Virtual reality socialization groups on Facebook: A new frontier for children with social anxiety disorder

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CHRONICLE	ABSTRACT
	As a potential treatment intervention for youngsters with Social Anxiety Disorder (SAD) in UAE, this study aims to investigate the use of virtual reality socialization groups on the widely used social media platform Facebook. The purpose of this research is to examine how social anxiety, sadness, and anxiety symptoms change after receiving treatment. The quantitative approach used in the study yields very small impact sizes. No discernible differences emerged, however, between the test and control groups at the statistical level. It investigates how cultural factors, including the unique social norms and expectations in UAE, play a crucial role in determining the success of interventions. Specifically adapted virtual reality therapies for various cultural settings are emphasized. In addition, it highlights the importance of understanding the therapeutic implications of small effect sizes. Prospective research directions are explored in this article; special attention is paid to the development of ever-better technologically-driven treatments across a variety of cultural settings.

1. Introduction

There is growing concern all over the world about the prevalence and severity of social anxiety disorder (SAD) among youngsters, and UAE is not an exception to this worry. Children with Social Anxiety Disorder (SAD), characterized by extreme shyness and avoidance of social situations, may suffer serious academic and social consequences (American Psychiatric Association, 2013). Alghamdi (2020) reports an alarming rise in the prevalence of SAD among UAE's youth, making it all the more important to investigate novel and culturally appropriate interventions for this pressing mental health crisis.

Historically, cognitive-behavioral therapy (CBT) and pharmaceutical therapies have been the mainstays of treatment for Seasonal Affective Disorder (SAD) (Beidel et al., 2019; Essau et al., 2000). However, although useful in dealing with many anxiety disorders, these approaches run into substantial limitations when applied to the setting of pediatric social anxiety disorder (SAD). It is well-documented that it may be difficult to engage and keep the attention of young people in traditional therapy settings. It is also important to note that the prevalent cultural norms and expectations in UAE may amplify the worries of these youngsters (Albuhairan et al., 2016).

The use of Virtual Reality (VR) technology and the integration of social media platforms like Facebook inspire this study since they represent two major developments in the domain of mental health intervention. We argue that Virtual Reality

Socialization Groups on the widely used social media platform Facebook represent a novel and promising space in which to address the unique challenges posed by Social Anxiety Disorder (SAD) among UAE's young people. In this introduction, we will elaborate on how our study aims to advance the discipline by investigating many key areas.

The goal of this research is to initiate the discovery of alternative treatment strategies. The use of virtual reality (VR), with its proven track record in creating immersive and controlled settings, shows promising results in the treatment of anxiety disorders (Riva et al., 2016). Virtual reality (VR) has the ability to provide a safe and adaptable setting for children to bravely tackle their anxieties by using simulated social events and the method of progressive exposure treatment (Klinger et al., 2005). Our goal is to create a synergistic therapeutic milieu that makes full use of the benefits of both virtual reality (VR) technology and Facebook's extensive social network, thereby overcoming many of the limitations of traditional treatment approaches.

The need of tailoring treatments to account for cultural differences is also shown by this research. Albuhairan et al. (2016) point out that the sociocultural context of UAE has a significant impact on how Social Anxiety Disorder (SAD) is understood and treated there. Traditional Western therapy techniques may struggle to connect with patients due to a lack of understanding of the country's cultural nuances. This project intends to fill a big gap in the literature by creating culturally-specific VR socializing groups. It aims to achieve this by providing an intervention that is accessible to UAE youngsters and that they can relate to on a personal level.

In conclusion, our study fits into the broad context of technology advances in the field of mental health intervention. The confluence of virtual reality (VR) and social media platforms affords a current and relevant avenue for inquiry in light of the rising acknowledgement of the great promise that technology-driven therapies have for improving mental health outcomes (Hilty et al., 2019). Statista's most recent study (2021) shows that Facebook is widely used in the UAE context, providing hope for using this platform to help youngsters with social anxiety disorder (SAD). This strategy has the potential to reduce barriers to participation and increase compliance with treatment plans.

1.1 Objective of the Study

The major objective of this study is to investigate the efficacy and feasibility of utilizing Facebook-based Virtual Reality Socialization Groups as a therapy strategy for children with Social Anxiety Disorder (SAD) in the UAE.

2. Literature Review and Previous Studies

Insufferable anxiety and avoidance of situations where one could be subjected to judgment and criticism define those who suffer from social anxiety disorder (SAD; also known as social phobia; American Psychiatric Association, 2013). The prevalence of social anxiety disorder (SAD) in children and adolescents underlines its importance in the study of mental health in young people (Beesdo-Baum et al., 2009). Children with Social Anxiety Disorder (SAD) have significant anxiety and functional restrictions in a variety of areas, including school performance, friendships, and mental health, as reported by Ginsburg et al. (2018).

The frequency of Social Anxiety Disorder (SAD) among UAE's youth has been increasing, according to recent research. Adolescents in UAE show signs of having Social Anxiety Disorder (SAD), according to research conducted by Alghamdi et al. (2019). All the more reason to mobilize the country's mental health resources to combat this epidemic, the data show. Strong gender segregation rules and devotion to traditional social norms in UAE (Albuhairan et al., 2016) may provide unique challenges for children with Social Anxiety Disorder (SAD). This highlights the need to account for cultural norms and beliefs while assessing and caring for people with SAD in UAE.

Cognitive-behavioral therapy has been proven to be the most effective treatment for children with social anxiety disorder, according to research published by Biedel et al. (2019). An essential part of this approach is figuring out how environmental variables have contributed to irrational thinking and behavior and then fixing it. However, the success of CBT in children may be hampered by variables such as the child's level of participation and their developmental stage (Settipani et al., 2013).

Children with SAD are commonly prescribed selective serotonin reuptake inhibitors (SSRIs), as documented by Essau et al. (2000). Although medications have been shown to be effective in treating the symptoms of social anxiety disorder (SAD), they are not without their risks and may not go to the bottom of the issue for everyone.

Several mental health issues, including Social Anxiety Disorder (SAD), have been proposed as potential treatments for VR (Riva et al., 2016). Users may safely explore solutions to problems in a distraction-free environment in virtual reality (VR). Klinger et al. (2005) found that exposure treatment using VR helped patients with social anxiety disorder (SAD) feel less anxious and perform better in social situations. The aforementioned program gives kids a once-in-a-lifetime chance to hone their interpersonal abilities in a secure and encouraging setting.

Bhagwat & Goutam (2013) reports that a sizable percentage of the UAE population is engaged on Facebook, giving the site a dominant position as a social media platform in the country. The platform's central role in communication and social interaction makes it a suitable and accessible medium for introducing changes. Due to Facebook's popularity, it might be used to distribute information about and access to mental health services in UAE. However, the integration of therapeutic therapies within the context of social media raises questions of privacy, data security, and ethical considerations.

Researchers in this research explored VR socializing groups as a treatment option for people with social anxiety disorder. However, there is a dearth of research devoted to exploring this strategy in children. Lindner et al. (2017) found that a VR

program focused on social engagement was effective in reducing symptoms of social anxiety in adults. Virtual reality (VR) exposure therapy has been demonstrated to be effective in reducing social anxiety in adolescents, according to a study by Kampmann et al. (2016).

3. Methods

More than 120 students from various parts of UAE participated in the study. All of the people who participated in this research fit the DSM-5 criteria for Social Anxiety Disorder (SAD), and they were selected at random. Each participant was randomly assigned to either the experimental group (60 people) or the control group (60 people), with the former receiving the Virtual Reality Socialization Group intervention on Facebook.

Both the experimental and control groups participated in a battery of pre-intervention evaluations to obtain baseline information regarding participants' social anxiety symptoms. The research used the Children's Depression Inventory, the Screen for Child Anxiety Related Emotional Disorders, and the Social Phobia Inventory for Children to conduct its assessments.

Subjects in the control group did not participate in Virtual Reality Socialization Groups on Facebook, whereas those in the experimental group did. Each session of these groups lasted 45 minutes and took place once a week for eight weeks. During these sessions, participants engaged in social scenarios built in virtual reality (VR) in an effort to simulate the effects of real-world social interactions. The subjects were put through a series of increasingly challenging social situations. They were able to rehearse in a safe and encouraging setting throughout the whole procedure. During the trial's length, the control group received no active intervention and continued with their usual practices.

After the eight-week intervention period ended, both groups were given a post-intervention evaluation using the same pre-intervention measures. The purpose of this evaluation was to track social anxiety, depression, and generalized anxiety disorder symptoms throughout time. Moreover, participants in the post-intervention cohort survey shared their thoughts and feelings about the Virtual Reality Socialization Groups from their own unique viewpoints.

Data analysis refers to the process of evaluating and interpreting data to discover patterns, correlations, and insights. Quantitative data was analyzed using SPSS version 26 (Statistical Package for the Social Sciences). Researchers then determined descriptive statistics including means, standard deviations, and frequency distributions to provide a full picture of the sample's demographics. The assessment ratings collected both before and after the intervention were summarized using this data as well.

Independent Samples t-tests were one of the inferential statistical tests performed to determine the effectiveness of the intervention. The purpose of this research is to compare the post-intervention average scores of participants in the experimental group with the control group on measures of social anxiety, depression, and anxiety. Repeated-Measures Analysis of Variance (ANOVA) was employed as the statistical method for this investigation. The purpose of this research is to compare the before-and after-intervention trajectories of social anxiety, depressive symptoms, and anxiety levels in two groups. Cohen's d, a statistic for measuring the extent of differences between groups and of changes over time within groups, was employed in the present study to compute effect size.

4. Results

After the intervention, the SPIC scores of the experimental group averaged 35.28 (SD = 8.76), with values ranging from 20 to 52. After the intervention, the SPIC scores of the control group averaged 36.75 (SD = 9.42), with values ranging from 21 to 54. Using inferential statistics, we will investigate further the discrepancy between the experimental and control groups' mean SPIC scores.

Scores on the CDI ranged from 5 to 20, and after the intervention the experimental group averaged 12.43 (SD = 3.98). After the intervention, the average CDI score of the control group was 12.92 (SD = 4.22), with values ranging from 6 to 22. These findings provide the groundwork for further research into depressive symptoms in both cohorts, which will be used to evaluate the efficacy of therapeutic strategies.

Table 1
Descriptive Statistics

Variable	Group	N	Mean	Std. Deviation	Minimum	Maximum
Social Anxiety Symptoms (SPIC)	Experimental	60	35.28	8.76	20	52
	Control	60	36.75	9.42	21	54
Depressive Symptoms (CDI)	Experimental	60	12.43	3.98	5	20
	Control	60	12.92	4.22	6	22
Anxiety Levels (SCARED)	Experimental	60	25.17	6.51	12	38
	Control	60	25.92	6.87	14	40

Following the intervention, the experimental group averaged 25.17 on the SCARED scale, with a standard deviation of 6.51. The results in this section varied from 12 to 38 points. The average SCARED score following treatment in the control group was 25.92 and the standard deviation was 6.87. There was a wide range of results, from 14 to 40, in this set. The results shown below reflect the post-intervention anxiety levels experienced by both groups.

Table 2

Independent Samples t-Tests for Post-Intervention Measures

Variable	Group Comparison	Mean Difference (MD)	t-value	df	p-value	95% Confidence Interval (CI) for MD
Social Anxiety Symptoms (SPIC)	Experimental vs. Control	-1.47	-1.32	118	0.190	(-3.68, 0.75)
Depressive Symptoms (CDI)	Experimental vs. Control	-0.49	-0.40	118	0.692	(-1.47, 0.49)
Anxiety Levels (SCARED)	Experimental vs. Control	-0.75	-0.62	118	0.537	(-2.04, 0.54)

SPIC scores were shown to be significantly different between the study's experimental and control groups, with a mean difference (MD) of -1.47. This means that after receiving the intervention, the experimental group reported somewhat less social anxiety symptoms on average than the control group. The t-value of -1.32 with a matching p-value of 0.190 was derived from a sample with 118 degrees of freedom. Given that the calculated p-value is greater than the commonly accepted 0.05 threshold, it is not possible to draw the conclusion that the difference in SPIC scores between the groups is statistically significant. The 95% confidence interval for the mean difference (from -3.68 to 0.75) includes zero, indicating that the difference is not statistically significant.

After the intervention, there was a modest difference in depressive symptoms between the two groups, with the experimental group showing a little advantage. This was measured by the mean difference (MD) in scores on the Center for Epidemiologic Studies Depression Scale (CES-D), which was -0.49. With 118 degrees of freedom and a sample size of -0.40, the corresponding probability value is 0.692. The CDI scores do not vary significantly across the groups, as shown by the p value. The mean difference (MD) has a 95% confidence interval (CI) that includes zero, meaning it is not statistically significant.

SCARED ratings in the study's experimental and control groups showed a mean difference (MD) of -0.75. This suggests that there is a little difference in anxiety levels between the experimental group and the control group after the intervention. With 118 degrees of freedom, the computed t-value of -0.62 indicates a probability of 0.537. There seems to be no statistically significant difference in SCARED scores between the groups, as shown by the p value. There is no statistically significant difference, since the 95% confidence interval for the mean difference (MD) contains the value of zero.

No statistically significant differences in post-intervention social anxiety, depressive symptoms, or anxiety levels were found between the experimental group and the control group, as determined by independent samples t-tests. Findings from this study suggest that compared to the control group, Virtual Reality Socialization Groups on Facebook did not significantly affect any of these factors. To have a more complete grasp of the intervention's results, further research and thought may be required.

Table 3

Repeated-Measures Analysis of Variance (ANOVA) Results

Variable	Within-Group Comparison	F-value	df1	df2	p-value	Effect Size (Partial η²)
Social Anxiety Symptoms (SPIC)	Time (Pre vs. Post)	2.14	1	118	0.146	0.018
Depressive Symptoms (CDI)	Time (Pre vs. Post)	0.67	1	118	0.415	0.006
Anxiety Levels (SCARED)	Time (Pre vs. Post)	0.91	1	118	0.343	0.008

We assessed children' social anxiety using the Social Phobia Inventory for Children (SPIC). The research looked only at changes in performance within the same group before and after the intervention. The statistical analysis yielded an F-value of 2.14 with the numerator having 1 freedom and the denominator having 118. The p-value of 0.146 is larger than the conventionally accepted value of 0.05. These results imply that the rate of improvement of social anxiety symptoms did not vary significantly between the treatment and control groups. A value of 0.018 for the effect size partial 2 was found, indicating a small influence. Therefore, it is possible to attribute just a small fraction of the variation in SPIC scores to either the intervention or time.

With 1 dof of freedom for the numerator and 118 of freedom for the denominator, the F-value for the group analysis of depressive symptoms (CDI) was 0.67. A p-value of 0.415 was found after doing the analysis, indicating that there is insufficient data to conclude that the reported improvement in depressive symptoms was meaningful for either group. The computed partial 2 effect size was 0.006, which is very little. This result suggests that there was no discernible change in CDI scores because of either the intervention or the passage of time.

An F-value of 0.91 was found when comparing anxiety levels between groups using the SCARED questionnaire. There was just 1 degree of freedom in the numerator and 118 in the denominator. Neither group showed significantly different levels of anxiety, as measured by the p-value of 0.343. The resulting effect size was 0.008 (as assessed by partial 2), suggesting a small effect. The effect of the intervention or the passage of time on SCARED scores is shown to explain only a minimal percentage of the overall variance, which is consistent with findings for the Self-Perception of Interpersonal Competence (SPIC) and the Children's Depression Inventory (CDI).

Repeated-Measures ANOVA analysis suggested that there were no statistically significant differences between the experimental and control groups in terms of social anxiety symptoms, depressive symptoms, or anxiety levels before and after the intervention. Based on the data collected, it seems that neither the intervention nor time had a statistically significant effect on the variables examined. To fully grasp the impact of the action, more study and considerations may be necessary.

Table 4
Effect Size Calculation Results

Variable	Effect Size (Cohen's d)	Interpretation
Social Anxiety Symptoms (SPIC)	-0.14	Small effect size
Depressive Symptoms (CDI)	-0.12	Small effect size
Anxiety Levels (SCARED)	-0.09	Small effect size

Cohen's d was calculated as -0.14 for the change in social anxiety symptoms as measured by the Social Phobia Inventory for Children (SPIC). Impact sizes in this research were deemed "small," indicating that the difference in social anxiety symptoms between the pre- and post-intervention evaluations was not very large.

In a study using the Children's Depression Inventory (CDI), the effect size (Cohen's d) reflecting the extent of change in depressive symptoms was found to be -0.12. This effect size is "small," which, according to the SPIC technique, indicates that there was only a marginal change in depressive symptoms between the pre- and post-intervention evaluations.

The observed change in anxiety levels as measured by the SCARED instrument had an effect size (Cohen's d) of -0.09. Again, the impact size falls within the "small" range, suggesting just a marginal change in anxiety levels between pre- and post-intervention readings.

The user's writing shows a distinct lack of scholarly vocabulary and style. An intellectualization of the user's The Effect Size Calculation results show that when comparing pre- and post-intervention measurements, the changes seen in social anxiety symptoms, depressive symptoms, and anxiety levels in both the experimental and control groups are small. This finding suggests that the intervention and time both had a modest effect on these variables, resulting in subtle shifts.

5. Discussion

5.1 Efficacy of the Virtual Reality Socialization Groups

There is a lot of interest and academic discussion in the field of mental health over whether or not Virtual Reality Socialization Groups are effective as a therapeutic intervention for children with Social Anxiety Disorder (SAD). Consistent with a growing body of scholarly work that emphasizes the complexity of using virtual reality for the treatment of Social Anxiety Disorder (SAD) in children (Bouchard et al., 2017), the results of this study did not show statistically significant differences in post-intervention indicators of social anxiety symptoms, depressive symptoms, or anxiety levels between the experimental and control groups.

One possible explanation for the lack of statistically significant differences is the very short duration of the intervention. While the eight-week time frame allowed for some exposure and practice, Garrett et al. (2020) suggest that a longer period of engagement is necessary to have a lasting impact with virtual reality therapy. It's possible that children with SAD require more time to become used to online communities, build confidence, and generalize what they've learned to real-world situations. The implications of extended interventions on treatment outcomes might be investigated in future studies, which could provide useful insights.

It is also important to investigate the specific VR settings that were used in the intervention. Customized social scenarios of varying degrees of complexity and societal needs may now be created in VR. It's possible that the researchers didn't account for the complete spectrum of social challenges faced by UAE youngsters with Social Anxiety Disorder (SAD) in their situational choices. Guazzelli et al. (2021) suggest that by providing a broader variety of diverse and culturally appropriate circumstances, there is a possibility of greater efficacy in addressing the different social norms and expectations within this particular environment. Research is needed to determine whether or not scenario choice affects the success of treatments, with an emphasis on making sure that scenarios are tailored to the specific needs and difficulties of the people who will be receiving them.

Furthermore, it is likely that individual variances in response to the intervention might account for the study's mixed findings. Researchers agree that people with Social Anxiety Disorder (SAD) have different symptom presentations and symptom intensities (Stein et al., 2017). Therefore, factors including baseline social anxiety, cognitive processing styles, and individual differences in response to exposure therapy may all influence the success of virtual reality treatments. It is suggested that future research stratify participants based on these criteria to improve understanding of the precise subgroups that may gain the greatest benefits from these therapies.

In addition, the potential benefits of combining VR with traditional therapeutic methods must be seriously considered. Traditional treatment techniques, such as cognitive-behavioral therapy (CBT) and medication, may benefit from the use of virtual reality therapies. therapy for children with Social Anxiety Disorder (SAD) may be made more thorough by including VR into the therapy plan, as shown by Bouchard et al. (2017). The chance of significant improvement in social anxiety symptoms may be increased by the combination of many therapies.

5.2 Effect Sizes and Clinical Significance

In circumstances when statistical significance is not reached, the evaluation of effect sizes becomes even more crucial to understanding the practical implications of the study's conclusions. Changes in social anxiety (as evaluated by the SPIC), depression (as measured by the CDI), and anxiety (as measured by the SCARED) were shown to have small effect sizes after

the intervention. These effect sizes must be interpreted in the context of clinical value, considering how they could affect the lives of UAE youngsters who have been diagnosed with Social Anxiety Disorder.

Cohen's d values of -0.14 for SPIC, -0.12 for CDI, and -0.09 for SCARED all point to rather minor effect sizes in this study. Despite the lack of statistical significance between the experimental and control groups, these effect sizes suggest that there were minor adjustments to the variables of interest after the intervention. According to the findings (Sullivan & Feinn, 2012), the intervention did have an impact on social anxiety, depressive symptoms, and anxiety levels, although a tiny one.

The therapeutic significance of these small effect sizes is an important consideration. Any improvement in the treatment of mental illness has the potential to have far-reaching effects on the health and happiness of those who benefit from it. According to the academic study of Cohen (2017), even a modest enhancement in children afflicted with Social Anxiety Disorder (SAD) could yield noteworthy and favorable consequences. The advantages encompass a discernible augmentation in cognitive abilities, coupled with improved interpersonal aptitude and scholastic achievements. Hence, it would be imprudent to dismiss the purported advantages solely on account of their diminutive magnitude.

When conducting an analysis on the magnitude of effects, it is crucial to consider the diverse range of individuals afflicted with social anxiety disorder (SAD). Individuals afflicted with Social Anxiety Disorder (SAD) may manifest their condition through a diverse array of presentations. The manifestation of symptoms varies significantly among individuals, encompassing a wide spectrum of severity. Certain individuals may encounter relatively mild symptoms, whereas others grapple with incapacitating manifestations (Stein et al., 2017). The magnitude of an impact could potentially be influenced by the heterogeneity in the severity of symptoms experienced by individuals during the initial phases. The amelioration of symptoms in children is occasionally commensurate with the severity of their initial symptoms. The discernible enhancements observed in children exhibiting milder symptoms tend to surpass the progress demonstrated by their counterparts with more pronounced symptoms. Further investigation is imperative to ascertain whether distinct cohorts of children afflicted with Social Anxiety Disorder (SAD) exhibit divergent reactions to therapeutic interventions employing virtual reality technology. This line of investigation has great promise for shedding light on the consequences of effect sizes across different demographic categories.

6. Cultural Considerations and Future Directions

When considering implementing Virtual Reality Socialization Groups as a therapeutic intervention for children diagnosed with Social Anxiety Disorder (SAD) in UAE, it is important to consider the cultural factors at play, as the country is known for its strict adherence to gender segregation and conservative social norms (Albuhairan et al., 2016). Successful interventions in UAE and elsewhere need an understanding of cultural nuance and the adaptation of therapies to fit to these standards.

It's important not to discount the role that a person's cultural background plays in how well VR treatments work. Because of the significant differences between UAE and Western cultural standards and societal expectations, children with social anxiety disorder (SAD) in UAE face unique challenges. Gender segregation is an interesting sociological phenomenon because it affects how people feel about interacting with others of various genders in virtual environments. Future study must extensively analyze these cultural nuances and evaluate the possibility of gender-segregated virtual socialization groups to ensure cultural sensitivity and acceptance of therapies (Guazzelli et al., 2019).

Additionally, it is crucial that the virtual reality experiences chosen are appropriate for the local culture. When compared to Western countries, UAE's social and cultural norms are notably different. Creating or adapting virtual scenarios that faithfully reflect the local customs, traditions, and social hierarchies is essential for successfully navigating the unique challenges and societal norms existing in this specific context. This adjustment has the potential to increase the intervention's applicability and effectiveness by giving kids more chances to participate in social interactions that are directly applicable to their lives (Bouchard et al., 2017).

To be culturally competent is to understand not just how to choose situations, but also how social anxiety is understood and felt in a given culture. Stigmatization is a major factor in the international focus on mental health issues like social anxiety. It's worth noting, however, that the manifestations of this stigmatization may vary from one culture to the next (Albuhairan et al., 2016). Research is needed to learn more about how social anxiety is seen culturally in the UAE. Understanding how these views may affect families' willingness to seek help and their preferences for treatment is crucial.

Looking forward a few years, it's clear that the field of VR treatments for mental health will continue to evolve and progress. It is crucial to focus research efforts on developing and verifying culturally adapted virtual reality therapies in order to successfully address the unique cultural characteristics prevalent in UAE and other similar countries. Feedback from local experts, physicians, and community stakeholders is crucial for ensuring cultural relevance and acceptability of these therapies.

Research on how to make VR treatments last longer is also an important avenue for the field to explore in the future. It is possible that longer treatment durations may be necessary to identify substantial improvements in social anxiety symptoms, despite the fact that the current study only utilized an intervention time of eight weeks. Longitudinal studies with extended follow-up periods may provide light on the long-term benefits of VR treatment for children with social anxiety disorder (SAD). Research like this may provide insight on whether or not these kinds of interventions are likely to have a long-lasting impact on the lives of the children in question.

7. Conclusion

The complexity of applying technologically based therapy for mental health is highlighted by this study, particularly when cultural factors are included. Interventions that are culturally tailored are especially important in UAE due to the country's gender-segregated and conservative societal norms and expectations. Future studies should focus on developing culturally sensitive scenarios and treatment approaches that are compatible with indigenous beliefs and practices in order to maximize the relevance and effectiveness of these therapies. In order to successfully meet the specific needs of children with Social Anxiety Disorder (SAD) in UAE, it is crucial to have a deep understanding of how social anxiety is understood and experienced in the country's cultural context.

The research found that even though the effect sizes found were not statistically significant, they should not be ignored as irrelevant. Potentially important treatment implications may arise from the observed differences in social anxiety, depression, and anxiety levels. Children with Social Anxiety Disorder (SAD) may benefit greatly from even little improvements in their quality of life, psychosocial functioning, and overall well being. Further research is needed to examine the correlation between effect sizes, individual variations, and the larger therapeutic setting to get a complete understanding of the real-world implications of virtual reality therapies for the treatment of social anxiety disorder (SAD).

Refinement and new innovation are a constant need for the future of virtual reality treatments for mental health. Potential areas of growth include extended therapy duration, culturally tailored methods, and the combination of VR with other therapeutic modalities. To make VR treatment more effective and widely applicable, it's important to tailor interventions to the specific needs of children with Social Anxiety Disorder (SAD) in UAE and other similar cultural contexts. As a result, this might improve the lives of those who struggle with social anxiety.

Acknowledgments

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