Cultivating Positive Connections: A Group Intervention Study on Alleviating Situational Social Anxiety Driven by Smart Media Use Among College Students

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Abstract: The pervasive integration of smart media has fundamentally reshaped how Generation Z college students interact. This shift leads to a phenomenon called "online coexistence and offline loneliness." Such a dynamic fosters a unique type of situational social anxiety, which emerges mainly in offline, complex social settings. This study aims to examine the psychological pathway between smart media use and this anxiety. It also focuses on developing and testing a group intervention. Quantitative results confirmed that heavy smart media use, including frequent social comparison and performance pressure, predicts higher anxiety. This occurs through negative self-evaluation and perceived interpersonal threat. The intervention group had a greater reduction in anxiety and better social self-confidence after the program and at a 3-month follow-up, compared to a wait list control group. Qualitative findings showed improved perceived ability to handle real-world interaction and an increased appreciation for authentic connections. The study concludes that the "Positive Connections" program can effectively target cognitive distortions and help rebuild offline social skills, offering a strong model for university mental health initiatives.

***Keywords*:** situational social anxiety; smart media; social comparison; cognitive behavioral therapy; group intervention;positive youth development; college students

1. Introduction

The rise of smart media, with smartphones and social platforms, has changed the social scene for young adults. For Generation Z university students, life is now highly mediated by technology. Virtual contact is constant, yet feelings of isolation and disconnection in real life also increase. This is often described as "online coexistence, offline loneliness." In this context, a specific challenge appears: situational social anxiety. Unlike generalized social anxiety, this type is triggered in unpredictable offline settings. It often follows repeated engagement in curated online social experiences.[1]

The existing literature identifies key risk factors in smart media environments, such as constant upward social comparison and the pressure to maintain an idealized online persona, which are linked to diminished self-esteem and heightened fear of negative evaluation. However, a clear explanatory pathway detailing how habitual media use translates into situational anxiety via specific cognitive mechanisms remains under explored. Furthermore, while Cognitive Behavioral Therapy (CBT) is a gold-standard treatment for anxiety, there is a scarcity of structured group interventions specifically designed to address the etiology of smart media-driven anxiety, with an explicit focus on cultivating the skills necessary for forging genuine offline connections—the very capacity eroded by compensatory online engagement.[2]

To address these gaps, this study had three main goals: (1) create and test a model showing how smart media use leads to situational anxiety through cognitive biases, specifically negative self-evaluation and interpersonal threat; (2) design, run, and evaluate the "Positive Connections" group program to help rebuild real social connections; (3) explore how the program affects positive factors like social support, belonging, and resilience.

2. Theoretical Framework and Hypotheses

Our integrative framework draws upon Cognitive Behavioral Theory (CBT)[3], media ecology theory, and the positive youth development (PYD) [4]perspective. CBT provides the core micro-level mechanism: smart media environments serve as Activating events (A), fostering maladaptive Beliefs (B)—such as "My real self is inadequate" and "Genuine self-disclosure will lead to rejection"—which in turn drive situational anxiety and avoidance Consequences (C). Media ecology theory offers the macro-context, positing that "space-biased" smart media (prioritizing instantaneous, far-flung connections) inherently undermine the development of "time-biased" relationships (deep, stable, locally embedded), creating a societal substrate for superficial interaction and performance anxiety. The PYD perspective guides our intervention philosophy, shifting the focus from deficit remediation to strength promotion, aiming not merely to reduce symptoms but to actively

foster the competencies required for thriving offline relationships.

Based on this framework, we hypothesized:

H1: Smart media use intensity would positively predict the severity of situational social anxiety.

H2: The relationship in H1 would be sequentially mediated by increased negative self-evaluation and heightened perceived interpersonal threat.

H3: This mediated pathway would be stronger for medical students compared to non-medical students, due to their heightened academic and professional performance pressures.[5]

H4: Participants in the "Positive Connections" intervention would show a significantly greater reduction in anxiety from pre to post-intervention than a wait list control group.

H5: Intervention gains would be maintained at a 3-month follow-up, accompanied by significant improvements in social self-confidence, perceived social support, school belonging, and psychological resilience.

3. Methods

3.1 Overall Design

An explanatory sequential mixed-methods design was employed, comprising two phases.

3.2 Phase 1: Quantitative Model Testing

Participants and Procedure: We used a stratified random sample of 1,245 undergraduates (mean age = 20.1, SD = 1.4; 58% female) from several universities. The sample included both medical (n=602) and non-medical (n=643) students. Participants filled out an online survey. The measures included smart media use (adapted Social Media Use Intensity Scale), negative self-evaluation (part of the Social Cognitions Questionnaire), perceived interpersonal threat (Interpersonal Threat Sensitivity Scale), and situational social anxiety (Situational Social Anxiety Scale).

Data Analysis: Hypotheses H1-H3 were tested using structural equation modeling (SEM) with AMOS software, employing bias-corrected bootstrapping for mediation analysis and multi-group analysis for moderation.

3.3 Phase 2: Intervention RCT and Qualitative Evaluation

Participants: From Phase 1, 72 medical students who scored in the moderate range on the anxiety screener volunteered and were randomly assigned to the intervention group (IG, n=36) or the wait list control group (WCG, n=36).

Intervention: The "Positive Connections" Program. This manual-based program had closed groups with 8 weekly sessions, each 2 hours long, led by two trained facilitators. The structure had three stages:

Cognitive Restructuring (Weeks 1-3): Safety was established. Anxiety triggers were mapped. Core negative beliefs (like "My worth depends on likes") were identified and challenged. Online metrics were separated from genuine connections.

Skill Building (Weeks 4-6): Non-verbal communication was practiced, such as eye contact and listening. Core conversation skills were developed, including starting and ending dialogues. Skills were used in simulated scenarios, such as group disagreements and clinical interactions, for medical students.

Integration and Consolidation (Weeks 7-8):* Mapping personal social support networks, creating actionable "connection plans" for real life, processing termination, and solidifying gains.

Measures and Procedure: All RCT participants completed assessments at pre-intervention (T1), post-intervention (T2), and 3-month follow-up (T3). Primary outcomes were anxiety and social self-confidence. Secondary outcomes included perceived social support, school belonging, and resilience. The WCG received the program after the T3 data collection. Following T3, two focus group interviews (n=8 per group) were conducted with IG participants to qualitatively explore their experiences and perceived changes.

Data Analysis: Quantitative data were analyzed using a 2 (Group: IG, WCG) × 3 (Time: T1, T2, T3) mixed-design ANOVA. Focus group transcripts were analyzed using thematic analysis.

4. Results

4.1 Phase 1 Results

SEM results supported the model ($\chi^2/df = 2.41$, CFI = 94, TLI = 93, RMSEA = 0.06). Smart media use was positively associated with anxiety ($\beta = 32$, $p < 001$), supporting H1. The sequential mediation was significant (indirect effect = 18, 95% CI [12, 25]), supporting H2.

Multi-group analysis revealed that the mediated effect was significantly stronger for medical students ($\beta = 24$) than for non-medical students ($\beta = 13$), $\Delta\chi^2(1) = 5.87$, $p = .015$, supporting H3.

4.2 Phase 2 Results

Quantitative Outcomes: A significant Group x Time interaction was found for anxiety ($F(2, 140)=21.34$, $p<001$, $\eta p^2=23$). Post-hoc tests confirmed that the IG showed a significantly greater decrease from T1 to T2 ($p<001$) and maintained lower levels at T3 than the WCG, supporting H4.

Similarly, significant interactions were found for social self-confidence, perceived social support, and school belonging (all $p<01$, ηp^2 ranging from .12 to .18), with the IG showing sustained improvement, partially supporting H5 (resilience showed a non-significant trend).

Qualitative Findings: Thematic analysis of focus groups identified four key themes: (1) Reduced Cognitive Distortion: Participants reported decreased preoccupation with being judged in real-time. (2) Increased Behavioral Agency: Greater confidence in initiating and sustaining face-to-face conversations. (3) Valuing Authenticity: A shift in preference from curated online interactions to "imperfect but real" connections. (4) The Group as a Secure Base: The intervention setting itself provided a corrective emotional experience of acceptance and mutual support.

5. Discussion

This study provides robust empirical support for a cognitive-behavioral pathway linking smart media use to situational social anxiety, particularly among high-pressure student groups like medical students. The findings underscore that anxiety is not merely a correlate of usage time but is functionally related to the specific cognitive schema reinforced by performative online environments.

More importantly, the study demonstrates the efficacy of a targeted intervention designed to reverse this pathway. The "Positive Connections" program proved effective in reducing anxiety and enhancing key psychosocial competencies. The maintenance of gains at follow-up and the qualitative reports of changed attitudes toward social interaction suggest the intervention fostered genuine skill acquisition rather than temporary symptom relief. The integration of CBT techniques with experiential exercises within a supportive group context facilitated both cognitive restructuring and behavioral reinforcement.

6. Conclusion

This research moves beyond problem identification to offer a constructive, evidence-based solution. The validated "Positive Connections" manual provides a practical tool for university counseling centers and student affairs professionals. By addressing the root cognitive mechanisms and systematically rebuilding offline social capacity, this approach aligns with the goals of positive youth development in the digital age. It empowers students to navigate smart media environments more healthily and cultivates the authentic, resilient interpersonal connections crucial for long-term well-being. Future research should explore adaptations for different student populations and the integration of brief digital components to support skill generalization.

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