Investigating the Effectiveness of Motivational Interviewing on Social Anxiety and Academic Procrastination among Students

Abdolhamid. Parsafar[1] , Ali Asghar. Asgharnejad Farid[2*] , Fariborz. Dortaj[3] , Mehdi. Zare Bahramabadi[3]

[1] PhD student, Consulting Department, Science and Research Branch, Islamic Azad University, Tehran, Iran
[2] Associate Professor, Department of Mental Health, Iran University of Medical Sciences, Tehran, Iran
[3] Professor, Department of Educational Psychology, Allameh Tabatabai University, Tehran, Iran
[4] Associate Professor of Counseling Department, Faculty of Educational Sciences and Psychology, Allameh Tabatabai University, Tehran

* Corresponding author email address: asgharnejadfarid.as@iums.ac.ir

A B S T R A C T

Objective: The student period is an exciting and challenging time for students. During this period, due to facing more stress-inducing factors and the necessity for appropriate adaptation, all students must have greater mental health and self-reliance to achieve greater success in their studies and, ultimately, in their profession. This research aims to investigate the impact of motivational interviewing on social anxiety and academic procrastination among students of the Islamic Azad University, Saravan branch.

Methods and Materials: The research method is descriptive-analytical. The statistical population includes all students of the Islamic Azad University, Saravan branch. Forty individuals suffering from social anxiety and academic procrastination were selected via convenience sampling method and introduced as the statistical sample, randomly divided into two groups (each group containing 20 participants) for motivational interviewing and control. The experimental group received concepts and strategies of motivational interviewing by Rollnick and Miller (2002) in eight 70-minute sessions. Solomon and Rothblum's (1984) Academic Procrastination Questionnaire and Connor's (2000) Social Anxiety Questionnaire were used to collect data. Covariance analysis with pre-test statistical control was used to examine the hypotheses of this research.

Findings: Based on the results, motivational interviewing explains 63.9% of the variance in post-test scores in the academic procrastination variable and 30.1% of the variance in post-test scores in the social anxiety variable.

Conclusion: Therefore, it can be concluded that motivational interviewing was effective on social anxiety and academic procrastination among students.

Keywords: Motivational Interviewing, Social Anxiety, Academic Procrastination.

1. Introduction

The period of studentship is an exciting and challenging era for students. Throughout this period, all students, due to facing more stress-inducing factors and the need for appropriate adaptation, must have greater mental health and self-reliance to achieve greater success in their studies and, ultimately, in their profession (Abdillah & Nurhayani, 2023; Parsakia, 2023).

Students are a group that experiences anxiety, which unfavorably affects their quality of life. They experience social anxiety during their university studies. Students face stressful situations during their studies that affect all aspects of their personal lives. The university period is a prelude to the beginning of adulthood and career decision-making, hence it brings its own set of problems. Specific problems of this period include, issues in relations with professors and classmates, cultural differences, identity crises, interactions with others, and facing social situations. 85% of students with social anxiety experience disorders in academic and professional performance due to defects in establishing communications, problems in interpersonal relationships, and issues in meeting social needs (Hussein, 2021; Salam & Astuti, 2023).

Social anxiety disorder, as the most common disorder of the anxiety disorder class, and academic procrastination, as one of the most common problems among students, are considered in this research. Social anxiety disorder is one of the most common psychological diseases (Alizadeh et al., 2018; Takahashi et al., 2018) and the third most common mental disorder in the general population (Xu et al., 2017). The main feature of social anxiety disorder is a marked or intense fear or anxiety of social situations in which the individual is subject to scrutiny by others (Rubin et al., 2022). The prevalence of this disorder in Iranian society shows a 10.1% prevalence, with women being more affected than men (You et al., 2019). If untreated, this disorder is accompanied by a chronic and covert course (Lamb, 2009), causing fundamental disorders in work, social fields, academic functions, family, and personal life, leading to a decrease in the individual's quality of life (Xu et al., 2017; Zhang et al., 2022).

Anxious youths generally have poor social interactions and less adaptability compared to their peers and face more problems when dealing with the expectations of adulthood (McEvoy et al., 2013; Mellings & Alden, 2000; Montesi et al., 2013; O'Toole et al., 2017). This disorder sets the stage for personality, mood, anxiety disorders, and substance-related disorders (Shahar, 2020). As a result of the pressures of the academic period and the imposition and compulsion of students to perform academic tasks, academic procrastination is one of the most common problems in educational environments that can reduce the learning process in students; and is widely seen among students and universities (Mohammadpour & Bita, 2020; Serrano et al., 2022; Sparfeldt & Schwabe, 2024). Some studies have reported its prevalence between 80 to 95 percent (Awwad et al., 2022; Batool, 2020; Saplavska & Jerkunkova, 2018). Academic procrastination means delaying or avoiding any academic task due to a discrepancy between intended and actual behavior, having negative consequences for the individual (Hong et al., 2021; Solomon & Rothblum, 1984; Sparfeldt & Schwabe, 2024; Steel & Klingsieck, 2016). Procrastination in performing tasks and works has various reasons, but usually, students who procrastinate in their tasks lack sufficient cognitive and self-regulation skills, which causes their procrastination in performing their tasks. In other words, procrastination is associated with an illogical cognitive process (Popova & Pronenko, 2023; Qian & Zhao, 2018; Sagone & Indiana, 2023; Saplavska & Jerkunkova, 2018). Behind most procrastinations, there is a task or activity that the individual prefers to avoid as much as possible. Often, the individual believes that performing such a task is difficult, unpleasant, and even somewhat torturous. Just thinking about this issue invokes unpleasant feelings such as anxiety, fear, or anger. Procrastination is a way to quench these bad feelings. From this perspective, procrastination is a self-protection method or a coping mechanism. Academic procrastination is also one of the most common emotional-cognitive-behavioral problems, with a prevalence rate of about 30 to 50 percent during the academic period reported which can reduce the learning process in students (Nikbakht et al., 2014; Ragusa et al., 2023; Steel & Klingsieck, 2016; Xu, 2023; Yockey, 2016).

The therapeutic method examined in this research in connection with social anxiety is motivational interviewing. In motivational interviewing, efforts are made to encourage changes by avoiding labeling and accepting the idea that clients have the choice to make decisions (Finitsis et al., 2022; Hosseini et al., 2020; Madson et al., 2009). Various research results have shown the effects of this type of therapy on anxiety. Researchers have addressed the effectiveness of motivational interviewing therapy for treating anxiety disorders in their studies (Ahmadi & Valizadeh, 2021; Finitsis et al., 2022; Law et al., 2019; Marker et al., 2020). After implementing motivational

interviewing intervention, desirable changes in behavior were observed, and help-seeking behavior significantly increased, while anxiety significantly decreased, whereas this change was not observed in the post-test scores of the control group. Motivational interviewing first emerged from Miller's clinical experiences in treating alcohol-related problems (Madson et al., 2009; Miller & Moyers, 2017; Miller & Rollnick, 2002). The clinical principles and methods of this type of interview were developed by Miller and Rollnick (2002). Miller defined motivational interviewing based on the principles of experimental social psychology (causal attributions, cognitive dissonance, and self-efficacy) (Miller & Moyers, 2017; Miller & Rollnick, 2002). Motivational interviewing was also developed in relation to the transtheoretical model of behavior change (Prochaska & DiClemente,1983) and the concept of readiness for change. Initially, the four foundational principles of motivational interviewing were: dealing with patient resistance, creating dissonance, demonstrating empathy, and supporting patient self-efficacy (Miller & Moyers, 2017; Miller & Rollnick, 2002). Later, these four principles changed to: resistance against reflective balance, understanding the motivation of the client, listening to the client, and empowering the client, which is abbreviated as RULE (Barrett et al., 2018).

Motivational interviewing directly explores and addresses the client's ambivalence about change to increase intrinsic motivation (Miller & Rollnick, 2002; Navidian et al., 2010). Therefore, the client's ambivalence plays a central role in motivational interviewing. Typically, clients' motivations are conflicting; on one hand, they have good reasons for changing their current behaviors, and on the other hand, they are aware of the pros and cons associated with changing or staying in their current situation. This conflict in motivations puts the client in a state where they are unable to change unless encouraged to replace the old behavioral pattern with a new one. Motivational interviewing allows the client to explicitly express their ambivalence, identify their conflicting motivations, and satisfactorily resolve them. This is done through the interviewer's direct guidance for appropriate behavioral changes (Madson et al., 2009; Miller & Moyers, 2017; Miller & Rollnick, 2002). Therefore, in motivational interviewing, the interviewer does not directly encourage or force the client to change, but it is the client's responsibility to decide whether to change or not. The interviewer's role is to help the client identify and reveal their conflicting motivations. The interviewer also provides the necessary

information and support for change, suggesting alternative approaches and potential ways to change (Miller, 1983).

Given that social anxiety disorder and academic procrastination are among the most common problems among the student population, attention to therapeutic methods for treating social anxiety disorder and addressing academic procrastination among them is important; therefore, this research examines the method of motivational interviewing. Hence, considering the importance of the subject in this research, the effort is to answer the main question: What is the effect of motivational interviewing on social anxiety and academic procrastination among students?

2. Methods and Materials

2.1. Study Design and Participants

The present study employed a quasi-experimental design with a pre-test, post-test control group. The study population consisted of all students visiting the counseling center of the Islamic Azad University, Saravan branch. Those who, in addition to their willingness to participate in the research program, showed levels of social anxiety and academic procrastination based on preliminary tests were included. From this group, 40 individuals suffering from social anxiety and academic procrastination were selected through convenience sampling and randomly divided into two groups (each containing 20 individuals) for motivational interviewing and control. The experimental group received concepts and strategies of motivational interviewing from Rollnick and Miller (2002) in eight 70-minute sessions (two sessions per week), while the control group did not receive any treatment. Students with an IQ lower than 80 and a history of using various narcotic and non-narcotic drugs were excluded from the research program.

2.2. Measures

2.2.1. Social Anxiety

This questionnaire was developed by Connor, Davidson, and Weisler (2000) to assess social phobia. It contains 17 items divided among three subscales: fear (6 items), avoidance (7 items), and physiological discomfort (4 items), rated on a 5-point Likert scale. Responses to each item or question are graded from "not at all" (score of zero), "a little bit" (score of one), "somewhat" (score of two), "very much" (score of three), to "extremely" (score of four). The questionnaire is highly reliable and valid. Momeni (2005)

reported the overall Cronbach's alpha for the questionnaire as .88 and its reliability using the Spearman-Brown test as .87. Melyani et al. (2009) reported the reliability of this questionnaire with a retest method in groups diagnosed with social phobia disorder as between .78 and .89 and its internal consistency in a norm group as .94 (Jahangasht Aghkand et al., 2021).

2.2.2. Academic Procrastination

This questionnaire was developed by Solomon and Rothblum in 1984 and named the Academic Procrastination Scale. The scale consists of 27 items that examine three components: the first component, preparing for exams, includes 8 questions. The second component, preparing for assignments, contains 11 items, and the third component, preparing for end-of-term papers, consists of 8 items. Respondents indicate their level of agreement with each item by choosing from the options "never," "rarely," "sometimes," "most of the time," and "always," with "never" scoring 1, "rarely" 2, "sometimes" 3, "most of the time" 4, and "always" 5. Items "2, 4, 6, 11, 13, 15, 16, 21, 23, 25" are scored inversely. Namiyan and Hoseinchary (2011) obtained a Cronbach's alpha reliability coefficient of .73 for the questionnaire in a study titled "Explaining Students' Academic Procrastination Based on Religious Beliefs and Control Locus." Dolati (2012) also reported a Cronbach's alpha reliability coefficient of .91 for the questionnaire. The 27-item version was used in this study. The validity of the questionnaire was calculated using factor analysis in Jokar and Delavarpoor's (2007) research, which indicated satisfactory validity for the questionnaire (Emamverdi & Taher, 2020; Solomon & Rothblum, 1984).

2.3. Interventions

2.3.1. Motivational Interview

Motivational Interviewing. In this research, Rollnick and Miller's (2002) protocol for motivational interviewing was utilized (Miller & Rollnick, 2002).

Session One: Conveying the Spirit of Motivational Interviewing

In the first session, the essence and spirit of motivational interviewing are introduced to participants. This includes discussing the principles of empathy, support for autonomy, collaboration between therapist and client, and the evocation of the client's own motivations for change. The aim is to create an understanding of motivational interviewing as a respectful and encouraging approach to facilitate self-directed change.

Session Two: Teaching OARS - Client-Centered Counseling Skills

The second session focuses on teaching the OARS techniques, which are core skills in motivational interviewing. OARS stands for Open-ended questions, Affirmations, Reflective listening, and Summarizing. This session involves practical exercises to develop these skills, emphasizing the importance of listening actively and responding in a way that promotes the client's exploration of their own reasons for change.

Session Three: Identifying and Strengthening Change Talk

This session is dedicated to identifying and reinforcing 'change talk,' which refers to client's expressions of desire, ability, reasons, and need for change. The therapist works with the client to recognize and amplify this talk, facilitating a move towards contemplating and preparing for change. Techniques to elicit change talk are practiced, including strategic questioning and reflective listening.

Session Four: Evoking and Strengthening Change Talk

Building on the previous session, the fourth meeting further focuses on evoking and reinforcing change talk. Therapists are trained to guide clients in articulating their motivations for change and to develop a more detailed and nuanced discussion about their desire, ability, reasons, and need for change. This includes handling ambivalence and helping clients envision a positive outcome from their change efforts.

Session Five: Dealing with Resistance

In the fifth session, strategies for dealing with resistance are introduced. Resistance is viewed not as opposition but as a signal for the therapist to change strategies. This session covers techniques to roll with resistance, avoiding confrontation, and instead responding in a way that respects the client's autonomy and encourages open discussion about obstacles to change.

Session Six: Expanding the Change Plan

The sixth session is focused on developing a concrete plan for change. This involves setting goals, identifying specific steps, strategies, and resources needed for implementing change. Therapists assist clients in developing a realistic and actionable plan, considering potential challenges and how to overcome them.

Session Seven: Consolidating Client Commitment

This session aims to solidify the client's commitment to their change plan. Techniques are introduced to help clients

express their commitment verbally and behaviorally, exploring different levels of commitment and strategies to strengthen it. The therapist and client review progress, reassess motivation, and adjust the change plan as necessary.

Session Eight: Transitioning Between Motivational Interviewing and Other Counseling Methods

The final session discusses how to integrate motivational interviewing with other therapeutic approaches. The focus is on when and how to transition between motivational interviewing and other methods, maintaining the spirit of motivational interviewing throughout the therapeutic process. This session emphasizes the versatility of motivational interviewing and its compatibility with a range of therapeutic modalities.

2.4. Data analysis

Data were analyzed using repeated measures ANOVA and Bonferroni tests, with all statistical analyses conducted using SPSS version 24, and the significance level set at 5%.

3. Findings and Results

In terms of demographic characteristics, the mean (standard deviation) age of the experimental group was 21.56 (3.266) years and the control group was 22.48 (2.794) years, indicating that the two groups were age-matched. The following presents the descriptive statistical findings.

Table 1

Means and Standard Deviations of Dependent Variables in the Study

Variables	Status	Group	Mean	Standard Deviation
Social Anxiety	Pre-test	Experimental - Motivational Interviewing	46.5	5.4
		Control	48	4.1
	Post-test	Experimental - Motivational Interviewing	44.3	4.6
		Control	48.4	3.6
Academic Procrastination	Pre-test	Experimental - Motivational Interviewing	51.47	5.848
		Control	50.27	6.840
	Post-test	Experimental - Motivational Interviewing	47.27	6.660
		Control	49.27	6.628

The Table 1 lists the mean levels of procrastination and social anxiety for each group. As observed, both variables of procrastination and social anxiety decreased in the post-test phase.

To examine the effectiveness of the motivational interviewing intervention in reducing academic procrastination and social anxiety among students, a multivariate analysis of covariance (MANCOVA) was used. The Box's M test was employed to assess the homogeneity

of covariance matrices hypothesis. The results of this test indicated that the homogeneity of covariance matrices hypothesis was met (F = 0.035, p = 0.991). Additionally, Levene's test results showed that the homogeneity of variances assumption for both variables of procrastination (F = 0.772, p = 0.387) and social anxiety (F = 3.576, p = 0.069) was satisfied. Consequently, a covariance analysis was conducted.

Table 2

Summary of Covariance Analysis Results for Academic Procrastination and Social Anxiety with Statistical Control of Pre-test

Source	SS	Df	MS	F	Significance Level	Eta Squared	Power
Social Anxiety	1.5	1	1.5	0.2	0.59	0.009	0.08
Group	105.70	1	105.70	18.86	0.001	0.639	0.98
Academic Procrastination	35.43	1	35.43	4.4	0.04	0.13	0.55
Group	315.17	1	315.17	41.31	0.001	0.301	1

According to the results presented in Table 2, the obtained F-value for both variables was significant at the 0.001 level of significance. Therefore, the research hypothesis regarding the effectiveness of the motivational

interviewing intervention in reducing academic procrastination and social anxiety among students was supported. Based on the obtained results, motivational interviewing explains 63.9% of the variance in post-test

scores in the academic procrastination variable and 30.1% of the variance in post-test scores in the social anxiety variable. The test power regarding the social anxiety variable was 1, and for procrastination, it was 0.98. Hence, the accuracy of this test in detecting differences for these two variables is 100% and 98%, respectively.

4. Discussion and Conclusion

The objective of the present study was to examine the effectiveness of motivational interviewing on social anxiety and academic procrastination among students. The findings indicate that motivational interviewing was effective in reducing students' academic procrastination and social anxiety. In recent decades, the application of motivational interviewing in educational and training fields has expanded, suggesting a positive impact of this intervention on improving academic performance and reducing students' problems, such as lack of motivation (Finitsis et al., 2022). This research demonstrated that motivational interviewing could be a strategy for promoting change in educational settings. Studies outside the country have shown the positive effect of motivational interviewing on improving school performance and increasing students' academic motivation (Barrett et al., 2018; Madson et al., 2009; Marker et al., 2020; Miller & Moyers, 2017; Miller & Rollnick, 2002; Navidian et al., 2010).

Marker et al. (2020) in their research on the effectiveness of motivational interviewing for treating anxiety disorders concluded that motivational interviewing is effective for treating anxiety disorders (Marker et al., 2020). Similarly, Finitsis et al. (2020) investigated the effectiveness of motivational interviewing in increasing help-seeking behavior and improving anxiety disorder. Their results indicated that after the motivational interviewing intervention, the post-test scores of the experimental group significantly changed, showing a significant increase in help-seeking behavior and a significant reduction in anxiety, while no such change was observed in the control group's post-test scores (Finitsis et al., 2022). Gurumoorthy & Kumar (2020) also concluded in their study that motivational interviewing serves as an effective intervention in treating academic procrastination and can be used to significantly reduce students' academic procrastination (Gurumoorthy & Kumar, 2020). Hosseini eta l. (2020) focused on the effectiveness of motivational interviewing on academic procrastination. Their research, a quasi-experimental study with pre-test, post-test, follow-up, and control group,

involved all male high school students in the second district of Shiraz's education department during the 2017-2018 academic year. Findings indicated that motivational interviewing was effective in reducing students' academic procrastination and also had a positive effect on procrastination dimensions (deliberate procrastination, fatigue-related procrastination, and disorganization-related procrastination). Based on the findings, it can be concluded that motivational interviewing can significantly reduce high school students' academic procrastination (Hosseini et al., 2020).

Although many studies on the effectiveness of motivational interviewing have been more focused on addiction and health fields, some studies indicate its positive impact on improving students' academic performance (Ashrafzadeh et al., 2017; Jenaabadi et al., 2015). Motivational interviewing enables students to prioritize their goals, affirm their values, and this can act as a capital in the change process for their behavior, ultimately leading them to be more successful and play their part in society (Roy, 2017). This study could extend past research and signal further studies on the application of motivational interviewing for student issues in the educational field of the country. The approach of motivational interviewing is suitable for procrastinators as it involves daily reflection and behaviors throughout the day, and the active participation of the experimental group in sessions and appropriate assignments allows them to confront examples from their daily lives and gain awareness about them. The decrease in procrastination levels among students in the current study reflects the essence, principles, techniques, and goals of motivational interviewing. Emphasizing the resolution of ambivalence and problem-solving as a goal of motivational interviewing aligns with defining procrastination as well. In procrastination, the individual is inclined to perform a task but lacks the necessary motivation to do so, postponing it (Ellis & Knaus, 1979). Steel (2007) also defines procrastination as the decision by an individual to embark on a task but lacking the necessary motivation to complete it within the considered time frame (Steel, 2007). According to Miller & Rollnick (2002), the primary goal of motivational interviewing is to increase internal motivation to resolve ambivalences and indecision; thus, emphasizing motivational interviewing on strengthening internal motivation and resolving indecision aligns with the characteristics of procrastinators who lack the necessary motivation and face indecision in completing tasks (Miller & Rollnick, 2002). Furthermore, Steel (2007) identified

procrastinators' personality traits as low self-motivation, mental disorganization, low self-control, and lack of progress motivation (Steel, 2007). Previous research has also identified self-motivation and self-regulation as the most significant predictors of academic procrastination (Hussein, 2021; Ragusa et al., 2023). Howell et al. (2006) also view academic procrastination as a deficiency in self-regulation (Howell et al., 2006). Enhancing self-motivation is a principle of motivational interviewing, and strengthening it is one of the main goals of this intervention (Miller & Rollnick, 2002). Therefore, motivational exercises and interventions can enhance the sense of self-motivation in procrastinators and, by emphasizing the spirit of motivational interviewing on internal change and self-determination, can reduce self-regulatory issues in procrastinators.

Motivational interviewing has increasingly been recognized as an effective therapeutic approach for a variety of psychological issues, including social anxiety. Social anxiety, characterized by a significant and debilitating fear of social situations where individuals fear being judged or negatively evaluated by others (Ahmadi & Valizadeh, 2021; Barrett et al., 2018; Finitsis et al., 2022; Marker et al., 2020), has been effectively addressed through the application of motivational interviewing techniques. Research suggests that motivational interviewing, with its client-centered approach and focus on resolving ambivalence towards change, can significantly reduce symptoms of social anxiety by enhancing individuals' motivation to engage in therapeutic activities and confront anxiety-provoking situations (Finitsis et al., 2022; Law et al., 2019). Researchers emphasized the importance of motivational interviewing in treating anxiety disorders by promoting a sense of empowerment and self-efficacy in clients. They highlighted that by encouraging clients to explore their own reasons for change and supporting their autonomy in the therapeutic process, motivational interviewing facilitates a conducive environment for individuals to address their fears and anxieties more openly and effectively. Furthermore, studies have shown that the empathetic and non-judgmental stance taken by therapists during motivational interviewing sessions plays a crucial role in reducing social anxiety symptoms. By providing a safe space for clients to express their fears and concerns without fear of judgment, motivational interviewing helps clients to develop coping strategies that are tailored to their individual needs and circumstances (Ashrafzadeh et al., 2017; Finitsis et al., 2022; Vafadar et al., 2014; Vance, 2010). The effectiveness of

motivational interviewing in reducing social anxiety is also attributed to its focus on enhancing intrinsic motivation and readiness for change. By exploring and resolving ambivalence, motivational interviewing encourages clients to take proactive steps towards managing their anxiety, leading to sustained behavior change and improved social functioning (Ahmadi & Valizadeh, 2021; Law et al., 2019; Navidian et al., 2010). Moreover, motivational interviewing's adaptability and integration with other therapeutic techniques, such as cognitive-behavioral therapy (CBT), provide a comprehensive approach to treating social anxiety. This integrated approach leverages the strengths of both modalities, using motivational interviewing to enhance motivation and readiness for change, and CBT to develop specific skills for managing anxiety in social situations (Barrett et al., 2018).

5. Limitations & Suggestions

This study, while providing valuable insights into the effectiveness of motivational interviewing on social anxiety and academic procrastination, is not without its limitations. The sample size was relatively small and drawn from a specific population, which may limit the generalizability of the findings to broader populations. Additionally, the study relied on self-report measures, which are subject to biases such as social desirability or inaccurate self-assessment. The research design was quasi-experimental, lacking randomization, which might affect the strength of the causal inferences that can be made regarding the effectiveness of motivational interviewing. Future studies could address these limitations by including larger, more diverse samples, employing more objective measures of social anxiety and procrastination, and using randomized controlled trial designs to strengthen the evidence base for motivational interviewing's effectiveness.

Future research on motivational interviewing should consider addressing the limitations observed in the current study by employing larger and more diverse samples to enhance the generalizability of the findings. It would be beneficial to explore the long-term effects of motivational interviewing on social anxiety and academic procrastination through longitudinal studies to assess the sustainability of its benefits. Additionally, incorporating objective measures alongside self-report questionnaires could provide a more comprehensive understanding of the intervention's impact. Investigating the effectiveness of motivational interviewing in combination with other evidence-based treatments, such

as cognitive-behavioral therapy, could offer insights into integrated approaches for treating social anxiety and academic procrastination more effectively.

Based on the findings of this study, practitioners working with individuals suffering from social anxiety and academic procrastination may consider incorporating motivational interviewing techniques into their practice. Motivational interviewing's client-centered approach and focus on resolving ambivalence can be particularly beneficial in enhancing clients' motivation and readiness for change. Practitioners should be trained in the principles and techniques of motivational interviewing to effectively facilitate this therapeutic process. Additionally, integrating motivational interviewing with other therapeutic approaches, such as cognitive-behavioral strategies, could provide a comprehensive treatment plan tailored to the specific needs of individuals dealing with social anxiety and academic procrastination. Engaging clients in a collaborative process where their preferences and values are respected can significantly contribute to the effectiveness of the intervention and improve therapeutic outcomes.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethics 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.

Authors' Contributions

All authors contributed equally.

References

Abdillah, C. A., & Nurhayani, N. (2023). The Application of Group Counseling Services to Minimize Academic Stress in High School Students. *BISMA The Journal of Counseling*, *7*(1), 1-9. https://doi.org/10.23887/bisma.v7i1.59175

Ahmadi, V., & Valizadeh, H. (2021). The Effectiveness of Acceptance and Commitment-Based Therapy on the Quality of Life and Death Anxiety in the Elderly. *Aging Psychology*, *7*(2), 166-153. https://doi.org/10.22126/jap.2021.6370.1528

Alizadeh, H., Hamivand, L., Farokhi, N., & Kazemi, F. (2018). Psycho-Social Program Designing for Students with Sluggish Cognitive Tempo and its Effectiveness on Socio-Emotional Difficulties. *Middle Eastern Journal of Disability Studies*---, *8*(1), 36. https://www.magiran.com/paper/1960852

Ashrafzadeh, S., Khezrimoghadam, N., & Manzari Tavakoli, V. (2017). Effectiveness of motivational interviewing on the academic self-efficacy and problem solving of female students [Research]. *Journal of Psychological Science*, *16*(63), 413-428. http://psychologicalscience.ir/article-1-143-en.html

Awwad, A., Alkhutaba, M., Alnajjar, K., Al-Khawaldeh, S. N., & Alkhawaldeh, A. (2022). Procrastination in Daily Academic Tasks and Its Relationship to Self-Esteem Among University Students. *International journal of health sciences*. https://doi.org/10.53730/ijhs.v6ns6.10981

Barrett, S., Begg, S., O'Halloran, P., & Kingsley, M. (2018). Integrated motivational interviewing and cognitive behaviour therapy for lifestyle mediators of overweight and obesity in community-dwelling adults: a systematic review and meta-analyses. *BMC public health*, *18*(1), 1160. https://doi.org/10.1186/s12889-018-6062-9

Batool, S. S. (2020). Academic achievement: Interplay of positive parenting, self-esteem, and academic procrastination. *Australian Journal of Psychology*, *72*(2), 174-187. https://doi.org/10.1111/ajpy.12280

Ellis, A., & Knaus, W. J. (1979). *Overcoming Procrastination*. Signet. https://books.google.com/books?id=bpn0JgAACAAJ

Emamverdi, P., & Taher, M. (2020). The role of cognitive flexibility and mindfulness in predicting student procrastination. *Journal of School Psychology*, *9*(3), 19-34. https://doi.org/10.22098/JSP.2020.1062

Finitsis, D. J., Cruess, D. G., Pinnamaraju, S., Robinson, P., & Woodruff, T. A. (2022). Brief, peer-delivered motivational interview promotes help seeking behavior among college students with needle anxiety: A randomized controlled trial. *Journal of American College Health*, *70*(3), 654-659. https://doi.org/10.1080/07448481.2020.1763365

Gurumoorthy, R., & Kumar, N. S. (2020). Study of impactful motivational factors to overcome procrastination among engineering students. *Procedia Computer Science*, *172*, 709-717. https://doi.org/10.1016/j.procs.2020.05.101

Hong, W., Liu, R.-D., Ding, Y., Jiang, S., Yang, X., & Sheng, X. (2021). Academic procrastination precedes problematic mobile phone use in Chinese adolescents: A longitudinal mediation model of distraction cognitions. *Addictive behaviors*, *121*, 106993. https://doi.org/10.1016/j.addbeh.2021.106993

Hosseini, S., Rezaei, A., Kazemi, S., & Samani, S. (2020). The Effectiveness of Motivational Interviewing on Academic Procrastination in Adolescents. *Psychological Models and Methods*, *11*(39), 81-94.

https://jpmm.marvdasht.iau.ir/article_4310_6b04e0ecc33977a25c0bd83d05de5c1d.pdf

Howell, A. J., Watson, D. C., Powell, R. A., & Buro, K. (2006). Academic procrastination: The pattern and correlates of behavioural postponement. *Personality and individual differences*, *40*(8), 1519-1530. https://doi.org/10.1016/j.paid.2005.11.023

Hussein, K. (2021). The relationship between emotional intelligence and academic motivation of pre-university students using the mediating role of mental health. *Management and Educational Perspective*, *3*(2), 77-98. https://doi.org/10.22034/jmep.2021.294708.1060

Jahangasht Aghkand, Y., Abbasi, G., & Hasanzadeh, R. (2021). The Effects of Intensive Short-Term Dynamic Psychotherapy on Interpersonal Problems in Women with Social Anxiety [Original Research Article]. *Middle Eastern Journal of Disability Studies---*, *11*(0), 169-169. http://jdisabilstud.org/article-1-2140-en.html

Jenaabadi, H., Elsa Zadeghan, A., & Nemati, M. (2015). The effectiveness of motivational interviewing on enhancing self-efficacy and improving self-concept in High schools underachievement students. *Journal of Educational Psychology Studies*, *12*(21), 43-62. https://doi.org/10.22111/jeps.2015.2156

Law, E., Fisher, E., Eccleston, C., & Palermo, T. M. (2019). Psychological interventions for parents of children and adolescents with chronic illness. *Cochrane Database of Systematic Reviews*(3). https://doi.org/10.1002/14651858.CD009660.pub4

Madson, M. B., Loignon, A. C., & Lane, C. (2009). Training in motivational interviewing: A systematic review. *Journal of Substance Abuse Treatment*, *36*(1), 101-109. https://doi.org/10.1016/j.jsat.2008.05.005

Marker, I., Corbett, B. E., Drummond, S. P. A., & Norton, P. J. (2020). Intermittent Motivational Interviewing and Transdiagnostic CBT for Anxiety: A Randomized Controlled Trial. *Journal of anxiety disorders*, *75*, 102276. https://doi.org/10.1016/j.janxdis.2020.102276

McEvoy, P. M., Watson, H., Watkins, E. R., & Nathan, P. (2013). The relationship between worry, rumination, and comorbidity: Evidence for repetitive negative thinking as a transdiagnostic construct. *Journal of affective disorders*, *151*(1), 313-320. https://doi.org/10.1016/j.jad.2013.06.014

Mellings, T. M. B., & Alden, L. E. (2000). Cognitive processes in social anxiety: the effects of self-focus, rumination and anticipatory processing. *Behaviour Research and Therapy*, *38*(3), 243-257. https://doi.org/10.1016/S0005-7967(99)00040-6

Miller, W. R., & Moyers, T. B. (2017). Motivational interviewing and the clinical science of Carl Rogers. *Journal of consulting and clinical psychology*, *85*(8), 757-766. https://doi.org/10.1037/ccp0000179

Miller, W. R., & Rollnick, S. (2002). *Motivational Interviewing, Second Edition: Preparing People for Change*. Guilford Publications. https://books.google.com/books?id=r_CuyHwdz7EC

Mohammadpour, K., & Bita, M. (2020). Prediction of academic procrastination based on psychological capital of 10th grade students of Babol city, . *Journal of Applied Research in Management and Human Sciences*, *2*(3), 58-66. https://www.magiran.com/paper/2401925

Montesi, J. L., Conner, B. T., Gordon, E. A., Fauber, R. L., Kim, K. H., & Heimberg, R. G. (2013). On the Relationship Among Social Anxiety, Intimacy, Sexual Communication, and Sexual Satisfaction in Young Couples. *Archives of Sexual Behavior*, *42*(1), 81-91. https://doi.org/10.1007/s10508-012-9929-3

Navidian, A., Abedi, M., Baghban, I., Fatehizadeh, M., Poursharifi, H., & Hashemi Dehkordi, M. (2010). Effects of motivational interviewing on weight loss of individuals suffering [Research]. *Iranian Journal of Nutrition Sciences and Food Technology*, *5*(2), 45-52. http://nsft.sbmu.ac.ir/article-1-325-en.html

Nikbakht, E., abdekhodae, m. s., & Hasanabadi, H. (2014). Effectiveness of Reality Therapy Group Counseling Program on Academic Motivation and Procrastination. *Research in Clinical Psychology and Counseling*, *3*(2), 81-94. https://doi.org/10.22067/ijap.v3i2.15434

O'Toole, M. S., Zachariae, R., & Mennin, D. S. (2017). Social anxiety and emotion regulation flexibility: considering emotion intensity and type as contextual factors. *Anxiety, Stress, & Coping*, *30*(6), 716-724. https://doi.org/10.1080/10615806.2017.1346792

Parsakia, K. (2023). The Effect of Chatbots and AI on The Self-Efficacy, Self-Esteem, Problem-Solving and Critical Thinking of Students. *Health Nexus*, *1*(1), 71-76. https://doi.org/10.61838/hn.1.1.14

Popova, D., & Pronenko, E. (2023). Academic Procrastination in the Context of Meaning Structures of Personality: Why Is It Important for the Formation of Sustainable Behavior. *E3s Web of Conferences*. https://doi.org/10.1051/e3sconf/202337605058

Qian, L., & Zhao, F. (2018). Academic Stress, Academic Procrastination and Academicperformance: A Moderated Dual-Mediation Model. *Journal on Innovation and Sustainability Risus*. https://doi.org/10.24212/2179-3565.2018v9i2p38-46

Ragusa, A., González-Bernal, J., Trigueros, R., Caggiano, V., Navarro, N., Minguez-Minguez, L. A., Obregón, A. I., & Fernandez-Ortega, C. (2023). Effects of academic self-regulation on procrastination, academic stress and anxiety, resilience and academic performance in a sample of Spanish secondary school students [Original Research]. *Frontiers in psychology*, *14*. https://doi.org/10.3389/fpsyg.2023.1073529

Roy, R. (2017). Efficacy of Motivational Interviewing On Improving Resilience among Students with Below Average Academic Performance: A Case Study. *International Journal of Indian Psychology*, *4*. https://doi.org/10.25215/0402.114

Rubin, M., Muller, K., Hayhoe, M. M., & Telch, M. J. (2022). Attention guidance augmentation of virtual reality exposure therapy for social anxiety disorder: a pilot randomized controlled trial. *Cognitive behaviour therapy*, *51*(5), 371-387. https://doi.org/10.1080/16506073.2022.2053882

Sagone, E., & Indiana, M. L. (2023). The Roles of Academic Self-Efficacy and Intolerance of Uncertainty on Decisional Procrastination in University Students during the COVID-19 Pandemic. *Education Sciences*, *13*(5), 476. https://doi.org/10.3390/educsci13050476

Salam, N. H. Z., & Astuti, B. (2023). THE EFFECTIVENESS OF GROUP COUNSELING REALITY FOR STUDENTS' ACADEMIC PROCRASTINATION BEHAVIOR [group counseling, reality counseling, academic procrastination]. *2023*, *10*(2). https://doi.org/10.46827/ejes.v10i2.4676

Saplavska, J., & Jerkunkova, A. (2018). Academic procrastination and anxiety among students. 17th International Scientific Conference Engineering for Rural Development,

Serrano, D. M., Williams, P. S., Ezzeddine, L., & Sapon, B. (2022). Association between Problematic Social Media Use and Academic Procrastination: The Mediating Role of Mindfulness. *Learning: Research and Practice*, *8*(2), 84-95. https://doi.org/10.1080/23735082.2022.2100920

Shahar, B. (2020). New Developments in Emotion-Focused Therapy for Social Anxiety Disorder. *Journal of clinical medicine*, *9*(9), 2918. https://doi.org/10.3390/jcm9092918

Solomon, L. J., & Rothblum, E. D. (1984). Academic procrastination: Frequency and cognitive-behavioral correlates. *Journal of counseling psychology*, *31*(4), 503-509. https://doi.org/10.1037/0022-0167.31.4.503

Sparfeldt, J. R., & Schwabe, S. (2024). Academic procrastination mediates the relation between conscientiousness and academic achievement. *Personality and individual differences*, *218*, 112466. https://doi.org/10.1016/j.paid.2023.112466

Steel, P. (2007). The nature of procrastination: A meta-analytic and theoretical review of quintessential self-regulatory failure. *Psychological bulletin*, *133*(1), 65-94. https://doi.org/10.1037/0033-2909.133.1.65

Steel, P., & Klingsieck, K. B. (2016). Academic Procrastination: Psychological Antecedents Revisited. *Australian Psychologist*, *51*(1), 36-46. https://doi.org/10.1111/ap.12173

Takahashi, A., Flanigan, M. E., McEwen, B. S., & Russo, S. J. (2018). Aggression, Social Stress, and the Immune System in Humans and Animal Models [Review]. *Frontiers in Behavioral Neuroscience*, *12*. https://doi.org/10.3389/fnbeh.2018.00056

Vafadar, Z., Reazei, R., & Navidian, A. (2014). Effectiveness of motivational interviewing on the weight self-efficacy life style in overweight and obese teenager boys. *International Journal of Behavioral Sciences*, *8*(2), 185-193. https://www.behavsci.ir/article_67871_dcb43d654d33eaf100de6b4846669eb5.pdf

Vance, D. (2010). Motivational Interviewing in Health Care: Helping Patients Change Behavior, by Stephen Rollnick, PhD, William R. Miller, PhD, & Christopher C. Butler, MD. Guilford Press, New York, NY, 2007, 210 pages, softcover, $25.00, hardcover $45.00, ISBN: 978-1-59385-612-0, 978-1-59385-613-7. *Physical & Occupational Therapy in Geriatrics*, *28*, 101-102. https://doi.org/10.3109/02703180903041339

Xu, B. (2023). Improvement of Academic Procrastination among High School Students through Psychological Resilience Group Counseling. *Journal of Education and Educational Research*, *4*(1), 101-103. https://doi.org/10.54097/jeer.v4i1.10211

Xu, J., Ni, S., Ran, M., & Zhang, C. (2017). The Relationship between Parenting Styles and Adolescents' Social Anxiety in Migrant Families: A Study in Guangdong, China [Original Research]. *Frontiers in psychology*, *8*. https://doi.org/10.3389/fpsyg.2017.00626

Yockey, R. D. (2016). Validation of the Short Form of the Academic Procrastination Scale. *Psychological Reports*. https://doi.org/10.1177/0033294115626825

You, Z., Zhang, Y., Zhang, L., Xu, Y., & Chen, X. (2019). How does self-esteem affect mobile phone addiction? The mediating role of social anxiety and interpersonal sensitivity. *Psychiatry research*, *271*, 526-531. https://doi.org/10.1016/j.psychres.2018.12.040

Zhang, W., Yu, G., Fu, W., & Li, R. (2022). Parental Psychological Control and Children's Prosocial Behavior: The Mediating Role of Social Anxiety and the Moderating Role of Socioeconomic Status. *International journal of environmental research and public health*. https://doi.org/10.3390/ijerph191811691