between individuals diagnosed with social anxiety disorder and healthy individuals without psychiatric diagnoses (Connor et al., 2000). This questionnaire has also been examined for reliability and validity in other countries. For example, in the study of Hasanvand Amouzadeh (2016) in Iran on university students, reliability coefficients using Cronbach's alpha, Spearman-Brown, and test–retest were reported as .97, .97, and .82 ($p < .001$), respectively. Convergent and divergent validity were supported by significant correlations between scores on this questionnaire and scores on the phobia subscale of the Symptom Checklist-90-Revised (SCL-90-R), the Cognitive Error Questionnaire, the Self-Esteem Rating Scale, and the Body Image Questionnaire ($r = .47$, $r = .83$, $r = –.70$, and $r = .44$, respectively). In the present study, Cronbach's alpha for this questionnaire was calculated at .90.

Rejection Sensitivity Questionnaire: To measure rejection sensitivity, the questionnaire developed by Downey and Feldman (1996), consisting of 18 two-part items (A and B), was used. In part "A" of each item, the level of anxiety experienced in the situation described is rated, while in part "B" the perceived likelihood of receiving a positive response from others is evaluated. For part A, responses are rated on a 6-point scale from 1 (not concerned at all) to 6 (very concerned), with scores ranging from 18 to 108. Higher scores indicate greater anxiety related to rejection. For part B, responses are rated on a 6-point scale from 1 (very unlikely) to 6 (very likely), with scores also ranging from 18 to 108. Higher scores on part B indicate a greater likelihood of expecting positive responses. The total rejection sensitivity score is calculated by averaging the two parts. Downey and Feldman (1996), using exploratory factor analysis, confirmed the construct validity of the questionnaire as a single-factor model and showed its predictive validity by demonstrating its ability to predict anxiety, depression, and anger. They reported a Cronbach's alpha of .83 and a test–retest reliability of .83 over a three-week interval with a sample of 104 participants ($p < .01$). In Iran, Khoshkam et al. (2014) examined a version of this questionnaire on Iranian students. Both exploratory and confirmatory factor analyses supported a two-factor solution. Convergent and divergent validity were demonstrated by significant correlations between rejection sensitivity and worry (positive) and self-esteem (negative). Cronbach's alpha was reported as .84 (Khoshkam et al., 2014). In the present study, Cronbach's alpha for the whole questionnaire was .85.

Young's Internet Addiction Questionnaire (YIAQ): This questionnaire was used to identify eligible students for participation in the study and interviews, based on the

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diagnostic criteria of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR). To measure symptoms of internet addiction in adolescents, the 20-item questionnaire developed by Young (1998) was employed. Items are rated on a 5-point scale ranging from 1 (rarely) to 5 (always). Scores range from 20 to 100, with 20–39 indicating mild dependence, 40–69 indicating moderate dependence, and 70–100 indicating severe dependence (Zarbakhsh Bahri et al., 2012; Young, 1998). In this study, to prevent regression effects, a score of 40–69 was considered the minimum inclusion criterion. In Young's (1998) original and follow-up studies, evidence of validity was provided by distinguishing between high-symptom individuals (addicts) and non-addicts. Other studies, such as Widyantho and McMurran (2004), also assessed its validity and reliability. Widyantho and McMurran (2004) reported construct validity through exploratory factor analysis and identified a six-factor solution. Predictive validity was demonstrated by significant positive correlations between total scores and duration of internet use. Cronbach's alpha was reported in the range of .54 to .82. In Iran, Alavi et al. (2010) evaluated the validity and reliability of this questionnaire among university students. Construct validity was supported by exploratory factor analysis with a five-factor solution. Convergent validity was supported by a significant correlation of .50 between scores on the questionnaire and Young's Diagnostic Questionnaire (based on DSM criteria). Content validity was also confirmed by 10 psychiatrists. Split-half reliability was .72, and test–retest reliability with a sample of 40 participants over a two-to-four-week interval was .82. The cut-off score for the Iranian population was reported as 46 (Alavi et al., 2010). In the present study, Cronbach's alpha for the whole questionnaire was .88.

2.3. Interventions

The narrative therapy protocol for internet addiction was conducted over eight weekly sessions, each lasting 75–95 minutes, and designed specifically for adolescents. The first session included introductions, establishing therapeutic goals, conducting the pre-test, presenting the structure and objectives of the course, teaching recognition of internet addiction symptoms, focusing on the "problem-saturated story" of internet addiction, and preparing for externalization of the problem. The second session continued teaching externalization by encouraging participants to view internet addiction as a separate issue and began re-authoring narratives of personal strengths. The third session reinforced re-authoring of strengths, promoted the construction of an empowered self-narrative, and introduced the use of metaphors for strengthening this new identity. The fourth session focused on re-authoring secondary problems and barriers, with practices of externalizing these issues within new narratives and incorporating mindfulness into the externalization process. The fifth session expanded re-authoring skills by guiding participants to construct alternative narratives based on new experiences. The sixth session continued developing alternative life narratives, emphasizing stabilization and integration of these new experiences into participants' stories. The seventh session taught re-authoring of social ties and relationships within these new life narratives, building supportive networks, and using metaphors to promote healthier interpersonal connections. Finally, the eighth session consolidated re-authoring of relationships, deepened integration of supportive ties within new narratives, reviewed therapeutic progress, conducted the post-test, and coordinated follow-up assessment to be carried out two months later.

The cognitive-behavioral therapy protocol for internet addiction (Young, 2007) was implemented across eight weekly sessions of 75–95 minutes. In the first session, participants were welcomed, introduced to the cognitive model, informed about the treatment framework, roles, responsibilities, and group rules, and taught the ABC model of cognitive-behavioral analysis. The second session explained the relationship between the cognitive model and internet dependency, introduced triggers leading to problematic internet use, and applied functional behavioral analysis to identify these triggers. The third session focused on cravings and strategies to manage them through behavioral, cognitive, and lifestyle techniques, including craving exposure to identify conditions that elicit cravings. The fourth session introduced Jacobson's progressive muscle relaxation, supported by an audio file for at-home practice at least three times per week. The fifth session emphasized logical analysis of thoughts through methods such as addressing doubt and ambivalence, Socratic questioning, daily thought records, attentional refocusing, and pros-and-cons analysis. The sixth session trained problem-solving skills, including identifying problems, generating multiple solutions, evaluating alternatives, selecting and implementing the best solution, and assessing outcomes with flexibility to try new strategies if needed. The seventh session addressed cognitive distortions by teaching recognition of distorted thinking patterns and strategies to

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counter them, with emphasis on their role in maintaining internet addiction. The eighth and final session focused on behavioral activation, planning activities, and managing comorbid depression and anxiety, followed by a review of all techniques taught, administration of the post-test, and coordination for two-month follow-up.

2.4. Data Analysis

For statistical analysis, assumptions were tested, including normality using the Shapiro–Wilk test, equality of error variances using Levene's test, equality of variance–covariance matrices using Box's M test, and sphericity using Mauchly's test. Descriptive statistics (mean and standard deviation) were calculated, followed by repeated measures ANOVA and Bonferroni post-hoc tests. Data were analyzed using SPSS version 26. The acceptable significance level for this study was set between $p < .05$ and $p < .001$.

3. Findings and Results

The three study groups were compared in terms of age, mother's education, mother's age, and number of children using the chi-square test. The results of the analysis of demographic variables are presented in Table 1.

Table 1

Comparison of the frequencies of the study groups on demographic variables

Variable and levels	Narrative therapy for internet addiction Frequency (%)	Cognitive-behavioral therapy for internet addiction Frequency (%)	Control group Frequency (%)	Chi-square (p-value)
Age				6.24 (p > .05)
13–14 years	3 (15)	1 (5)	0 (0)	
15 years	10 (50)	9 (45)	11 (55)	
16–17 years	7 (35)	10 (50)	9 (45)	
Mother's education				0.80 (p > .05)
Up to diploma	2 (10)	3 (15)	3 (15)	
Associate/Bachelor's	13 (65)	13 (65)	14 (70)	
Master's/Doctorate	5 (25)	4 (20)	3 (15)	
Mother's age				1.28 (p > .05)
Up to diploma*	2 (10)	3 (15)	3 (15)	
Associate/Bachelor's*	13 (65)	13 (65)	14 (70)	
Master's/Doctorate*	5 (25)	4 (20)	3 (15)	
Number of children				3.91 (p > .05)
One child	2 (10)	2 (10)	3 (15)	
Two children	16 (80)	17 (85)	15 (75)	
Three or more	2 (10)	1 (5)	2 (10)	

As shown in Table 1, there were no significant differences among the three study groups on the demographic variables. Table 2 presents the means and standard deviations of social anxiety and rejection sensitivity by group across the pre-test, post-test, and follow-up phases.

Table 2

Means and standard deviations of social anxiety and rejection sensitivity in the study groups across three time points

Variable	Time	Narrative therapy for internet addiction Mean	SD	Cognitive-behavioral therapy for internet addiction Mean	SD	Control group Mean	SD
Social anxiety	Pre-test	53.40	4.76	52.65	5.90	55.90	4.39
	Post-test	45.45	5.36	44.90	11.75	54.80	4.25
	Follow-up	44.10	5.57	43.45	11.60	54.80	4.95
Rejection sensitivity	Pre-test	61.90	4.63	58.70	3.63	58.50	4.11
	Post-test	54.30	4.46	51.50	4.06	57.65	4.43
	Follow-up	50.10	12.25	50.40	4.17	57.05	

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According to the results of the mixed ANOVA in Table 2, the main effect of time of assessment and the interaction effect of group × time of assessment on all dependent variables were significant, which will be reviewed in sequence. As reported in Table 7, the main effect of time of assessment was significant for all dependent variables. This means that the scores of personality traits of all participants in the intervention group in the post-test and follow-up differed significantly compared to the pre-test.

As shown in Table 4, the mean levels of social anxiety and rejection sensitivity indicate that the two intervention groups—narrative therapy for internet addiction and cognitive-behavioral therapy for internet addiction—exhibited greater changes at post-test and follow-up compared with the control group. Prior to conducting the repeated measures ANOVA, Shapiro–Wilk tests for social anxiety and rejection sensitivity indicated that both variables were normally distributed ($p \geq .05$), and Levene's tests indicated equality of error variances across groups for both variables ($p \geq .05$). Box's M tests for social anxiety and rejection sensitivity also indicated equality of variance–covariance matrices ($p \geq .05$). Mauchly's tests of sphericity for both social anxiety and rejection sensitivity were significant, indicating that the sphericity assumption was violated. Accordingly, based on epsilon corrections for the degrees of freedom of the time factor and the time × group interaction, results are reported using the Greenhouse–Geisser statistic. Table 3 presents the results of the repeated measures ANOVA for social anxiety and rejection sensitivity.

Table 3

Results of repeated measures ANOVA for social anxiety and rejection sensitivity

Variable	Source	Sum of squares	df	Mean square	F	Sig.	Partial η^2	Power
Social anxiety	Within-subjects							
	Time	1498.31	1.65	907.50	40.06	.001	.41	1.00
	Time × Group	506.62	3.30	153.43	6.77	.001	.19	.98
	Error (Time)	2131.73	94.11	22.65	—	—	—	—
	Between-subjects							
	Group	2472.34	2	1236.17	10.92	.001	.28	.99
	Error	6453.32	57	113.22	—	—	—	—
Rejection sensitivity	Within-subjects							
	Time	1653.53	1.12	1480.90	50.09	.001	.47	1.00
	Time × Group	611.47	2.23	273.80	9.26	.001	.24	.98
	Error (Time)	1881.57	63.64	29.56	—	—	—	—
	Between-subjects							
	Group	530.80	2	265.40	4.07	.02	.12	.70
	Error	3718.73	57	65.24	—	—	—	—

For the variable of social anxiety, as shown in Table 3, in the within-subjects effects, the main effect of time ($F = 40.06$, $df = 1.65$, $p < .01$) and the time × group interaction ($F = 6.77$, $df = 3.30$, $p < .01$) indicate that social anxiety differed significantly over time and by the interaction of time with group (the three study groups) ($p < .01$). The partial eta squared for the time factor was .41 with statistical power of 1.00, and for the time × group interaction it was .19 with statistical power of .98. This result indicates that 41% and 19% of the variance in social anxiety, respectively, were attributable to the manipulation of the independent variable (one of the two packages: narrative therapy for internet addiction or cognitive-behavioral therapy), confirmed with 100% and 98% power. In addition, as shown in Table 4-21 in the between-subjects effects ($F = 10.92$, $df = 2$, $p < .01$), there was a significant difference among groups in social anxiety ($p < .01$). The partial eta squared for group was .28 with statistical power of 1.00, meaning that, with 100% power, the ANOVA detected a significant difference (at least between one of the experimental groups—narrative therapy for internet addiction or cognitive-behavioral therapy—and the other or the control group) accounting for 28% of the variance in social anxiety.

As shown for rejection sensitivity in Table 3, in the within-subjects effects, the main effect of time ($F = 50.09$, $df = 1.12$, $p < .01$) and the time × group interaction ($F = 9.26$, $df = 3.60$, $p < .01$) indicate that rejection sensitivity differed significantly over time and by the interaction of time with group (the three study groups) ($p < .01$). The partial eta squared for the time factor was .47 with statistical power of 1.00, and for the time × group interaction it was .24 with statistical power of 1.00 and .98. This result indicates that

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47% and 24% of the variance in rejection sensitivity, respectively, were attributable to the manipulation of the independent variable (one of the two packages: narrative therapy for internet addiction or cognitive-behavioral therapy), confirmed with 100% and 98% power. In addition, as shown in Table 4-29 in the between-subjects effects ($F = 4.07$, $df = 2$, $p < .01$), there was a significant difference among groups in rejection sensitivity ($p < .01$). The partial eta squared for group was .12 with statistical power of .70, indicating that, with 70% power, the ANOVA detected a significant difference (at least between one of the experimental groups—narrative therapy for internet addiction or cognitive-behavioral therapy—and the other or the control group) accounting for 12% of the variance in rejection sensitivity. To determine the differences across time points and possible differences among groups, Bonferroni post-hoc tests were conducted. The Bonferroni results for social anxiety and rejection sensitivity are presented in Table 4.

Table 4

Bonferroni post-hoc test results for comparisons of time and groups in social anxiety and rejection sensitivity

Variable	Factor	Row	Reference level	Comparison level	Mean difference	SE	Sig.
Social anxiety	Time	1	Pre-test	Post-test	5.60	0.68	.001
		2	Pre-test	Follow-up	6.53	0.71	.001
		3	Post-test	Follow-up	0.93	0.95	.99
	Group	4	Narrative therapy for internet addiction	Cognitive-behavioral therapy	0.65	1.94	1.00
		5	Narrative therapy for internet addiction	Control	−7.52	1.94	.001
		6	Cognitive-behavioral therapy	Control	−8.18	1.94	.001
Rejection sensitivity	Time	1	Pre-test	Post-test	5.22	0.25	.001
		2	Pre-test	Follow-up	7.18	0.90	.001
		3	Post-test	Follow-up	1.97	0.88	.09
	Group	4	Narrative therapy for internet addiction	Cognitive-behavioral therapy	1.90	1.47	.61
		5	Narrative therapy for internet addiction	Control	−2.30	1.47	.37
		6	Cognitive-behavioral therapy	Control	−4.20	1.47	.018

As shown in Table 4 for social anxiety, there were significant differences between pre-test and post-test, pre-test and follow-up, and post-test and follow-up. This indicates that from pre-test to post-test and follow-up—and also from post-test to follow-up—social anxiety decreased. At the group level for social anxiety, there were significant differences between the narrative therapy for internet addiction and cognitive-behavioral therapy groups compared with the control group ($p < .01$); however, there was no significant difference between the effectiveness of narrative therapy for internet addiction and cognitive-behavioral therapy on social anxiety ($p > .01$). For rejection sensitivity, there were significant differences between pre-test and post-test and between pre-test and follow-up, but no significant difference between post-test and follow-up. This indicates that the changes in rejection sensitivity from pre-test to post-test and to follow-up were significant, whereas the change from post-test to follow-up was not significant. At the group level, only the cognitive-behavioral therapy group differed significantly from the control group ($p < .01$), and there was no significant difference between the effectiveness of narrative therapy for internet addiction and cognitive-behavioral therapy on rejection sensitivity ($p > .01$).

4. Discussion and Conclusion

The present study compared the effectiveness of narrative therapy and cognitive-behavioral therapy (CBT) on social anxiety and rejection sensitivity among adolescent girls with symptoms of internet addiction. The results demonstrated that both interventions significantly reduced social anxiety compared to the control group, with no meaningful difference in the magnitude of improvement between narrative therapy and CBT. For rejection sensitivity, only CBT showed a significant effect compared to the control group, while narrative therapy produced observable though statistically non-significant improvements. These findings contribute to the growing evidence base regarding interventions for problematic internet use, specifically highlighting both the potential and limitations of narrative approaches alongside established CBT protocols.

The observed reduction in social anxiety across both treatment modalities is consistent with prior literature that positions social anxiety as a key mechanism in the

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maintenance of problematic internet use. A systematic review and meta-analysis among adolescents and young adults confirmed a strong association between problematic internet use and social anxiety (Ding et al., 2023), while further evidence demonstrates that loneliness and maladaptive coping styles serve as mediators in this relationship (Dong et al., 2024). Our findings align with these conceptualizations, as both narrative therapy and CBT provided adolescents with structured opportunities to externalize and reframe internet-related behaviors, thereby reducing avoidance patterns and anxiety in offline social interactions. This is further reinforced by studies indicating that family dynamics and functioning modulate the strength of the relationship between social anxiety and internet addiction (Nwufo et al., 2022). By reducing internalized narratives of inadequacy (in the narrative therapy condition) and restructuring maladaptive cognitions (in the CBT condition), the two interventions converged on similar outcomes with respect to social anxiety.

The non-significant difference between narrative therapy and CBT for social anxiety is noteworthy. Previous comparative research has also suggested that various psychosocial interventions may yield similar efficacy levels for internet addiction–related problems, albeit through different mechanisms. For instance, a study comparing positive psychology–based therapy and CBT found both approaches effective in reducing internet addiction and risky behaviors (Rousta et al., 2024). Similarly, Gong and colleagues (Gong et al., 2022) demonstrated that narrative therapy–based group counseling effectively reduced internet addiction among adolescents. These findings echo our results, suggesting that narrative re-authoring and cognitive-behavioral restructuring may operate through different yet complementary pathways, ultimately converging on reduced social anxiety symptoms. In narrative therapy, externalizing the problem and reconstructing an empowered identity can help adolescents reinterpret interpersonal challenges and diminish avoidance (Deriu et al., 2024), while CBT operates by correcting distorted cognitions and strengthening coping skills (van Rooij et al., 2010). Both strategies, therefore, hold promise for addressing the interplay between social anxiety and internet use behaviors.

The differential results observed in rejection sensitivity highlight an important nuance. Our study found that CBT significantly reduced rejection sensitivity relative to the control group, whereas narrative therapy produced non-significant changes. These findings are partially aligned with prior research emphasizing the cognitive underpinnings of rejection sensitivity. Cognitive distortions, attentional biases toward threat, and maladaptive interpretative styles have all been linked to heightened rejection sensitivity in adolescence (Fontana et al., 2018; Tao et al., 2022). By directly challenging and restructuring maladaptive schemas, CBT may more effectively target the mechanisms underlying rejection sensitivity. Indeed, meta-analytic findings confirm that CBT significantly improves addictive symptoms and associated psychosocial vulnerabilities in internet gaming disorders (Reangsing et al., 2025). Our results reinforce these observations, suggesting that CBT may be particularly well-suited for adolescents who demonstrate pronounced rejection sensitivity.

In contrast, narrative therapy may indirectly influence rejection sensitivity through identity reconstruction and meaning-making rather than directly altering cognitive distortions. Although our study did not detect statistically significant improvements in rejection sensitivity through narrative therapy, previous evidence indicates that narrative approaches can positively affect interpersonal schemas and reflective functioning. For example, Dafian and Yousefi (Dafian & Yousefi, 2024) found that narrative therapy enhanced emotional regulation and reflective functioning among adolescent girls, while Ghavamie and colleagues (Ghavamie et al., 2014) reported improvements in self-esteem and social anxiety in female middle-school students. Moreover, narrative therapy has demonstrated efficacy in populations with substance addictions, where identity narratives are often colonized by the problem (Shakeri et al., 2020). Taken together, these findings suggest that narrative therapy has potential for indirectly influencing rejection sensitivity, though more intensive or longer-term interventions may be required for measurable effects.

Our results also fit within broader epidemiological and theoretical frameworks of internet addiction. The global prevalence of adolescent internet addiction has been shown to vary widely, with a recent meta-analysis of Chinese adolescents confirming alarmingly high levels (Zheng et al., 2025). Iranian adolescents face similar challenges, with local studies indicating notable prevalence rates (Hashemian et al., 2025). This ubiquity underscores the importance of interventions that address not only symptomatic reduction but also underlying vulnerabilities such as social anxiety and rejection sensitivity. Theoretical reviews of adolescent internet addiction emphasize its multifactorial nature, including cognitive, emotional, and interpersonal dimensions (Jin & Jiang, 2025). Our findings contribute to this literature by demonstrating that while both CBT and

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narrative therapy can effectively address the emotional dimension of social anxiety, CBT may more directly target interpersonal hypersensitivity rooted in cognitive schemas.

The role of rejection and family relationships in internet addiction provides further explanatory context for our findings. Tom and colleagues (Tom et al., 2023) highlighted that parental rejection and control constitute risk factors for excessive internet use among adolescents, while Tao et al. (Tao et al., 2022) identified rejection sensitivity as a mediator between interparental conflict and adolescent internet addiction. These findings situate rejection sensitivity as a core interpersonal mechanism that links family context to maladaptive digital behaviors. Thus, interventions that directly alter rejection-based cognitions, such as CBT, may be more likely to yield observable improvements, as observed in our study. Conversely, narrative therapy may require explicit integration of family-based or systemic narrative practices to produce comparable effects on rejection sensitivity.

Our results are further supported by evidence from neurocognitive and psychosocial research. Neuroimaging work has documented alterations in emotion recognition processes among individuals with elevated internet addiction scores, indicating disruptions in social cognition that may contribute to interpersonal hypersensitivity and avoidance (Arafat et al., 2025). By teaching adolescents to reframe social situations and externalize problems, both CBT and narrative therapy may mitigate the misinterpretations underlying social anxiety. Furthermore, psychosocial studies confirm that internet addiction is intricately linked with quality of life outcomes (Chen et al., 2025), which suggests that reductions in social anxiety and rejection sensitivity through therapy may carry downstream benefits for adolescents' overall functioning.

From a treatment perspective, our findings resonate with broader intervention studies. Lindenberg and colleagues (Lindenberg et al., 2022) showed that CBT-based school interventions prevented gaming disorder and problematic internet use, while Kim et al. (Kim et al., 2018) demonstrated that group CBT reduced depression and anxiety in adolescents with problematic internet use. Similarly, Ksiksou et al. (Ksiksou et al., 2023) found CBT to be effective in reducing internet addiction and comorbid distress in nursing students. On the other hand, Gong et al. (Gong et al., 2022) and Horton and Everett (Horton & Everett, 2023) illustrated that narrative therapy can be beneficial for adolescents, particularly in enhancing self-concept and expressive identity. Collectively, these studies align with our findings by indicating that while CBT is highly effective for cognitive and emotional vulnerabilities such as rejection sensitivity, narrative therapy remains a promising complementary approach for identity-related dimensions of internet addiction.

Another relevant implication lies in cultural and contextual factors. Studies have consistently emphasized that family functioning, school connectedness, and peer relationships shape the manifestation and consequences of internet addiction in adolescents (Nwufo et al., 2022; Tao et al., 2022). Our focus on adolescent girls is important, given previous Iranian research demonstrating differential patterns of internet addiction by gender (Hosseini Beheshtian, 2011). The incorporation of both CBT and narrative therapy may allow culturally sensitive tailoring: CBT can directly address maladaptive cognitions in highly rejection-sensitive adolescents, while narrative therapy can align with collectivist and identity-focused cultural narratives, potentially strengthening therapeutic engagement and long-term adherence.

5. Limitations & Suggestions

Despite its contributions, this study has several limitations. First, the quasi-experimental design, while rigorous in its pre-test, post-test, and follow-up measurements, does not provide the same causal certainty as randomized controlled trials. Second, the relatively small sample size of 60 participants limits the generalizability of the findings and raises concerns regarding statistical power for detecting smaller effect sizes, particularly for rejection sensitivity. Third, the focus on adolescent girls in one geographic location (Lenjan County, Isfahan) restricts external validity across genders, cultures, and educational settings. Fourth, self-report questionnaires, although validated, are subject to biases such as social desirability and limited introspective access. Fifth, the narrative therapy package was newly developed and tested for the first time, which raises questions about treatment fidelity and the comparability of therapist expertise across modalities. Finally, the two-month follow-up, while valuable, may not capture long-term maintenance of therapeutic gains, particularly given the chronic and relapsing nature of internet addiction.

Future research should prioritize randomized controlled trials with larger, more diverse samples to strengthen causal inferences and enhance generalizability. Multi-site studies across different cultural and educational contexts are needed

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to explore the moderating effects of gender, socioeconomic status, and family functioning on treatment outcomes. Longer follow-up periods, ideally six months to one year, should be incorporated to evaluate the durability of treatment effects and the potential for relapse. Mixed-methods designs combining quantitative measures with qualitative interviews could provide richer insights into adolescents' lived experiences of therapy, particularly in narrative approaches where identity reconstruction is central. Neurocognitive and psychophysiological measures could also be integrated to assess underlying mechanisms, such as emotion recognition and attentional biases, thereby bridging clinical and neurobiological perspectives. Finally, future work should explore hybrid interventions that combine the strengths of CBT and narrative therapy, potentially yielding synergistic benefits for both cognitive and identity-based vulnerabilities.

For clinical practice, our findings suggest that CBT should be prioritized when addressing rejection sensitivity and its cognitive underpinnings in adolescents with internet addiction, while narrative therapy offers a valuable alternative for reducing social anxiety and reconstructing identity narratives. Schools and counseling centers may benefit from implementing group-based versions of both therapies, capitalizing on peer support and cost-effectiveness. Training programs for therapists should include competencies in both modalities to allow flexible tailoring based on individual profiles. Family engagement should also be considered, especially in cultural contexts where parental rejection and interparental conflict contribute to adolescent vulnerabilities. Finally, integration of school-based prevention programs with therapeutic interventions may provide comprehensive support, reducing the onset and maintenance of internet addiction in vulnerable adolescent populations.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

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

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed to this article.

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