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Research Paper: Impact of Pilates Training on the Levels of Depression and Self-Esteem in School Teachers

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Abstract

Objective: It is crucial to prioritize the enhancement of teachers' mental health within the education system. As a result, this study aims to examine the impact of a Pilates training course on the psychological and mental well-being of school teachers, encompassing aspects such as depression and self-esteem.

Methods: The research was carried out using a quasi-experimental approach. The study involved 60 elementary school teachers who were chosen through convenience sampling and then randomly and equally divided into two groups - experimental and control. Data was collected using standard questionnaires. T tests and ANCOVA were used to analyze data.

Results: The results showed that there is no significant difference in both depression and self-esteem in the pretest (both P>0.05). However, it was observed that experimental group had significantly lower depression and higher self-esteem compared to control group in the posttest (both P=0.001). Finally, the results of ANCOVA showed significant differences between experimental and control groups in both depression and self-esteem (both P=0.001).

Conclusions: These findings indicate that it is possible to recommend Pilates exercise and movement activities as a way to improve mental health, self-esteem, satisfaction with life, efficiency, positive mood and reduce mental and emotional tensions in school teachers.

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1. Introduction

Stress and psychological pressure in today's society have impacted various facets of human life, including work, social interactions, and family dynamics. The intricate system we live in constantly exposes individuals to stressful stimuli, leading to tension in the nervous-muscular systems and ultimately contributing to mental pressure (Chaharbaghi et al., 2022; Afsanepurak et al., 2012; Dana & Shams, 2019; Dana et al., 2011, 2019, 2021). Given the significance of physical health and well-being, any fluctuations in this area can significantly influence not only psychological well-being but also other aspects of human life. Depression is a significant psychological disorder that has garnered the attention of numerous researchers in the field of mental health. It has become one of the most prevalent mental illnesses affecting individuals worldwide (Letvak et al., 2012; Mikkelsen et al., 2017; Newhan et al., 2014; Ohler et al., 2010). Characterized by prolonged duration and specific symptoms, depression can severely impact an individual's functioning and overall well-being. Particularly prevalent among the elderly, depression is a major risk factor for suicide in this age group. The World Health Organization has identified depression as the fourth leading cause of disability globally, with projections indicating it will rise to the second position by 2020. Mental health professionals have recognized depression as the most prevalent and fundamental mental health issue over the past two decades. Studies show that approximately 15% of adults aged 15 to 74 exhibit significant symptoms of depression. While medication remains a common treatment approach for depression, it may not fully address the needs of all individuals. Physical activity and exercise have emerged as one of the most important, simplest, and cost-effective strategies, particularly for promoting mental well-being among the general population (Farsi et al., 2016; Ghorbani & Bund, 2014, 2017; Ghorbani et al., 2020; Khosravi et al., 2023; Moradi et al. 2020; Sadeghipor & Aghdam, 2021a).

Sports activities offer numerous physical, psychological, and social advantages. Engaging in regular physical exercise can lower the chances of heart disease-related deaths, reduce the risk factors associated with colon cancer, type 2 diabetes, and high blood pressure, enhance glucose metabolism, decrease obesity, and boost antioxidant levels. Professionals argue that by encouraging individuals to participate in physical activities, a society can effectively enhance the self-esteem, physical well-being, and mental health of its citizens (Sadeghipor et al., 2021a; Sadeghipor et al., 2021b; Seyedi-Asl et al., 2021; Seyedi-Asl et al., 2016; Taghva et al., 2020). Extensive studies conducted on both men and women have revealed that physically active individuals exhibit fewer symptoms of anxiety and depression in comparison to their sedentary counterparts.

Pilates is a renowned form of mental-physical exercise that emphasizes movement control, body posture, and breathing. It aims to achieve perfect harmony between body, mind, and spirit. Through purposeful control,

individuals gain mastery over their bodies and gradually develop natural coordination through consistent repetition of movements. This method enhances coordination, corrects improper body postures and movements, revitalizes the body, and boosts mental strength (Faircloth, 2017; American Psychological Association [APA], 2014; Davidson, 2003; Jolivet et al., 2010). Originally created by Joseph Pilates post-World War I, Pilates was designed as a unique physical fitness regimen by doctors. It combines muscle strengthening, stretching, and breathing techniques to strengthen core muscles and restore muscle balance. Unlike traditional resistance training, Pilates takes a holistic approach, engaging multiple muscle groups simultaneously. The versatility and effectiveness of Pilates have made it a popular supplemental exercise for people of all ages and genders, from professional athletes to pregnant women, who can even practice it in the comfort of their own homes (Sadeghpour & Sangchini, 2020; Taso et al., 2014; Bandura, 1997; Conner & Davidson, 2003; Hartfiel et al., 2011; Herrick & Ainsworth, 2000; Chris et al., 2010).

The field of education is currently facing a significant challenge in terms of the decline in teachers' energy and workforce. This issue not only hampers the efficiency and effectiveness of teachers but also leads some of them to leave the education system prematurely. This phenomenon is commonly referred to as job burnout, which adversely affects individuals. Moreover, the factors contributing to job burnout can also have a detrimental impact on a teacher's physical health, influencing their thoughts, emotions, and overall mental well-being. Consequently, it is crucial to prioritize the enhancement of teachers' mental health within the education system. As a result, this study aims to examine the impact of a Pilates training course on the psychological and mental well-being of school teachers, encompassing aspects such as depression and self-esteem.

2. Methods

2.1. Population, Sample, and Sampling

The research was carried out using a quasi-experimental approach. The study involved 60 elementary school teachers who were chosen through convenience sampling and then randomly and equally divided into two groups - experimental and control. In order to participate in the study, the teachers had to meet certain criteria: 1) being an elementary school teacher, 2) not having any physical disabilities, and 3) giving written consent to take part in the research. Exclusion criteria consisted of: 1) not completing the Pilates exercise form, 2) not completing the research questionnaires, and 3) not providing written consent.

2.2. Instruments

Beck Depression short Inventory (BDI-13): The measurement of the participants' depression was conducted using the BDI-13 (Letvak et al., 2012), which is a short 13-question Beck Depression Questionnaire. To make it more accessible for general use, Beck created a concise and straightforward self-assessment form. This questionnaire consists of 13 questions, with each category being graded on a scale of 0 to 3. The highest possible score on the scale is 39, and the test materials within each category are arranged in descending order based on the severity of

depression. In this study, the Cronbach's was for this scale was obtained to be 0.88.

In this study, teachers' self-esteem was assessed using Rosenberg's self-esteem scale (Connor & Davidson, 2003). This questionnaire comprises 10 items that participants must respond to using a four-point Likert scale ranging from completely agree to completely disagree. Scores on this scale range from 10 to 40, with higher scores indicating higher levels of self-esteem. Half of the items (1 to 5) are phrased positively, while the other half (6 to 10) are phrased negatively. Scoring is as follows: for items 1 to 5, completely disagree = 0, disagree = 1, agree = 2, and completely agree = 3. For items 6 to 10, completely agree = 0, agree = 1, disagree = 2, and completely disagree = 3. In this study, the Cronbach's was for this scale was obtained to be 0.94.

2.3. Procedure

The study utilized a pretest-posttest research design with a control group. The participants in the experimental group underwent an 8-week Pilates training course, consisting of three one-hour sessions per week, at the sports department of the medical center. The training sessions were divided into two parts. The first part involved exercises performed on a mat, which were conducted during the initial four weeks. The second part involved exercises using bandages and cloths to support and assist the muscles and joints, and these exercises were carried out during the subsequent four weeks.

2.4. Data Analysis

The research employed descriptive statistics such as mean, standard deviation, and frequency percentage to depict the variables under investigation. Additionally, the Kolmogorov-Smirnov test was utilized to assess the normality of the data distribution. T tests were used for comparing pretest and posttest among groups. Finally, to assess the efficacy of Pilates exercises, covariance analysis was conducted using SPSS version 26 software. The significance level for all analyses was set at $P \geq 0.05$.

3. Results

Table 1 presents the mean and dispersion of individual characteristics of the subjects, including age, height, weight, and body mass index (BMI).

Table 1

Demographic features of the participants

Indicator	Group	No.	mean±SD	P
Age (year)	Control	30	35.68±3.07	0.68
	Training	30	34.18±5.84	
Height (M)	Control	30	1.70±0.05	0.93
	Training	30	1.69±0.04	
Weight (Kg)	Control	30	72.06 ±3.79	0.81
	Training	30	71.95±2.73	
Body mass index (Kg/M^2)	Control	30	24.20±1.18	0.87
	Training	30	24.31±1.58	

First of all, the results of Kolmogorov-Smirnov tests showed that all research variables had normal distribution (all P>0.05). The results of the paired-sample t-test (Table 2) revealed a notable influence of the Pilates training on depression (P=0.001) and self-esteem (P=0.001) among the individuals in the training group from the initial assessment to the final assessment. Conversely, there were no significant differences in the impact observed between the pre- and post-tests in the control group for both depression and self-esteem (P<0.05).

Table 2

Paired-sample t test results for intra-group comparison of depression and self-esteem

	Control Group				Training Group			
	Pretest	Posttest	T	P	Pretest	Posttest	t	P
Depression	26.62±5.09	27.58±6.94	0.090	0.89	25.47±6.37	17.93±5.88	12.08	0.001
Self-esteem	21.51±5.15	20.41±4.66	0.147	0.59	19.71±6.22	25.71±4.77	15.96	0.001

Table 3 presents the findings of the covariance test analysis conducted to compare the two groups. According to Table 3 and the level of significance is 0.001, which is less than 0.05, there is a significant difference between the estimated mean depression scores of experimental and control subjects, and the amount of difference indicates that 70.68% of the variance of the post-test scores is due to the effect of Pilates training on depression. Therefore, Pilates training is effective on the depression of the school teachers, and according to the averages, it has reduced the amount of depression.

Table 3

Analysis of covariance test outcomes for inter-group evaluation of depression

	Sum of squares	df	Mean of squares	F	P	Eta squared
Pretest	4018.694	1	4018.694	12.248	0.001	13.05
Group	35174.024	1	35174.024	140.05	0.001	48.69
Error	2958.449	57	128.63.616			

Table 4 presents the findings of the covariance test analysis conducted to compare the two groups. According to Table 4 and the level of significance is 0.001, which is less than 0.05, there is a significant difference between the estimated mean self-esteem scores of experimental and control subjects, and the amount of difference indicates that 71.04% of the variance of the post-test scores is due to the effect of Pilates training on self-esteem. Therefore, Pilates training is effective on the self-esteem of the school teachers, and according to the averages, it has increased the amount of self-esteem.

Table 4
Analysis of covariance test outcomes for inter-group evaluation of self-esteem

	Sum of squares	df	Mean of squares	F	P	Eta squared
Pretest	4254.369	1	4254.369	8.96	0.001	3.84
Group	52041.364	1	52041.364	98.96	0.001	68.97
Error	3025.029	57	89.649			

The Independent t test results (Table 5) indicated a significant difference in the post-test results between the control and training groups (P=0.001). More precisely, the training group exhibited a significant improvement in depression and self-esteem in comparison to the control group.

Table 5
Results of Independent t test to investigate the difference inter-groups in depression and self-esteem

	Test stage	T	P
Depression	Posttest	10.47	0.001
Self-esteem	Posttest	18.64	0.001

4. Discussion

The purpose of the present study was to investigate the effect of 8 weeks of Pilates exercise on depression in school teachers. The results of the present study showed that the symptoms and signs of depression in the studied population improved after a period of selected Pilates exercises compared to the control group. It seems that the effect of Pilates exercises on improving physical performance, balance, strength and flexibility somehow improves health in physical, social, psychological and environmental dimensions and also reduces depression (Masten, 2001; Sadeghipor & Aghdam, 2021a). The effect of Pilates exercise in reducing depression and improving mental health can be attributed to the role of serotonin. Because the imbalance in serotonin levels may affect the mood in a way that leads to depression and affects the functioning of the gastrointestinal and mental organs related to the quality of life (Conner & Davidson, 2003; Jolivet et al., 2010). One of the strategies that increase serotonin is exercise, which naturally increases the level of alertness and general mood of the individual, and gives people a feeling of more energy and vitality to carry out daily life tasks.

This improvement can be attributed to the effects of exercise on cognitive function. Because exercising leads to a change in the transcription level of a number of genes known to be related to neuronal activity, synaptic structure and the production of neurotransmitters, which are important in the process of memory processing and reducing depression. On the other hand, regular physical activity, as a necessity for a healthy lifestyle, affects the central nervous system and the adjustment of hippocampus, which plays a significant role in learning and memory. Exercise directly affects the structure and function of the brain

(Sadeghipor & Aghdam, 2021a; Sadeghipor et al., 2021a). Increasing breathing capacity in Pilates exercises leads to strengthening cerebral blood flow, improving the use of oxygen, increasing the activity of blood antioxidant enzymes (glutathione peroxidase - and glucose in the brain, speeding up the transfer of biochemical substances and PX-GSH), for quick elimination Radicals are released and lead to improvement of mood and reduction of depression (Sadeghipor et al, 2021b; Seyedi-Asl et al., 2021; Seyedi-Asl et al., 2016; Taghva et al., 2020). Also, it has been reported that physical activity and exercise can affect neural support processes and brain flexibility and have a positive effect on cognition and behavior, and the above arguments play an important role in improving the depression process (Khosravi et al., 2023; Moradi et al., 2020).

The Pilates training method consists of exercises that have a beneficial effect on breathing, flexibility, relaxation, memory, learning strength and endurance and is well designed to increase physical and mental health. The findings show that Pilates exercise may be a useful tool to help school teachers improve their self-esteem (Bandura, 1997; Conner & Davidson, 2003; Hartfiel et al., 2011; Herrick & Ainsworth, 2000). On the other hand, Pilates is a low-cost, low-risk and non-invasive sport, and it is based on very controlled and relaxed movements. Therefore, it seems that with the help of this sport, it is possible to reduce the negative consequences of life and the subsequent treatment costs, and to pave the way for improving the quality of life and mental health (Dana et al., 2021; Ghorbani & Bund, 2014).

5. Conclusion

In summary, it can be concluded that exercise and physical activities have a significant effect in reducing depression disorders, improving mental health and self-esteem of school teachers. Therefore, it is possible to recommend Pilates exercise and movement activities as a way to improve mental health, self-esteem, satisfaction with life, efficiency, positive mood and reduce mental and emotional tensions in school teachers. Although 8 weeks of Pilates training was effective in improving the depression of the school teachers, it is suggested that doing exercises with a different duration, type of exercise protocol and in other groups will bring a clearer answer about the extent of these effects on the well-being of the school teachers. The results of this research can be useful for experts in sports psychology, movement behavior, occupational therapy, exercise physiologists, as well as planners in the field of school system.

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Conflicts of Interest

The Authors declare that there is no conflict of interest with any organization. Also, this research did not receive any specific grant

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Research Paper: Work Stress as a Correlate of Mental Well-being: A Study of Private School Teachers

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Abstract

Objective: The increasing demands of the teaching profession, especially in private schools, have made work-related stress a major contributor to the decline of mental well-being among teachers. Understanding the relationship between work stress and mental well-being is crucial in order to help teachers deal with this overwhelming problem. This study examined work stress as a correlate of mental well-being among private secondary school teachers, and to assess whether gender, marital status, and teaching experience moderate this relationship.

Methods: A descriptive correlational research design was adopted for this study. The target population of the study was 1,253 private school teachers and a sample of size of 424 private school teachers was utilised using stratified random sampling method. The instruments utilised for data collection are the School Teachers Job Stressor Scale (STJSS) and the General Health Questionnaire (GHQ-12). Pearson correlation and hierarchical multiple regression analyses were used to analyze the data.

Results: The results showed a significant negative correlation between work stress and mental well-being ($r = -0.767$, $p < 0.001$). Gender significantly moderated the relationship ($\beta = .187$, $p < 0.001$), with male teachers showing greater susceptibility. Marital status ($\beta = -0.191$, $p < 0.001$) and teaching experience ($\beta = .187$, $p < 0.001$) also significantly moderated the relationship, indicating that married and less experienced teachers were more negatively affected by work stress.

Conclusion: The study concludes that high work stress significantly diminishes the mental well-being of private school teachers, with the magnitude of this impact varying significantly across demographic variables such as gender, marital status, and years of teaching experience.

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1. Introduction

Teaching is a profession that is known globally to induce stress and lead to burnout. This is largely because the demands of the job require teachers to consistently give their best, demonstrating diligence, commitment, and dedication. Meeting these expectations can be challenging at times, which may result in significant stress. According to the World Health Organization, as cited by Mishra and Srivastava (2022), work-related or occupational stress occurs when individuals face work demands and pressures that exceed their skills, abilities, and knowledge, making it difficult for them to manage or cope effectively. Work stress has been known and documented to be experienced by teachers in different levels and institutions – with private school teachers encountering stress more levels of stress (Ahmad et al., 2024). The World Health Organization (2024) conducted a survey and reported that 15% of working-age adults were estimated to have a mental disorder. Among the teacher population, the prevalence of work stress in Europe according to the European Commission Eurydice Report (2021) range from 50-90%. In a study by Desouky and Allam (2017), the researchers reported as high as 100% prevalence of occupational stress among Egyptian teachers. In Nigeria, Aharandu and Nwankwo (2023) found a 50.3% prevalence rate of work stress among secondary school teachers. The presence of chronic work stress, if not effectively managed, can pose significant challenges for teachers, as evidence from previous research indicates that it is a leading contributor to mental health issues such as anxiety, depression, and other long-term mental conditions (Agyapong et al., 2022).

Several factors are responsible for inducing stress on teachers with research on work stress among the general teacher population indicating that the causes of work-related stress are consistent job demands and student management (Agai-Demjaha et al., 2015; Zhao et al., 2022). Researchers who have examined work-related or occupational stress among private school teachers insist that the long hours spent on teaching, learning, and extracurricular activities (Okoro & Wali, 2020), inadequate salaries received (Agarwal et al., 2023), job insecurity, and the challenge of managing disrespectful and uncooperative students (Ahmad, 2017; Singh & Rani, 2015) are the major causes of occupational stress. Onyiri et al. (2022) also argue that inasmuch as work overload contributes to stress among individuals in the workplace, work under load can have a similar effect. When the skills and expertise of teachers are not adequately utilised, it can lead to stress, thereby impacting their mental well-being. Private school teachers in Taraba State face similar challenging work environment as their counterparts in other parts of Nigeria and the world as they are often burdened with teaching multiple subjects across different classes. In addition to their heavy workload, they contend with high expectations from parents regarding their students' academic performance. Compounding these pressures is the insecurity surrounding their jobs, which are typically not pensionable. Many of these schools also offer low salaries, meaning teachers are required to work full-time for

minimal compensation. This combination of factors can be highly stressful and may negatively impact their mental well-being.

Sharma (2017) defines mental wellbeing as a mental state in which an individual can think clearly, manage the everyday stresses of life, and sustain fulfilling relationships. Poor mental well-being has significant impact on a person's work, relationships, and overall quality of life. Ahmad et al. (2024) assert that teachers with quality mental well-being and are responsible for facilitating lessons for students in schools, have been known to deliver effective and engaging learner-centred lessons than their counterparts who do not enjoy quality mental well-being. Mental well-being is a positive condition of emotional, psychological, and social health, marked by feelings of satisfaction, resilience, and the ability to handle life's difficulties effectively (Gautam et al., 2024). It includes experiencing positive emotions, having a sense of meaning or purpose, and being able to maintain healthy relationships and participate in meaningful activities.

Previous studies have established the relationship between work stress and mental well-being with most studies asserting that work stress is linked to mental health issues such as anxiety, depression, irritability, sleep disturbances and emotional exhaustion (Chen et al., 2022; Mensah, 2021). In the educational setting, especially the private school sector, teachers experiencing stress are poorly motivated, have little motivation and are less safe at their working place. Work stress and mental well-being are moderated by gender, marital status and years of teaching experience. To better understand how moderating variables relate to work stress and mental well-being, empirical studies that have explored these variables among teachers are reviewed. Ferlis et al. (2016) investigated the effect of occupational stress on teachers' psychological well-being. The researchers sampled a total of 112 secondary school teachers from Kota Kinabalu, Sabah, Malaysia. The findings of this study indicated a significant effect of occupational stress on teachers' psychological well-being. Liao et al. (2023) conducted a study with 562 participants to investigate the effect of work stress on the well-being of primary and secondary school teachers in China. The researchers found that female teachers had significantly higher levels of work stress compared to male teachers. Despite the differences in stress, male and female teachers reported similar levels of overall well-being. Liang et al. (2022) explored the relationship between job-related stress and township teachers' professional well-being. A total of 24,276 township teachers in China participated in the study. The result revealed that female township teachers experience significantly higher levels of well-being compared to their male counterparts. The result also shows that well-being of teachers tends to increase with years of experience, especially in the later stages of a teaching career (36-40 years). However, early (3-5 years) and mid-career (11-15 years) teachers appear to be at greater risk for lower well-being.

Asa and Lasebikan (2016) conducted a descriptive cross-sectional design with 471 teachers to investigate their mental health of

as a result of stress and depression. Chi square was utilised for analysis and it was found that male teachers significantly experienced stress compared to female teachers. It was also discovered that being married was also associated with higher levels of stress among teachers. Ansah-Hughes et al. (2017) carried out a comparative study of occupational stress level among private and public sector teachers in the Techiman South Circuit using descriptive survey design and a sample of 88 respondents. The researchers found out after using chi square for data analysis that female teachers in private schools are more stressed as compared to their male colleagues.

Anuradha et al. (2015), in a descriptive survey study on work stress among secondary school teachers in India using 100 participants, reported that teachers with fewer years of teaching experience have higher levels of stress compared to their more experienced counterparts. The researchers also found that married teachers experience significantly higher levels of work stress than unmarried teachers. Kavita and Hassan (2018) compared the levels of work stress among 268 primary and secondary school teachers, using percentage and independent t-test, they found that married teachers experience significantly more stress levels compared to single (unmarried) teachers. The researchers also found that teachers with 11-15 years of experience reported higher stress compared to those with only 1-5 years of experience.

Lavanya et al. (2024) conducted a cross-sectional study to find out the level of perceived stress among private school teachers in Chengalpattu District, Tamil Nadu, India. A total sample of 300 respondents was selected and the data collected was analysed using chi square. The results indicated that married private school teachers have higher stress levels compared to those who are single. The result also shows that private school teachers with more than 20 years of experience had higher stress levels than those with fewer years. Mathew (2023) explored occupational stress and wellbeing among teachers and found that there is no significant relationship between occupational stress and wellbeing. Descriptive survey method was utilised and 100 teachers were selected as the sample, whereas Pearson's correlation and independent t-test were used for data analysis. The result also revealed that there is no significant difference in occupational stress and wellbeing among teachers with many years of teaching experience and those with little teaching experience. In a descriptive survey to determine the mental health of private school teachers, Premalatha (2021) selected 154 respondents, used t-test and ANOVA for analysing the data. The researcher discovered that male and female private school teachers had poor levels of mental health. The researcher also discovered that the mental health of private school teachers did not differ based on their work experience. However, the researcher found that single teachers in private schools had better mental health than their colleagues who are married.

The body of knowledge shows that extensive research has been carried on

work/occupational stress among teachers. However, most of these studies focus on public school settings or generalised teacher populations and despite the increasing encounters of work stress by teachers, little attention has been paid to how work stress specifically correlates with the mental well-being of private school teachers. To make it even worse, few studies examined the correlation or relationship between work stress and mental well-being among private school teachers. In the same vein, fewer studies have explored demographic or moderating variables such as gender, marital status, and years of teaching experience among private school teachers in Nigeria and specifically the area of the study which is Taraba State. This therefore, represents a significant gap in literature, especially given the challenges that private school teachers in Taraba State and especially Jalingo Education Zone face. The lack of research in this area has left stones unturned in the sense that the mental well-being of private school teachers in Taraba State has been on a decline. Therefore, this study seeks to examine work stress as a correlate of mental well-being among private school teachers in Taraba State. The study formulated and tested the following hypotheses at a 0.05 level of significance:

H_{01}: There is no statistically significant correlation between work stress and mental well-being among private school teachers.

H_{02}: Gender does not significantly moderate the relationship between work stress and mental well-being among private school teachers.

H_{03}: Marital status does not significantly moderate the relationship between work stress and mental well-being among private school teachers.

H_{04}: Teaching experience does not significantly moderate the relationship between work stress and mental well-being among private school teachers.

2. Methods

2.1. Research Design, Population and Sampling

This section explains the processes involved in conducting the study. The researchers explored certain areas such as research design, area of the study, population of the study, sample and sampling technique, instruments for data collection, procedure for data collection and method of data analysis.

Descriptive correlational design was adopted to measure the relationship between the dependent and independent variables of this study. The reason for selecting this type of design was because descriptive correlational studies analyse the link between variables, frequently utilising methods like correlation coefficients to characterise the degree to which changes in one variable are connected to changes in another (Gall et al., 2007).

This study was conducted in Jalingo Education Zone of Taraba State, Nigeria. This region has three local government areas namely: Jalingo, Ardo-kola and Lau LGAs. Jalingo is the capital city of Taraba State in northeastern Nigeria. As of November, 2022 the city is estimated to have around 581,000 people of different ethnicity including Mumuye, Kona, Fulfulde, Hausa and many other local languages. It is located between

latitude 8°54′N and longitude 11°22′E. Ardo-kola which is another LGA in Jalingo Education Zone has an area of 2,262 km² with its headquarters domiciled in the town of Sunkani. Lau is also one of the Local Government Areas in Jalingo Education Zone of Taraba State, Nigeria with its headquarters in the town of Lau. It has an area of 1,660 km² and shares borders with Ardo-kola, Jalingo, Yorro and Zing. The reason why the researchers selected Jalingo Education Zone as the area of the study is because the region is known for its high number of private schools and students, but low number of teachers. This has led to frequent complaints and concerns about the stressful situation of teachers and their mental well-being. The target population of this study consisted of 1,253 teachers. This population comprised of male and female private secondary school teachers from Jalingo Education Zone of Taraba State, Nigeria.

The sample size of this study was 424 private secondary school teachers. Stratified random sampling was employed to ensure that the sample size accurately represented the demographic characteristics relevant to the moderating variables of the study which include gender (male or female), marital status (single or married), and teaching experience (0-5 years or 6-10 years). In order to implement stratified random sampling, twenty-five private secondary schools were randomly selected from the three LGAs in Jalingo Education Zone, thereafter; the entire population of the teachers in in the twenty-five schools was stratified into eight distinct strata, each representing a combination of the moderating variables. Proportional allocation was then used to determine the number of participants to be drawn from each stratum. After calculating the sample size for each stratum, the researchers used simple random sampling within each stratum to select a total sample size of 424 participants, thereby ensuring that every teacher had an equal chance of being included in the sample. The table below presents the stratified sampling distribution used in the study.

Table 1

Stratified Sampling Distribution

Stratum	Gender	Marital Status	Teaching Experience	Population	% of Total	Sample Size
1	Male	Married	0-5 years	157	12.53%	53
2	Male	Married	6-10 years	156	12.45%	53
3	Male	Single	0-5 years	157	12.53%	53
4	Male	Single	6-10 years	156	12.45%	53
5	Female	Married	0-5 years	157	12.53%	53
6	Female	Married	6-10 years	156	12.45%	53
7	Female	Single	0-5 years	157	12.53%	53
8	Female	Single	6-10 years	157	12.53%	53

2.2. Instruments

School Teachers Stressor Scale (STJSS): The original version of the STJSS was designed by Keiko et al. (2019) and comprises of 23 items used to determine the level of teachers' work stress. This version was adopted by the researchers and used in measuring stress of private school teachers. The STJSS was trial tested on 68 private secondary school teachers drawn from the population. The participants who responded to the STJSS during the trial test were not part of the respondents who participated in the main study. However, they share similar characteristics and experiences of work stress in the course of discharging their duties. The data derived from the administration of the pilot test was analysed using Cronbach's alpha index and a reliability coefficient of 0.81 was obtained. Thus, the STJSS was ascertained to be reliable in the context of the study.

General Health Questionnaire (GHQ-12): This Questionnaire developed by Goldberg and Hillier (1979). The GHQ-12 was adopted for this research and used to measure the overall well-being of teachers. The GHQ-12 contains 12 items with an established Cronbach's reliability index of 0.77. The researchers trial tested the GHQ-12 on the 68 private secondary school teachers. The data was analysed through Cronbach's alpha index and a reliability coefficient of 0.72 was derived, thereby making the instrument reliable for data collection.

2.3 Procedure

The researchers used direct method of administration to administer copies of the STJSS and GHQ-12 to the respondents in their respective schools. The procedure was done with the help of five research assistants who were adequately briefed on modalities related to the study. The researchers first visited each selected school and sought consent from the Managements of the schools. Thereafter, the researchers and research assistants visited each school and distributed the required numbers of the STJSS and GHQ-12 to the selected sample. The copies of the STJSS and GHQ-12 were retrieved and data from the administration was analysed. The researchers utilized inferential statistics of Pearson correlation and multiple regression analysis to test the data that was collected. Pearson correlation was utilised to test H_{01}, whereas multiple regression was used in analysing H_{02}, H_{03} & H_{04}. All these null hypotheses were tested at a 0.05 level of significance. Pearson correlation was considered as one of the statistical tools for analysing H_{01} because, it is a statistical tool that measures the degree and direction of the linear relationship between two variables. In the case of this study, it was used to test the correlation between work stress and mental well-being. The reason why the researchers utilised multiple regression for analysing H_{02}, H_{03} & H_{04} was because it assists in identifying the type and degree of correlation between the dependent variable and several predictors. The predictors which the researchers aimed to establish a relationship in this study using multiple regression are gender, marital status and teaching experience.

3. Results

Table 2

Relationship between Work Stress and Mental Well-being

Variable	N	Mean	Std. Deviation	r-Cal.	p-value
Work Stress	424	57.41	5.646		
				-.767**	.001
Mental Well-being	424	24.42	6.497		

**. Correlation is significant at the 0.01 level (2-tailed).

To test H_{01}, which posits that there is no statistically significant correlation between work stress and mental well-being among private school teachers, a Pearson correlation analysis was conducted. Descriptive statistics showed that work stress had a mean of 57.41 (SD = 5.646) and mental well-being had a mean of 24.42 (SD = 6.497) among 424 private school teachers. The correlation analysis revealed a strong negative correlation between work stress and mental well-being, r(422) = -.767, p < .001 (two-tailed). This indicates that higher work stress is associated with lower mental well-being. The effect size (r = -.767) is large, according to Cohen's (1988) guidelines ($|r| \geq .50$). Thus, H_{01} is rejected, as there is a statistically significant correlation between work stress and mental well-being among private school teachers.

Table 3

Model Summary and ANOVA for the Moderation Analysis of Gender on the Relationship between Work Stress and Mental Well-being

Model	Predictors Entered	R	R^2	*F*	*p*	SS	MS	*F* Overall
1	WorkStress_Centred, Gender	.816[a]	.665	418.477	.001	11880.752	5940.376	418.477
	Residual					5976.192	14.195	
2	WorkStress_Centred, Gender, StressXGender	.827[b]	.683	23.629	.001	12199.064	4066.355	301.857
	Residual					5657.880	13.471	

Note: *N* = 424. R^2 = proportion of variance explained; Adj. R^2 = Adjusted R^2; ΔR^2 = change in R^2; Gender coded as 0 = Male, 1 = Female. WorkStress_Centred is mean-centred work stress. *p* values reflect significance of *F* change and overall model. Total sum of squares = 17856.943, df = 423.

Table 4

Regression Coefficients for the Moderation Analysis of Gender on the Relationship between Work Stress and Mental Well-being

Model	Predictor	*B*	*SE*	*β*	*T*	*p*	Tolerance	VIF
1	(Constant)	26.208	.259		101.231	.001		
	WorkStress_Centred	-.869	.032	-.755	-26.754	.001	.998	1.002
	Gender	-3.590	.366	-.277	-9.800	.001	.998	1.002
2	(Constant)	26.170	.252		103.713	.001		
	WorkStress_Centred	-1.020	.044	-.886	-23.018	.001	.509	1.964
	Gender	-3.591	.357	-.277	-10.062	.001	.998	1.002
	StressXGender	.308	.063	.187	4.861	.001	.510	1.962

Note: Dependent variable: Mental well-being. Gender coded as 0 = Male, 1 = Female. WorkStress_Centred is mean-centred work stress. StressXGender is the interaction term. *β* = standardised regression coefficient; *SE* = Standard Error; *CI* = Confidence Interval; LL = lower limit; UL = upper limit; VIF = Variance Inflation Factor.

To test H_{02}, which posits that gender does not significantly moderate the relationship between work stress and mental well-being among private school teachers, a hierarchical multiple regression analysis was conducted. In Step 1 as seen on Table 3, work stress (centered) and gender were entered as predictors of mental well-being. The model was statistically significant, $F(2, 421) = 418.477$, $p < .001$, explaining 66.5% of the variance in mental well-being ($R^2 = .665$, adjusted $R^2 = .664$). Both work stress ($\beta = -.755$, $t(421) = -26.754$, $p < .001$, 95% CI [-.933, -.805]) and gender ($\beta = -.277$, $t(421) = -9.800$, $p < .001$, 95% CI [-4.310, -2.870]) were significant predictors, indicating that higher work stress was associated with lower mental well-being, and female teachers reported lower mental well-being than male teachers.

In Step 2 shown on Table 4, the interaction term (WorkStress_Centred × Gender) was added to test for moderation. The model remained significant, $F(3, 420) = 301.857$, $p < .001$, explaining 68.3% of the variance ($R^2 = .683$, adjusted $R^2 = .681$). The addition of the interaction term significantly improved the model, $\Delta R^2 = .018$, $F(1, 420) = 23.629$, $p < .001$. The interaction term was significant ($\beta = .187$, $t(420) = 4.861$, $p < .001$, 95% CI [.183, .432]), suggesting that gender moderates the relationship between work stress and mental well-being. Specifically, the negative effect of work stress on mental well-being was weaker for female teachers compared to male teachers. Thus, H_{02} which says that gender does not moderate the relationship between work stress and mental well-being among private school teachers is rejected.

Table 5

Model Summary and ANOVA for the Moderation Analysis of Marital Status on the Relationship between Work Stress and Mental Well-being

Model	Predictors Entered	R	R^2	Adj. R^2	ΔR^2	*F* Change	df1	df2	*p*	Sum of Squares	Mean Square	*F* Overall
1	WorkStress_Centred, MaritalStatus	.81	.66	.664	.66	418.47	2	421	.001	11880.75	5940.37	418.47
	Residual									5976.19	14.19	
2	WorkStress_Centred, MaritalStatus, StressXMaritalStatus	.827[b]	.68	.681	.01	23.62	1	420	.001	12199.06	4066.35	301.85
	Residual									5657.88	13.47	

Note: *N* = 424. R^2 = proportion of variance explained; Adj. R^2 = Adjusted R^2; ΔR^2 = change in R^2; MaritalStatus coded as 0 = Single, 1 = Married. WorkStress_Centred is mean-centred work stress. *p* values reflect significance of *F* change and overall model. Total sum of squares = 17856.943, df = 423.

Table 6:

Regression Coefficients for the Moderation Analysis of Marital Status on the Relationship between Work Stress and Mental Well-being

Model	Predictor	*B*	*SE*	*β*	*t*	*p*	95% CI [LL, UL]	Tolerance	VIF
1	(Constant)	22.618	.259		87.367	.001	[22.110, 23.127]		
	WorkStress_Centred	-.869	.032	-.755	-26.754	.001	[-.933, -.805]	.998	1.002
	MaritalStatus	3.590	.366	.277	9.800	.001	[2.870, 4.310]	.998	1.002
2	(Constant)	22.579	.252		89.482	.001	[22.083, 23.075]		
	WorkStress_Centred	-.712	.045	-.619	-15.750	.001	[-.801, -.623]	.489	2.045
	MaritalStatus	3.591	.357	.277	10.062	.001	[2.889, 4.292]	.998	1.002
	StressXMaritalStatus	-.308	.063	-.191	-4.861	.001	[-.432, -.183]	.489	2.043

Note: Dependent variable: Mental well-being. MaritalStatus coded as 0 = Single, 1 = Married. WorkStress_Centred is mean-centred work stress. StressXGender is the interaction term. *β* = standardised regression coefficient; *SE* = Standard Error; *CI* = Confidence Interval; LL = lower limit; UL = upper limit; VIF = Variance Inflation Factor.

To test H_{03}, which posits that marital status does not significantly moderate the relationship between work stress and mental well-being among private school teachers, a

hierarchical multiple regression analysis was conducted. In Step 1 as shown on Table 5, work stress (centered) and marital status were entered as predictors of mental well-being. The model was statistically significant, $F(2, 421) = 418.477$, $p < .001$, explaining 66.5% of the variance in mental well-being ($R^2 = .665$, adjusted $R^2 = .664$). Work stress was a significant negative predictor ($\beta = -.755$, $t(421) = -26.754$, $p < .001$, 95% CI [-.933, -.805]), indicating that higher work stress was associated with lower mental well-being. Marital status was a significant positive predictor ($\beta = .277$, $t(421) = 9.800$, $p < .001$, 95% CI [2.870, 4.310]), suggesting that married teachers reported higher mental well-being than single teachers.

In Step 2 shown on Table 6, the interaction term (WorkStress_Centred × MaritalStatus) was added to test for moderation. The model remained significant, $F(3, 420) = 301.857$, $p < .001$, explaining 68.3% of the variance ($R^2 = .683$, adjusted $R^2 = .681$). The addition of the interaction term significantly improved the model, $\Delta R^2 = .018$, $F(1, 420) = 23.629$, $p < .001$. The interaction term was significant ($\beta = -.191$, $t(420) = -4.861$, $p < .001$, 95% CI [-.432, -.183]), indicating that marital status moderates the relationship between work stress and mental well-being. Specifically, the negative effect of work stress on mental well-being was stronger for married teachers compared to single teachers. Thus, H_{03} is rejected, as marital status significantly moderates the relationship between work stress and mental well-being among private school teachers.

Table 7

Model Summary and ANOVA for the Moderation Analysis of Teaching Experience on the Relationship between Work Stress and Mental Well-being

Model	Predictors Entered	R	R^2	Adj. R^2	ΔR^2	*F* Change	df1	df2	*p*	Sum of Squares	Mean Square	*F* Overall
1	WorkStress_Centred, TeachingExperience	.816[a]	.665	.664	.665	418.477	2	421	.001	11880.752	5940.376	418.477
	Residual									5976.192	14.195	
2	WorkStress_Centred, TeachingExperience, StressXTeachingExperience	.827[b]	.683	.681	.018	23.629	1	420	.001	12199.064	4066.355	301.857
	Residual									5657.880	13.471	

Note: N = 424. R^2 = proportion of variance explained; Adj. R^2 = Adjusted R^2; ΔR^2 = change in R^2; TeachingExperience coded as 0 = 0-5 years, 1 = 6-10 years. WorkStress_Centred is mean-centred work stress. p values reflect significance of F change and overall model. Total sum of squares = 17856.943, df = 423.

Table 8

Regression Coefficients for Hierarchical Regression on Teaching Experience Moderating the Relationship between Work Stress and Mental Well-being

Model	Predictor	*B*	*SE*	*B*	*t*	*p*	95% CI [LL, UL]	Tolerance	VIF
1	(Constant)	26.208	.259		101.231	.001	[25.699, 26.717]		
	WorkStress_Centred	-.869	.032	-.755	-26.754	.001	[-.933, -.805]	.998	1.002
	TeachingExperience	-3.590	.366	-.277	-9.800	.001	[-4.310, -2.870]	.998	1.002
2	(Constant)	26.170	.252		103.713	.001	[25.674, 26.666]		
	WorkStress_Centred	-1.020	.044	-.886	-23.018	.001	[-1.107, -.932]	.509	1.964
	TeachingExperience	-3.591	.357	-.277	-10.062	.001	[-4.292, -2.899]	.998	1.002
	StressX TeachingExperience	.308	.063	.187	4.861	.001	[.183, .432]	.510	1.962

Note: Dependent variable: Mental well-being. TeachingExperience coded as 0 = 0-5 years, 1 = 6-10 years. WorkStress_Centred is mean-centred work stress. StressXGender is the interaction term. *β* = standardised regression coefficient; *SE* = Standard Error; *CI* = Confidence Interval; LL = lower limit; UL = upper limit; VIF = Variance Inflation Factor.

To test H_{04}, which posits that teaching experience does not significantly moderate the relationship between work stress and mental well-being among private school teachers, a hierarchical multiple regression analysis was conducted. In Step 1 as shown on Table 7, work stress (centered) and teaching experience were entered as predictors of mental well-being. The model was statistically significant, $F(2, 421) = 418.477$, $p < .001$, explaining 66.5% of the variance in mental well-being ($R^2 = .665$, adjusted $R^2 = .664$). Work stress was a significant negative predictor ($\beta = -.755$, $t(421) = -26.754$, $p < .001$, 95% CI [-.933, -.805]), indicating that higher work stress was associated with lower mental well-being. Teaching experience was also a significant negative predictor ($\beta = -.277$, $t(421) = -9.800$, $p < .001$, 95% CI [-4.310, -2.870]), suggesting that teachers with less experience reported lower mental well-being.

In Step 2 shown on Table 8, the interaction term (WorkStress_Centred ×

TeachingExperience) was added to test for moderation. The model remained significant, $F(3, 420) = 301.857$, $p < .001$, explaining 68.3% of the variance ($R^2 = .683$, adjusted $R^2 = .681$). The addition of the interaction term significantly improved the model, $\Delta R^2 = .018$, $F(1, 420) = 23.629$, $p < .001$. The interaction term was significant ($\beta = .187$, $t(420) = 4.861$, $p < .001$, 95% CI [.183, .432]), indicating that teaching experience moderates the relationship between work stress and mental well-being. Specifically, the negative effect of work stress on mental well-being was weaker for teachers with less teaching experience. Thus, H_{04} which says that teaching experience does not moderate the relationship between work stress and mental well-being among private school teachers is rejected.

4. Discussion

This study investigated work stress as a correlate of mental well-being among private school teachers. The findings have clarified the hypotheses that were formulated and have given clarity on the issues at hand. The first finding indicates that there is significant negative correlation between work stress and mental well-being, implying that higher levels of work stress are associated with lower levels of mental well-being among private school teachers. This finding agrees with finding by Ferlis et al. (2016) who found that occupational stress has significant effect on teachers' psychological well-being. Teachers, whether they work in a private or public sector are prone to stress and this stress results in low mental and psychological well-being. This finding is also consistent with previous research by Chen et al. (2022) and Mensah (2021), who reported that work stress contributes to mental health issues such as anxiety, depression, and emotional exhaustion among teachers and educators. As shown in previous studies, the high prevalence of work stress could be the reason for the decline in mental well-being that was observed in this study. The finding, however, disagrees with finding by Mathew (2023) as the researcher reported in his study that occupational/work stress does not have significant relationship with well-being among teachers.

The second finding indicates that gender significantly moderates the relationship between work stress and mental well-being among private school teachers. Specifically, the negative effect of work stress on mental well-being was weaker for female teachers than for male teachers. This finding contrasts with some studies, such as Liao et al. (2023), which found higher work stress among female teachers but similar well-being levels across genders. The finding also contrasts Ansah-Hughes et al. (2017) as the compared the stress levels of private school teachers and reported that female teachers are more stressed as compared to their male colleagues. In the aspect of mental well-being, the male participants of this study reported lower levels, while the female participants have a slightly higher level of mental well-being. This current finding aligns with Liang et al. (2022), who reported higher professional well-being among female township teachers in China. The weaker effect of work stress on female teachers in this study reflects the resilience of women that they have developed over the years by

managing multiple roles such as teaching and domestic responsibilities.

The third finding shows that marital status moderates the relationship between work stress and mental well-being among private school teachers, with the negative effect of work stress being stronger for married teachers than for single teachers. This finding supports studies by Anuradha et al. (2015), Asa and Lasebikan (2016), Kavita and Hassan (2018), and Lavanya et al. (2024), which reported higher work stress levels among married teachers due to additional familial responsibilities. In Taraba State, married teachers, particularly those in private schools, may face increased financial pressures due to low salaries which are not enough to cater for their personal and family needs. This implies that family and teaching responsibilities may trigger their work stress levels, thereby negatively affecting their mental well-being. However, this finding contrasts with Premalatha (2021), who found better mental health among single private school teachers. The stronger effect of work stress on mental well-being for married teachers in the present study may reflect the burden associated with work and family obligations, leading to a reduction in the teachers' abilities to cope with occupational stress.

The fourth finding shows that teaching experience moderates the relationship between work stress and mental well-being among private school teachers, with the negative effect of work stress being weaker for teachers with less experience than for those with more experience. This corroborates with Anuradha et al. (2015), who reported lower stress among more experienced teachers, a prominent reason being that these teachers have adapted to the demands of their job. The finding, however, contrasts with Lavanya et al. (2024), who found higher stress among teachers with over 20 years of experience, Kavita and Hassan (2018) who found higher levels of work stress among teachers with 11-15 years of experience, and Mathew (2023) who reported no significant relationship between experience and stress. The finding also shows that even though teachers with more years of experience have lower stress levels, they also have significant declines in their mental well-being, implying that experience and adapting to job demands does not guarantee resilience.

These findings imply that the issues of work stress and mental well-being of private school teachers in Taraba State should not be taken lightly, and that employers, employees and educational policymakers should urgently address work stressors such as low salaries, long hours, and job insecurity. This study, though successfully carried out, is not devoid of certain limitations. One limitation of this study is the exclusive focus on private secondary school teachers, excluding those in private primary schools. This restriction limits the generalizability of the findings, as it does not capture the experiences of teachers at the primary level. Future research should consider including teachers from private primary schools across the state to enhance the applicability and relevance of the findings, particularly in relation to studies on work-related stress and mental well-being. Another limitation of this study is the

relatively small sample size, with only 420 private school teachers selected, which may not be sufficient for broad generalizations. Additionally, the study was limited to just three out of the sixteen local government areas in Taraba State. To improve the generalizability of future findings, subsequent studies should consider including a larger sample size and expanding the scope to cover all local government areas in the state or even extend to other states across the country. A larger sample size will give more clarity and provide appropriate understanding of the situation of private school teachers with regards to work stress and mental well-being.

Another limitation of the study is that it did not consider work stress in relation to the specific subjects taught by teachers. The study overlooked the possibility that certain subjects may be more demanding than others, potentially contributing to varying levels of stress and affecting teachers' mental well-being differently. Future research should investigate the influence of subject specialization on work-related stress, as this may serve as an eye opener into the specific challenges faced by teachers across different academic disciplines. Although the study considered years of experience among private school teachers, it did not examine their levels of work stress and mental well-being in relation to their academic qualifications. Teachers may experience varying levels of stress depending on their qualifications, as higher qualifications may come with additional responsibilities or expectations. Future studies should investigate how academic qualifications influence work stress and mental well-being so as to understand the factors contributing to the work or occupational stress of teachers in private schools.

The age of respondents was not considered as a variable in this study. This omission limits the ability to assess whether age plays a role in influencing work-related stress and mental well-being. Future studies should include age as a moderator variable in the study of work stress and mental well-being as different age groups may experience and respond to stress differently due to varying levels of experience, resilience, or personal circumstances. This study focused solely on the relationship between work stress and mental well-being, without examining how these factors may affect job performance or job satisfaction. Future research could explore the influence of work stress and mental well-being on the job performance or job satisfaction of private school teachers. Such investigations would add to the body of knowledge on how psychological factors impact teachers' effectiveness and overall productivity in their place of work.

5. Conclusion

This study investigated work stress as a correlate of mental well-being among private school teachers in Taraba State, and found that a strong negative correlation between work stress and mental well-being among private school teachers in Taraba State exists, with gender, marital status, and teaching experience significantly moderating this relationship.

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Conflict of interest

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Research Paper: The Relationship Between Personality Traits and Fear of Missing Out (FoMO) During the COVID-19 Pandemic

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Abstract

Objective: Nowadays, the excessive use of smartphones has become a major public health concern. In this context, a syndrome known as Fear of Missing Out (FoMO) has emerged, which is linked to various mental health issues.**:** This study aimed to examine the relationship between personality traits and Fear of Missing Out (FoMO) during the COVID-19 pandemic.

Methods: This correlational study was conducted on a statistical population consisting of students from the University of Tabriz. A total of 337 students were selected through convenience sampling. Data were collected using the NEO Five-Factor Inventory and the FoMO scale, and analyzed using Pearson correlation analysis at a significance level of 0.05.

Results: The findings revealed a significant positive correlation between FoMO and the personality traits of neuroticism, extraversion, openness to experience, and agreeableness ($P < 0.05$).

Conclusion: Based on the results of this study, it can be concluded that personality traits serve as good predictors of Fear of Missing Out (FoMO).

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1. Introduction

At the beginning of 2020, the World Health Organization declared the outbreak of the coronavirus a global public health emergency. One of the key preventive measures implemented globally to combat the spread of the virus through close contact was physical distancing from others, which resulted in reduced time spent outdoors and increased use of social media. This rise in online engagement during the pandemic brought about positive experiences, such as helping people stay informed, entertained, and cope with stress (Polizzi et al., 2020). However, it was also associated with increased internet addiction disorders (Király, 2020), social anxiety and depression due to overexposure to negative news (Gao, 2020), and potential exposure of young individuals to violent or harmful content. Furthermore, the constant use of social media during the COVID-19 pandemic led to the emergence of FoMO symptoms (Yu, 2020).

FoMO, or the Fear of Missing Out, is defined as a new form of addiction that compels individuals to spend more time on social media out of fear of missing updates and not staying informed about developments on social networking sites (Buglass, 2017; Przybylski, 2013). For individuals with FoMO, participation in social media is particularly appealing because it offers both social connection and engagement. However, this phenomenon comes with consequences. FoMO has been shown to increase social media use among young people (Przybylski, 2013; Vaidya, 1970). A key study by Przybylski et al. (2013), who developed the FoMO scale, revealed that individuals with high levels of FoMO symptoms tend to use social media more frequently and are more likely to use their phones while driving or during class (Przybylski et al., 2013). They suggested that FoMO can be explained through Self-Determination Theory (SDT): according to this theory, certain psychological and social tendencies must be satisfied within interpersonal and cultural contexts to facilitate individual growth, integration, and well-being. If these psychological needs are not fulfilled, they can lead to serious psychological harm. SDT refers to these essential psychological satisfactions as basic psychological needs, which include autonomy, competence, and relatedness (Deci, 2013). It has been shown that FoMO mediates the relationship between unmet psychological needs and engagement with social media.

According to previous studies, FoMO is linked to various mental health issues, including stress (Brown and kuss, 2020), social anxiety (Elhai, 2020; Baker, 2016), depression (Cataldo, 2021), sleep deprivation (Adams, 2017), poor academic motivation (Hetz, 2015), and social media misuse (Richter, 2018). Additionally, increased stress, reduced psychological well-being, and life difficulties (Elhai, 2016) are associated with a higher risk of addictive behaviors and a greater likelihood of experiencing FoMO (Mahapatra, 2019). Given that increased stress and life challenges are common during pandemics, it becomes essential to identify factors contributing to FoMO symptoms during the COVID-19 pandemic.

One such factor examined in past research is personality traits (Przybylski, 2013). Researchers argue that since FoMO is a form of anxiety associated with social situations (Davis, 2001), it can be predicted based on personality traits linked to higher levels of anxiety. Personality traits describe how individuals think, feel, and behave in various situations (Chen, 2017). The Five-Factor Model (FFM) of personality is one of the most widely used frameworks. This comprehensive model seeks to explain the structure of personality (McCrae, 2008) and includes five personality traits: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience (Horzum, 2017). Studies have shown that personality traits can predict social media addiction and FoMO (Jeong, 2017). In fact, the Five-Factor Model is considered a relevant variable in explaining social media addiction. Hamutoglu et al. (2020) found in their research that agreeableness positively affects FoMO, while other traits did not have a significant positive impact (Hamutoglu et al., 2020). Similarly, Rozgonjuk et al. (2021) found that young individuals had higher FoMO scores. Additionally, neuroticism was positively correlated with FoMO, whereas extraversion, openness, agreeableness, and conscientiousness were negatively correlated with FoMO (Rozgonjuk et al., 2021).

In summary, FoMO is a construct involving unmet social needs and is conceptualized as a result of depression and social anxiety (Oberst, 2017). At the same time, the role of personality traits in the development of FoMO symptoms cannot be overlooked. Therefore, exploring the underlying personality traits associated with unmet social needs can play a crucial role in identifying how social media use and FoMO symptoms emerge and evolve. However, a review of previous research reveals a relative lack of attention to this area, especially within Iranian culture, highlighting the need for further investigation. Additionally, to date, no study has simultaneously examined the relationship between personality traits and FoMO during the COVID-19 pandemic. Given the limited and sometimes contradictory findings of the few existing studies, the present research aims to answer the following question: Is there a relationship between personality traits and FoMO during the COVID-19 pandemic?

2. Methods

2.1. Research Design and Participants

The present study employed a descriptive-correlational design. The statistical population consisted of students at the University of Tabriz. According to Delavar (2024), the minimum sample size required for correlational research is 50 participants; therefore, a total of 337 students were selected through convenience sampling (after excluding incomplete or distorted questionnaires). Subsequently, the Personality Traits and FoMO questionnaires were distributed among the participants. After they completed the questionnaires, the responses were collected for data analysis.

2.2. Instruments

NEO Five-Factor Inventory (NEO-FFI): The Five-Factor NEO Personality Inventory was developed by McCrae and Costa (1985) and contains 60 items, each rated on a five-point Likert scale (from "strongly disagree"

to "strongly agree"). The inventory consists of five subscales with 12 items each, corresponding to the personality dimensions of Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. Scores for each dimension range from 0 to 40. Cronbach's alpha coefficients for these five traits were reported as 0.80, 0.78, 0.69, 0.71, and 0.75, respectively. The correlation coefficients between the long and short forms of the NEO questionnaire were 0.92, 0.90, 0.91, 0.77, and 0.87, respectively. In the Persian version, the reliability coefficients were found to be 0.86, 0.77, 0.73, 0.68, and 0.81 in the same order (McCrae & Costa, 1985). In a study, Anisi et al. (2012) examined the validity and reliability of the short form of the NEO Personality Inventory. In this correlational study, 630 students from a police academy were selected via convenience sampling and completed both the NEO short form and the Eysenck Personality Questionnaire. Pearson correlation was used to analyze the data. Cronbach's alpha results showed that Conscientiousness and Neuroticism had reliabilities of 0.83 and 0.80, respectively, while Agreeableness and Extraversion had lower reliabilities of 0.60 and 0.58. The Openness dimension had an unacceptable internal consistency of 0.39. Additionally, concurrent validity analyses showed that the correlation between the NEO and Eysenck scales for Neuroticism and Extraversion were 0.68 and 0.47, respectively.

Fear of Missing Out (FoMO) Scale: The FoMO scale was originally developed by Przybylski et al. (2013). It is a 10-item instrument measuring anxiety about missing out on others' enjoyable experiences, rated on a 5-point Likert scale (1 = "not at all true of me" to 5 = "extremely true of me"). This is a unidimensional scale and has been validated in relation to smartphone use and negative affect in an experience-sampling study. Rozgonjuk et al. (2021) reported a Cronbach's alpha of 0.76 for the scale. Additionally, in a study by Asadi and Sharifi (2022), the Persian version of the scale demonstrated strong psychometric properties, with a reliability coefficient of 0.95 and a good model fit index of 0.62.

2.3. Implementation Method

After obtaining the necessary permissions, the questionnaires were created in an online format. Due to the COVID-19 situation, the survey links were distributed via online student groups at the University of Tabriz. At the beginning of the questionnaires, participants were assured that there were no right or wrong answers, their responses would remain confidential, and the data would be used solely for research purposes. Informed consent was obtained from all participants before their participation. To analyze the data, Pearson correlation analysis was employed. The data were analyzed using SPSS version 26 at a significance level of 0.05.

3. Results

The sample of this study consisted of 337 participants, of whom 241 were women (71.5%) and 96 were men (28.5%). Among the participants, 168 were married (49.9%) and 169 were single (50.1%). The mean age of the participants was 29.12 years, with a standard deviation of 9.83, ranging from 19

to 75 years. In terms of education level, 194 participants were undergraduate students (57.6%), 122 were postgraduate students (36.2%), and 21 were doctoral students (6.2%).

Table 1

Mean and Standard Deviation of the Research Variables

Variable	Mean	Standard Deviation
Neuroticism	26.39	6.42
Extraversion	21.62	5.64
Openness	22.42	5.00
Agreeableness	10.00	2.99
Conscientiousness	22.26	4.61
FOMO	22.55	7.94

Table 1 shows the descriptive statistics of the research variables. To examine and describe the data obtained from the sample regarding the components of the Big Five personality traits (neuroticism, extraversion, openness, agreeableness, and conscientiousness) and fear of missing out (FOMO), central tendency and dispersion indices were used.

Table 2

Results of the Correlation Matrix of the Research Variables

Variables	1	2	3	4	5	6
1. Neuroticism	1					
2. Extraversion	0.106	1				
3. Openness	-0.157**	0.157**	1			
4. Agreeableness	0.304**	0.033	0.066	1		
5. Conscientiousness	0.224**	0.443**	-0.112*	0.268**	1	
6. FOMO	-0.171**	0.139*	0.205**	0.266**	-0.016	1

Note: ** = significant at $p < 0.01$, * = significant at $p < 0.05$

The results of the correlation coefficients in Table 2 show that there is a significant positive relationship between FOMO and the components of neuroticism, extraversion, openness, and agreeableness from the five-factor personality dimensions ($p < 0.05$).

4. Discussion

This study aimed to examine the relationship between personality traits and FOMO (Fear of Missing Out) during the COVID-19 pandemic. The findings revealed that among the components of the five-factor personality model, openness to experience had a negative relationship, and conscientiousness had a positive relationship with predicting FOMO. These results align with the findings of Hamutoglu et al. (2020) and Rozgonjuk et al. (2021).

To explain these findings, it can be stated that since the COVID-19 pandemic has become a global threat, it has led to psychological distress, which is partly intensified by the abundant information provided by social media, contributing to the development of FOMO (wiederhold, 2020). However, individuals with higher openness to experience tend to be more open-minded, cultured, and in need of variety, and they have a non-dogmatic perspective. These individuals are more likely to experience both positive and negative emotions and believe that all emotions (both positive and negative) should be experienced. As a result, they tend to cope better with ambiguity and new conditions in situations like the pandemic and are less likely to seek out news, entertainment, or attempt to manage the stress related to missing out on information. Therefore, it is logical that there is a negative relationship between openness to experience and FOMO (Hamutoglu et al., 2020).

On the other hand, to explain the positive relationship between conscientiousness and FOMO, two traits can be highlighted: an excessive sense of responsibility and goal-directedness in conscientious individuals. Based on their sense of excessive responsibility, conscientious individuals engage in perfectionistic efforts to avoid bad events and use any means to help others. In terms of goal-directedness, they prefer everything to progress according to order and rules, which are within their control. However, since COVID-19, at least during the time of this study, is an unpredictable and uncontrollable disease, it is natural for conscientious individuals to spend more time

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Conflict of interest

No conflicts of interest were disclosed by the writers.

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Research Paper: The Relationship Between Multicultural Education and Academic Engagement in University Students

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Abstract

Objective: Interaction with classmates is a vital element that contributes to completing tasks and acquiring social skills in education. On the other hand, education, learning, and development are closely and reciprocally linked with culture in every society. Given Iran's multicultural and multiethnic context, multicultural education can help reduce discrimination and enhance students' engagement and in-group interaction. This study aimed to investigate the relationship between multicultural education and academic engagement among students at Hakim Sabzevari University.

Methods: The research method was descriptive-correlational. The statistical population included 8,199 students at Hakim Sabzevari University. Using random sampling and Morgan's table, 390 students were selected as the sample. The Multicultural Education Questionnaire and the Academic Engagement Scale (AES) were administered. Data were analyzed using correlation methods and SPSS version 27 at a significance level of 0.05.

Results: Findings indicated a significant relationship between multicultural education and academic engagement ($p = 0.05$).

Conclusion: The results suggested that applying cooperative and participatory teaching methods and emphasizing social justice in multicultural education leads students to be more inclined toward group work, ultimately fostering educational and cultural development.

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1. Introduction

In the present era, due to extensive physical and virtual interactions among individuals and cultures, and the dissolution of traditional boundaries, inescapable links have been formed between people and cultures. The presence of cultures side by side and their convergence increases the likelihood of challenges and tensions among individuals and cultures. Therefore, an appropriate mechanism is needed to bring cultures closer and create understanding and interaction among them for peaceful coexistence (Heidarabadi, 2010). Iran is composed of diverse cultural, ethnic, and linguistic groups, each of which differs from others in culture, customs, language, religion, and beliefs. These diverse cultural and ethnic groups, in order to live peacefully alongside each other, need to move away from ethnocentrism and ethnic favoritism, and towards cultural relativism. Therefore, they must recognize their differences and similarities and work towards the growth of intercultural and interethnic relations (Vafaei & Sobhaninejad, 2015). On the other hand, education, learning, and development in any society are closely and reciprocally linked to culture. This means that, on the one hand, culture is considered a product of education, and on the other hand, the process of education is influenced by the existing meanings, values, and norms within a society (Shahablavasani et al., 2020). Therefore, the existence of racial, ethnic, linguistic, and cultural diversity in different countries obligates their educational systems to provide a fitting and appropriate response to the phenomenon of diversity and pluralism in their society, and to appropriately address it in educational programs. Multicultural education is an approach adopted in response to the cultural diversity in a society and its educational system (Mostafazadeh et al., 2019). Multicultural education involves intellectual curiosity, self-criticism, the ability to form an independent opinion by evaluating arguments and evidence, respect for others, sensitivity to different ways of thinking and living, and activities aimed at moving away from ethnic mindsets (Demir & Ozden, 2014). Multicultural education aims to prepare learners for a diverse world and enhance their capacity to communicate with others by creating active participation in the learning process and supporting their experiences in a safe classroom environment (Havas Bigi et al., 2023).

The term academic participation refers to the extent of student activity that moves them along a spectrum from lack of awareness, understanding, and skill about various subjects to achieving comprehension, skills, and academic achievements (Reeve & Tseng, 2011). One of the prominent features of students is their ability to manage learning and engage actively, which ultimately leads to an increase in motivation (Phillips, 2005). Theorists view academic participation as a multidimensional construct, encompassing behavioral, cognitive, motivational, and emotional aspects (Fredericks et al., 2016). In fact, participation in the context of education and learning refers to both the quantity (amount) and quality (type) of active engagement of learners in an activity, such that the learner is actively engaged in their learning and is committed to it (Hiver et al.,

2021). The participation theory is one of the educational theories introduced by American technologists, Carsley and Schneiderman (Hall, 2015). The main idea of this theory is that learner participation in learning activities is significantly shaped through interaction with others and engaging in useful and meaningful tasks (Shekarey, 2012).

Numerous studies have been conducted examining the relationship between cultural education and academic participation. Hosseini zarrabi et al. (2021) in their study showed that 9 methods for creating interaction (creating a problem-based learning environment, creating space for personal reflection and discussion, providing feedback, rewarding based on intrinsic motivators, involving students in educational design and implementation, using multimedia tools, self-assessment, collaborative learning techniques, peer evaluation, and designing and facilitating group activities) and 13 features of effective interaction in the learning process result in a dynamic and active learning environment when applied in practice. Wong and Chapman (2023) conducted a study on student satisfaction and interaction in higher education, which presented the results of an in-depth analysis of 8 aspects of student satisfaction (satisfaction with the program, teaching staff, institution, university facilities, support provided to students, personal learning, overall university experience, and life as a student in general) and suggested that various aspects of student satisfaction are linked to 3 types of interaction: student-student (formal), student-student (informal), and student-teacher. Demir and Yurdakul (2015) conducted a study entitled "Examining the Required Features of Multicultural Education in Curriculum Design," which found that a curriculum has multicultural characteristics if its goals reflect learner-oriented features such as understanding human rights and recognizing diverse viewpoints, the content includes topics like human rights and citizenship, and learning situations are provided for various groups. Bias-free implementations and evaluation processes focus on reflective thinking skills.

The position of multicultural education in higher education can be examined from various dimensions, and one of these dimensions is the school-based learning experiences that university students have gained from their general education prior to entering university. The premise of this research is that school-based learning in the area of multiculturalism influences higher education and students' academic participation, and as they transition from their final general education into university, their type of learning in a culturally compatible and agreed-upon environment will impact their academic participation or create challenges in this regard (Araghiyeh & Fathi Vajargah, 2012). Therefore, the aim of this research is to examine the relationship between multicultural education and academic participation among students at Hakim Sabzevari University.

2.Methods

2.1. Research Design and Participants

The present study was a descriptive-correlational research. The statistical

population consisted of all students at Hakim Sabzevari University during the 2023–2024 academic year, totaling 8,199 individuals. Based on Morgan's table, a sample size of 367 was determined. However, questionnaires were randomly distributed among 400 students from the target population in the second semester, all of which were returned. After reviewing the responses, 390 questionnaires were included in the analysis. To measure the variable of multicultural education, the "Identification of Multicultural Curriculum Components" questionnaire was used, and to assess the variable of academic engagement, Reeve's Academic Engagement Scale (AES, 2013) was employed.

2.2. Instruments

Multicultural Education Questionnaire: This instrument was developed by Dourfard et al. (2021) and initially included 60 items across five dimensions. However, based on the research purpose, the following items were excluded from the analysis: 2, 6–10, 12–14, 16, 19–23, 25–30, 32–35, 38, 39, 42, 45–47, and 50–60. The items are rated on a 5-point Likert scale. The five subscales include: foundations of multicultural curriculum (Items 1–12), goals of the curriculum (Items 13–27), content (Items 28–39), instructional activities (Items 40–53), and assessment methods (Items 54–60). Cronbach's alpha coefficients for all subscales were above 0.70, indicating acceptable reliability (Dourfard et al., 2021).

Academic Engagement Scale (AES): This revised scale was developed by Reeve et al. in 2013 and includes 17 items across four subscales: behavioral engagement (Items 1–4), emotional engagement (Items 5–8), cognitive engagement (Items 9–13), and agentic engagement (Items 14–17). The items are scored on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The original study confirmed construct validity through confirmatory factor analysis, and Cronbach's alpha coefficients for the subscales ranged from 0.72 to 0.86. In Iran, Ramazani and khamesan (2017) reported satisfactory face, content, and criterion validity for the Persian version, with Cronbach's alpha coefficients exceeding 0.70.

2.3. Implementation Method

After obtaining the necessary permissions from relevant authorities, the researcher employed simple random sampling to select a specific number of students from Hakim Sabzevari University. The Multicultural Education and Academic Engagement questionnaires were administered to these students. Upon completion, the questionnaires were collected and analyzed using Pearson correlation and SPSS software version 27. Participants were assured of the confidentiality of their responses, and informed consent was obtained prior to participation.

3. Results

Based on the demographic information of the sample, out of the 400 individuals selected for the present study, 390 participants completed the questionnaires. Among them, 48.2% were male and 51.8% were female. In terms of age, the majority of students were between 18 and 22 years old, accounting for 34.1% of the sample, while the smallest proportion, 17.9%, were over 30 years old.

Table 1

Descriptive Statistics of Research Variables

Variable	Mean	Standard Deviation
Multicultural Education	43.80	6.35
Academic Engagement	38.90	5.10

Table 1 presents the mean and standard deviation of the research variables.

Before analyzing the research variables, the normality of data distribution was assessed using the Kolmogorov-Smirnov test. The results showed that the z-values for multicultural education, academic engagement, and student interaction were 0.099, 0.131, and 0.103, respectively, none of which were significant at the 0.01 level, indicating normal distribution.

To examine the relationship between the study variables, Spearman's correlation coefficient was used, and the results are presented in Table 2.

Table 2.

Correlation matrix between study variables

Variable	Multicultural Education	Academic Engagement
Multicultural Education	1.000 (p = .000)	.123* (p = .000)
Academic Engagement	.123* (p = .000)	1.000 (p = .000)

According to the results in Table 2, the correlation coefficient between multicultural education and academic engagement was 0.123 with a significance level of 0.001. This indicates a positive, direct, and statistically significant relationship between the two variables.

4. Discussion

This study was conducted with the aim of examining the relationship between multicultural education and students' academic engagement. The findings obtained from analyzing the relationships between the research variables highlighted important points relevant to the study's objectives.

The results are consistent with the studies of Hosseini zarrabi (2021), Araghiyeh and Fathi Vajargah (2012), Wong and Chapman (2023), and Demir and yurdakul (2015). In explaining these findings, it can be stated that given Iran's rich diversity of ethnicities and cultures—and its global rank as the 24th most ethnically diverse country—greater attention to multicultural education in educational institutions, especially higher education centers, is necessary.

Embracing ethnic and racial diversity, responding to various ethnic, linguistic, and cultural identities, being sensitive and responsive to students' cultural backgrounds, and using cooperative learning methods, problem-solving instruction, and critical thinking can help students listen attentively in class, enjoy being present, take pleasure in

learning new things, and feel encouraged to ask questions for better understanding (Araghiyeh & Fathi Vajargah, 2012).

Emphasis on social justice, respect for one's own and others' languages, religions, customs, and cultural values, as well as presenting individual and group projects enriched by a diversity of content exchanged in the classroom, alongside a supportive classroom environment and an instructor who encourages group work, can help students complete their tasks effectively and create a lively and cheerful class atmosphere (Hosseini Zarrabi et al, 2021).

If students work on topics they are interested in, express their preferences and opinions, and receive clear, quality feedback, the content exchanged in class will not seem confusing or ambiguous. Moreover, lack of technological skills will not disrupt classroom communication (Demir & yurdakul, 2015).

This study faced certain limitations, such as being conducted only among students at Hakim Sabzevari University; therefore, caution should be exercised in generalizing the results to other populations. Additionally, the study relied on self-report data, which may have influenced the findings. Future research is recommended to use alternative data collection methods, such as interviews, for more comprehensive insights.

5. Conclusion

Considering that the research findings indicate a relationship between multicultural education and academic engagement among students, focusing on multicultural education in higher education institutions in Iran could help improve students' academic participation. To succeed in this regard, it is essential to use participatory and collaborative teaching methods, enhance communication among students, and respect diverse cultural values.

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Conflict of Interest

The Authors declare that there is no conflict of interest with any organization. Also, this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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Research Paper: The Effectiveness of Play Therapy Training on Improving Social Skills in Children with Autism Spectrum Disorder

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Children with Autism, Improving Social Skills, Play Therapy.

Abstract

Objective: Autism spectrum disorder is a complex neurodevelopmental disorder characterized by communication problems, limited social interactions, and repetitive behaviors. The present study aimed to investigate the effectiveness of play therapy education with a parent-child approach in improving social skills in children with autism spectrum disorder.

Methods: This study was a quasi-experimental study with a pre-test-post-test design, a control group, and a follow-up phase. The statistical population of the study included children with autism at the Justice Center in Isfahan. The sample of the present study included 30 children with autism, including 30 children with autism, who were selected using purposive sampling and were divided into two experimental and control groups. The research instrument used was the Autism Social Skills Profile (ASSP), and play therapy education sessions with a parent-child approach were implemented in ten 90-minute sessions once a week on the experimental group. The research data were analyzed using repeated measures analysis of variance and Bonferroni post hoc test and SPSS version 24 software.

Results: The research findings showed that the difference between the experimental and control groups in terms of the mean scores of social skills variables in all stages of the experiment was significant (P<0.001).

Conclusion: The results of this study show that play therapy education with a parent-child approach can help improve children's social skills. Therefore, its use is recommended to strengthen social skills in children with autism spectrum disorder.

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1. Introduction

Autism is a neurodevelopmental disorder characterized by a wide range of symptoms and levels of severity (Saadatyar et al., 2024). The core features of autism include: difficulties in communication and social interaction—individuals with autism may struggle with making eye contact, understanding body language, initiating conversations, and responding appropriately to others. Repetitive and restricted patterns of behavior, interests, and activities—such individuals may engage in repetitive movements or become intensely focused on limited interests. Unusual sensory sensitivities—some individuals with autism are highly sensitive to sensory stimuli such as sounds, touch, or smells (American Psychiatric Association, 2022). Symptoms of autism typically appear before the age of 3, although a definitive diagnosis may be delayed until later (World Health Organization, 2022). Both genetic and environmental factors contribute to the development of autism, but the exact cause remains unclear (Au et al., 2021). In 2020, the global prevalence of autism was estimated at 1 in 160 children (World Health Organization, 2022). Children with autism spectrum disorders often exhibit significant social skills deficits and experience high levels of anxiety, with evidence suggesting that anxiety can further exacerbate social difficulties and reduce overall quality of life (White et al., 2009).

Social skills are an area in which children with autism often experience significant difficulties (Seyed Esmaeili Qomi et al., 2022). These children frequently struggle with making eye contact, understanding emotions and facial expressions, and responding appropriately to the social behaviors of others. They have trouble recognizing nonverbal cues, which are essential components of social interactions (Bishop-Fitzpatrick et al., 2018). Many of these children find it challenging to take turns in conversations, initiate and sustain dialogue, and comprehend abstract concepts such as humor or sarcasm. Some may have intense and narrow interests, making it difficult to connect with peers (Farahani et al., 2021). Nevertheless, with early and targeted interventions, children with autism can show notable improvements in their social skills. Various methods such as structured social games, social stories, and behavioral exercises can help them better understand the unwritten rules of social interactions and apply these skills in real-life settings (Barghi et al., 2024).

Although various interventions have been employed for these children, no specific cure or medication has been established to date. Given that formal educational programs and social skills training can be highly challenging and sometimes ineffective for children with autism, approaches that are naturally engaging for the child—such as play—are often more suitable (Tababaienavainobari et al., 2021). Filial play therapy is an effective intervention method aimed at training parents and improving the condition of children with autism. In this approach, parents receive counseling sessions to learn how to establish more effective communication with their child and utilize play therapy techniques and

activities (Esazadeh et al., 2022). During these sessions, parents are trained to build a meaningful and affectionate relationship with their child through play. They learn how to use various types of play tailored to the child's abilities and interests to enhance communication, social, cognitive, and motor skills (Rahmanian et al., 2021). Filial play therapy places significant emphasis on creating a warm and enjoyable parent-child relationship through play. Parents are taught how to incorporate play even into routine daily activities—such as mealtime, dressing, or bathing—and to use these moments as opportunities for skill-building and emotional bonding (Kargar Qanat Al-Nouj et al., 2022).

Despite notable progress in autism treatment, there remains a substantial gap in effective and practical interventions for improving the social skills of children with autism. Existing research has mainly focused on structured and clinical approaches, while more natural and engaging methods like play therapy have received less scientific attention. Moreover, most studies have been conducted in controlled laboratory settings, limiting the generalizability of findings to real-life contexts. Additionally, the majority of current research emphasizes short-term effects, and there is insufficient information on the long-term sustainability of play therapy outcomes. Another important gap is the lack of culturally adapted knowledge regarding play therapy, especially considering differences in social interaction patterns across cultures. This underscores the need for localized research. The present study aims to address these gaps by offering a practical, engaging, and effective approach to enhancing the social skills of children with autism. Therefore, based on the above, the research question is: Does parental training in play therapy have an effect on improving social skills and reducing anxiety symptoms in children with autism?

2. Methods

2.1. Research Type, Population, and Sample

The present study employed a quasi-experimental design with pre-test, post-test, a control group, and a follow-up phase. The statistical population consisted of children diagnosed with autism spectrum disorder (ASD) attending the Edalat Center in Isfahan in the year 2024. The study sample included 30 children with autism, selected based on the recommended minimum sample size for quasi-experimental research (at least 15 participants per group) (Delavar, 2013). A total of 30 eligible volunteers were purposefully selected and then randomly assigned to either the experimental or control group (15 participants in each group).

Inclusion criteria included a confirmed diagnosis of Level 1 ASD by a child and adolescent psychiatrist, age range between 5 and 12 years, no severe physical illnesses, parents with at least basic literacy (reading and writing), and informed parental consent to participate in the study. Exclusion criteria were missing more than two play therapy sessions, onset of a serious physical illness in the child during the study, lack of parental cooperation in implementing the intervention, or withdrawal from the study.

2.2. Instruments

Autism Social Skills Profile (ASSP): The ASSP (Bellini et al., 2007) is a comprehensive questionnaire designed to assess the social functioning of children and adolescents with autism spectrum disorder. It consists of 48 items across three subscales: Social Reciprocity (20 items), Social Participation (11 items), and Detrimental Social Behaviors (17 items), and is intended for use with individuals aged 6 to 18 years. Items are scored on a 4-point Likert scale (Never, Sometimes, Often, Always) ranging from 1 to 4. Higher scores indicate better social functioning. Negative items are reverse-scored, meaning a response of "Always" to a negatively worded item receives a score of 1. Psychometric properties of the ASSP were confirmed by Bellini and colleagues. The test-retest reliability yielded a Cronbach's alpha of 0.93, and internal consistency for the overall scale was 0.90. Cronbach's alphas for the three subscales were 0.92, 0.89, and 0.85, respectively, with test-retest reliability coefficients of 0.89, 0.86, and 0.86 for the same subscales (Bellini et al., 2007). In a validation study by Moghim-Islam and colleagues (2014) with a sample of high-functioning autistic children in Iran, the test-retest reliability for the overall profile was 0.97, with reliability coefficients of 0.96 for Social Reciprocity, 0.74 for Social Participation, and 0.94 for Detrimental Social Behaviors.

Intervention Content: Filial Play Therapy

The intervention was a 10-session filial play therapy program, with each session lasting 90 minutes and held once per week. The intervention was based on the Filial Play Therapy protocol developed by Bratton et al. (2006). This protocol was implemented and adapted in the present study as the core therapeutic approach

Table 1

Structure of Sessions in the Filial Play Therapy Program (Bratton et al., 2006)

Session	Goal	Content
1	Developing parental sensitivity and empathetic responses toward children	Introduction to four basic emotions (happiness, anger, fear, and sadness). Parents were trained on how to respond empathetically to children's emotions.
2	Familiarizing parents with session procedures and principles of play	Explanation of the importance of play in parent-child relationships. Introduction of four core principles of play: child-centeredness, sensitivity to the child's emotions, empathetic responsiveness, and setting reasonable limits. A list of necessary toys was provided.
3	Educating parents on session rules and do's and don'ts before, during, and after play	Explanation of play session guidelines. Emphasis on child-led play. Parents were instructed to provide a range of toys and allow the child to lead the play while offering support and following the child's direction.

Structure of Sessions in the Filial Play Therapy Program (Bratton et al., 2006)		
Session	Goal	Content
4	Teaching appropriate responses to the child's misbehavior	Review of previous sessions, evaluation of parents' video recordings and reports. Discussion on the rationale and methods of setting boundaries during play.
5	Teaching effective communication and recognizing parental emotions	Review of prior sessions. Discussion on the importance of recognizing and managing parents' own emotions. Training on appropriate communication during challenging situations with the child.
6	Teaching the importance of offering choices to children and how to implement it	Review of earlier content. Training on how offering choices can support boundary-setting and reduce behavioral issues.
7	Enhancing parental confidence and strategies to foster the child's self-confidence through play	Review of reports and prior content. Instruction on reinforcing the child's self-confidence through appropriate parental responses.
8	Teaching the difference between praise and encouragement and their correct application	Explanation of encouraging effort rather than praising outcomes to promote intrinsic motivation.
9	Advanced techniques of limit-setting	Review of previous sessions and application of advanced boundary-setting techniques in play therapy.
10	Review and reinforcement of learned skills	Final review of all skills and techniques. Emphasis on continuing the use of skills in daily routines and strengthening the parent-child relationship.

2.3. Procedure

From the case files of children diagnosed with Level 1 Autism Spectrum Disorder at the "Golhaye Behesht" Center, 58 children who met the inclusion criteria were identified through purposive sampling. During the screening process, the mothers completed the Autism Social Skills Profile (ASSP) for their children. Based on the scoring guidelines of the ASSP, 41 children with the lowest social skills scores were selected. Due to attrition, 30 children were ultimately included in the study sample. These 30 participants were randomly assigned to two groups: 15 children in the experimental group (receiving filial play therapy) and 15 in the control group. Both groups completed the pre-test. The experimental group then participated in 10 sessions of filial play therapy, each lasting 90 minutes and conducted three times per week (as detailed in Table 1). The control group did not receive any specific intervention during this time; however, both groups continued receiving their standard clinical care. Following the intervention, both groups completed the post-test. To assess the

sustainability of treatment effects, a follow-up assessment was conducted two months after the completion of the program. After the main phase of the research was completed, the filial play therapy intervention was also offered to the control group. Although all control group participants were invited, only 11 agreed to attend the intervention.

Data analysis was performed using SPSS version 24. Repeated-measures ANOVA and Bonferroni post hoc tests were used to compare group and time effects on the dependent variables.

3. Results

In the experimental group, there were 8 girls (53.33%) and 7 boys (46.67%), totaling 15 participants. In the control group, 6 participants (40%) were girls and 9 (60%) were boys. The age distribution in the experimental group showed that the majority (46.67%) were between 8 to 10 years old, and the smallest group (20%) was between 5 to 7 years old. Similarly, in the control group, the majority (40%) were aged 8 to 10 years, and the lowest percentage (26.67%) were between 11 to 12 years old. Descriptive statistics including means and standard deviations for study variables are presented in Table 2.

Table 2

Descriptive Statistics of Social Skills Questionnaire Variables

Variable	Descriptive Index	Experimental Group			Control Group		
		Pre-test	Post-test	Follow-up	Pre-test	Post-test	Follow-up
Understanding Emotions and Others' Perspectives	Mean	26.73	29.67	29.27	25.27	26.20	27.27
	SD	1.223	1.291	2.576	1.280	1.265	1.944
Initiating Interaction with Others	Mean	25.67	28.87	28.00	24.80	25.33	26.13
	SD	1.234	1.407	3.185	1.014	1.496	2.669
Maintaining Interaction with Others	Mean	26.27	29.47	28.67	25.93	26.40	27.33
	SD	1.163	1.246	2.225	1.280	1.242	2.664
Responding to Others	Mean	25.40	30.53	30.00	24.53	24.47	24.13
	SD	1.121	1.552	1.464	1.187	1.506	0.834
Overall Social Skills	Mean	104.07	118.53	115.93	100.53	102.40	104.87
	SD	2.658	2.642	7.995	2.416	2.473	6.346

As shown in Table 2, the mean scores for social skills in the experimental group were 104.07 at the pre-test, 118.53 at the post-test, and 115.93 at the follow-up phase. In the control group, the mean scores were 100.53

at the pre-test, 102.40 at the post-test, and 104.87 at the follow-up.

To examine the effectiveness of filial play therapy on improving the social skills of children with autism spectrum disorder, a repeated-measures ANOVA was conducted. Prior to this analysis, the necessary assumptions were tested.

The Kolmogorov–Smirnov test indicated that the data for social skills were normally distributed, with a significance level of 0.125, which is greater than 0.05. The assumption of homogeneity of variance-covariance matrices was also met ($p > 0.05$). Furthermore, Mauchly's test of sphericity was used to assess the equality of variances of the differences between conditions. The results, presented in Table 5, indicated that the assumption of sphericity was satisfied ($p > 0.05$).

The results of the repeated-measures ANOVA for the research variables are presented in Table 3.

Table 3

Results of Repeated Measures ANOVA for Research Variables

Component	Source	Sum of Squares	Df	Mean Square	F	p-value	Eta Squared
Understanding Emotions and Others' Perspectives	Time	89.867	2	44.933	14.856	< .001	.347
	Group	120.178	1	120.178	50.916	< .001	.645
	Time × Group	16.089	2	8.044	2.662	.039	.287
Initiating Interaction with Others	Time	68.467	2	34.233	8.471	< .001	.232
	Group	98.178	1	98.178	24.940	< .001	.471
	Time × Group	27.222	2	13.611	3.368	.042	.107
Maintaining Interaction with Others	Time	69.756	2	34.878	11.385	< .001	.289
	Group	56.011	1	56.011	19.053	< .001	.405
	Time × Group	28.689	2	14.344	4.682	.013	.143
Responding to Others	Time	110.156	2	55.078	34.153	< .001	.549
	Group	409.60	1	409.60	219.615	< .001	.887
	Time × Group	130.20	2	54.10	40.367	< .001	.590

Table 3 indicates that, in addition to the main effects of group and time, the interaction effect of group × time was statistically significant for the following components:

- Understanding emotions and others' perspectives *(F = 2.662, p = .039, η² = .287)*
- Initiating interaction with others *(F = 3.628, p = .042, η² = .107)*
- Maintaining interaction with others *(F = 4.682, p = .013, η² = .143)*
- Responding to others *(F = 40.367, p < .001, η² = .590)*

These results suggest that the effectiveness of the intervention varied over time across the two groups.

Subsequently, Table 4 presents the results of the Bonferroni post hoc test, showing pairwise comparisons across the three time points (pre-test, post-test, follow-up) for both groups, for each component and the total social skills score

Table 4

Bonferroni Post Hoc Test Results for Pairwise Comparisons of Time Points in the Filial Play Therapy Group

Variable	Comparison	Mean Difference	Standard Error	p-value
Understanding Emotions and Others' Perspectives	Pre-test – Post-test	-1.933	0.331	< .001
	Pre-test – Follow-up	-2.267	0.468	< .001
	Post-test – Follow-up	-0.333	0.526	1.000
Initiating Interaction with Others	Pre-test – Post-test	-1.867	0.369	< .001
	Pre-test – Follow-up	-1.833	0.529	0.005
	Post-test – Follow-up	0.033	0.627	1.000
Maintaining Interaction with Others	Pre-test – Post-test	-1.833	0.369	< .001
	Pre-test – Follow-up	-1.090	0.497	0.002
	Post-test – Follow-up	-0.067	0.480	1.000
Responding to Others	Pre-test – Post-test	-2.533	0.360	< .001
	Pre-test – Follow-up	-2.100	0.351	< .001
	Post-test – Follow-up	0.433	0.265	0.340

The Bonferroni post hoc test results presented in Table 7 indicated that the mean scores for the variables of understanding emotions and others' perspectives, initiating interaction with others, maintaining interaction with others, and responding to others showed a significant increase from the pre-test to the post-test and from the pre-test to the follow-up in the experimental group. However, no significant differences were found between the post-test and follow-up phases, indicating that the effects of parental play therapy training were maintained over time.

4. Discussion

The present study aimed to evaluate the effectiveness of parental play therapy training in improving the social skills of children with Autism Spectrum Disorder

(ASD). The findings demonstrated that the intervention had a significant positive impact on enhancing social skills in children with ASD ($p < .001$). These results are consistent with previous studies conducted by Kargar Qanat Al-Nouj et al. (2022), Esazadeh et al. (2022), Moosapoor (2023), Alahmari et al. (2025), and Rautenbach et al. (2024).

The observed improvements can be explained by the recognition of play therapy as an effective approach for enhancing social skills in children with autism (Barghi et al., 2024). Play serves as the natural language of children and provides a safe and controlled environment for practicing social skills. During play, children experience social interactions, express their emotions, and learn appropriate responses to others. These experiences gradually lead to improvements in emotional understanding, initiation and maintenance of social interactions, and appropriate responsiveness to others (Deniz et al., 2024).

Secondly, parental training played a key role in this intervention. As the primary caregivers, parents spend the most time with their children and can apply the principles of play therapy in daily life. This provides the child with more opportunities to practice social skills, allowing learning to occur in a natural environment. Moreover, parental involvement in the therapeutic process can reduce their stress and improve the parent-child relationship, which is an important factor in the child's progress (Saadatyar et al., 2024).

Furthermore, the parent-based play therapy approach aligns with attachment theory principles. This approach strengthens the emotional bond between parent and child, which forms the foundation for the child's social-emotional development. When the child experiences greater security and acceptance in the relationship with parents, they gain more confidence to interact with others (Rautenbach et al., 2024).

Another reason for the intervention's effectiveness is its focus on specific social skills such as understanding emotions and others' perspectives, initiating and maintaining interactions, and responding to others. These skills are fundamental for successful social interactions, and their improvement can significantly impact the child's overall social functioning. Through repeated practice of these skills within play, children can internalize and apply them in various situations.

The sustainability of the intervention effects at the follow-up stage is also noteworthy. This finding suggests that parents were able to integrate play therapy principles into their everyday interactions with their children and continue applying them consistently. Such ongoing practice in the natural environment likely enhances the generalization and maintenance of learning (Deniz et al., 2024).

Improved social skills can also create a positive feedback loop. When a child performs better in social interactions, they receive more positive reinforcement from the environment, which increases their motivation to engage socially. This positive cycle may explain the maintenance of

intervention effects over time (Zelcek & Pouya, 2024).

Additionally, parental training may lead to changes in parents' attitudes and behaviors toward their children. Parents may learn how to create more social interaction opportunities, provide more appropriate responses to their child's behaviors, and establish a supportive environment for social development. These changes in the family environment can continuously support the child's progress (Barghi et al., 2024).

An important point is that play therapy is a child-centered approach aligned with the child's needs and interests. This alignment increases the child's motivation to participate in activities, making learning more enjoyable. When learning is pleasurable, the likelihood of retention and application of the acquired skills improves (Khazaei et al., 2023).

The present study, like others, has limitations. It was conducted with a relatively small sample size, which may limit the generalizability of the findings. Concurrent therapeutic interventions may have influenced the results. Another limitation is that this study was conducted on children aged 5 to 12 years with ASD, so caution is needed when generalizing results to other age groups. Moreover, it was carried out at the Edalat Autism Center in Isfahan, and generalization to other centers or cities should be done cautiously. Therefore, it is recommended that similar studies be conducted in other centers and cities. Future researchers may examine moderating variables such as child's age, severity of autism symptoms, parental education level, and socio-economic factors affecting intervention efficacy. It is also suggested that treatment centers design and implement regular training workshops for parents of children with autism, focusing on play therapy techniques.

5. conclusion

In conclusion, the effectiveness and sustainability of parental play therapy training in improving social skills of children with autism can be attributed to factors such as the natural and enjoyable nature of play, active parental involvement, focus on specific social skills, strengthening the parent-child relationship, continuity of practice in natural settings, and the creation of a positive feedback loop in social success. These findings highlight the importance of family-centered and naturalistic approaches in interventions for children with autism

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Conflict of Interest

The Authors declare that there is no conflict of interest with any organization. Also, this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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Research Paper: The Effectiveness of Transactional Analysis Therapy on Anxiety and Quality of Life in Students with Attention-Deficit/Hyperactivity Disorder

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Abstract

Objective: This study aimed to investigate the effectiveness of Transactional Analysis Therapy on the quality of life and anxiety in children diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD).

Methods: A quasi-experimental design, utilizing a pre-test, post-test, and follow-up with a control group, was employed. The statistical population comprised students with ADHD in exceptional schools in Rasht during the 2023-2024 academic year. A total of 30 participants were selected using purposive sampling and randomly assigned to either the experimental or control group. Research instruments included Short Form-36 Health Survey (SF-36) and the Beck Anxiety Inventory (BAI). The experimental group received 8 one-hour sessions of Transactional Analysis Therapy, while the control group received no intervention. Data were analyzed using multivariate analysis of covariance (MANCOVA), univariate analysis of covariance (ANCOVA), and Tukey's post-hoc test via SPSS software, with a significance level set at $p<.01$.

Results: The findings indicated that Transactional Analysis Therapy had a significant positive effect on improving both anxiety and quality of life in the experimental group ($p<.01$). These positive effects were maintained during the two-month follow-up phase.

Conclusion: It can be concluded that Transactional Analysis Therapy is effective in enhancing the quality of life and reducing anxiety in children with Attention-Deficit/Hyperactivity Disorder.

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1. Introduction

Attention-Deficit/Hyperactivity Disorder (ADHD) is one of the most prevalent psychiatric disorders in children and adolescents, with a global prevalence rate of 5% (Prakash et al., 2021). Individuals with ADHD experience heterogeneous difficulties, including problems with attention, behavioral hyperactivity, and impulsivity (Abdelnour et al., 2022). ADHD is characterized by heterogeneity, which may manifest in opposing forms and is marked by frequent and variable comorbidities and overlaps with other disorders, as well as context-dependent symptoms that may or may not be apparent during clinical examination (Renner et al., 2008). Individuals with ADHD exhibit difficulties across four domains of attention: selective attention, divided attention, attention shifting, and sustained attention (Lycett et al., 2014). Deficits in these four dimensions lead to problems in daily activities (Tsai et al., 2019). They struggle to focus on completing tasks, lack the ability to pay close attention to details, or make careless mistakes in schoolwork or other activities. They are unable to sustain attention and commonly lose their train of thought (Villemonteix et al., 2015). Deficits in attentional control lead them to daydream while performing tasks and assignments (Forssman et al., 2012).

Attention-Deficit/Hyperactivity Disorder (ADHD) negatively impacts a patient's health-related quality of life. This impact can be further exacerbated by or increase the risk of comorbid psychological conditions such as anxiety and depression (Navarro-Soria et al., 2021). Management recommendations for ADHD vary, typically involving a combination of medication, psychotherapy, and lifestyle modifications. Notably, anxiety can emerge in children as young as two years old. Early intervention is crucial to prevent the progression of these issues into more significant problems. Before initiating treatment, a specialist must provide a diagnosis based on DSM-5 criteria. Moreover, understanding and measuring quality of life is a priority for clinicians who treat patients with ADHD, as their primary goal is to improve patient well-being (Wehmeier et al., 2020). While numerous studies address the social and emotional behaviors and academic performance of children and adolescents with ADHD, there is limited research, to our knowledge, on how individuals with ADHD self-assess their own quality of life (Zambrano et al., 2020).

In the treatment of anxiety disorders and Attention-Deficit/Hyperactivity Disorder (ADHD), particularly given the observed resistance of some patients to pharmacological interventions, non-invasive Transactional Analysis Therapy has garnered significant attention as a viable treatment method in recent years (Lefaucheur et al., 2017). This approach is particularly relevant when considering the complex and multifaceted nature of parent-child interaction. Parent-child interaction is profoundly shaped by numerous key factors. These include parental attitudes and acceptance levels, along with effective behavioral management and control strategies. A child's sense of social competence and self-restraint also plays a crucial role. Furthermore, the parents'

knowledge and skills in child-rearing are significant, as are their self-confidence and foresight in guiding their child. The establishment of a low-conflict home environment, broader parent-child relationship dynamics, and the quality of maternal emotional care for the child (Esmaeilpour et al., 2018) also influences the interaction.

Parent-child interaction plays a crucial role in the treatment of Attention-Deficit/Hyperactivity Disorder (ADHD) (Ammann et al., 2017). Classified by the DSM-5, ADHD has a high prevalence in society, leading to a reduced quality of life and increased treatment costs. Parent-child interaction in ADHD treatment serves two primary objectives. Parents are recognized as vital members of the treatment team and actively participate in the therapeutic process. By educating parents on effective parenting strategies, they can provide optimal support for their children throughout treatment. Furthermore, parents actively engage with their children's behaviors and contribute to improving ADHD symptoms by implementing appropriate lifestyle changes (Bastani & Jaberzadeh, 2013). For instance, parents can establish routines for their children, providing structure and order. Limiting screen time (mobile phones and television), avoiding sugary foods, and designating specific times for play and exercise also play an effective role in mitigating ADHD symptoms (Agboada et al., 2019). Finally, effective parent-child communication is essential for alleviating anxiety and boosting children's self-confidence. By creating a stable and supportive environment, parents can significantly contribute to the improvement of their children's ADHD symptoms (Batsikadze et al., 2013).

Beyond educating parents on effective parenting strategies, parent-child interaction holds significant importance in various aspects of treating Attention-Deficit/Hyperactivity Disorder (ADHD). Here are some of these key aspects: Modifying Undesirable Behaviors: Through effective communication with their children, parents can help identify undesirable behaviors and, by modifying these behaviors, positively impact the improvement of their children's ADHD symptoms (Chew et al., 2015). Additionally, by encouraging children to engage in physical exercise and activities, parents can contribute to the amelioration of ADHD symptoms (Ho et al., year not provided in original text). Overall, parent-child interaction in the treatment of ADHD serves as a coordinated and reciprocal process that plays a crucial role in improving the disorder's symptoms. By fostering collaboration between parents and their children, it's possible to enhance both ADHD symptom management and the children's overall quality of life (Jamil et al., 2017). The present study was designed to address a gap in the literature, as no previous research has investigated the effectiveness of Transactional Analysis Therapy on the quality of life and anxiety in children with ADHD. It is hypothesized that Transactional Analysis Therapy will be effective in improving both quality of life and anxiety in this population.

2. Methods

2.1. Research Design, Participants, and Sampling

The research employed a quasi-experimental design with an experimental group and a control group. The statistical population for this study comprised all students diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD) in exceptional schools in Rasht during the 2023-2024 academic year. Following the principle that experimental research typically requires a minimum sample size of fifteen participants (Delavar, 2024), 30 individuals were selected and divided into two groups. The sampling method for the current study was purposive sampling, with participants subsequently randomly assigned to either the experimental or control group.

Initially, from students diagnosed with ADHD in exceptional schools in Rasht (diagnoses previously confirmed by a psychiatrist and documented in their medical records), and considering the inclusion criteria, 60 individuals who expressed willingness to participate in the study were approached. From these, 30 participants were selected and randomly assigned to either the experimental or control group after obtaining written informed consent. The inclusion criteria for the current study were: an age range of 12 to 15 years, and documented high anxiety levels and low quality of life in the participants.

The control group received no intervention during the study period, from February 2024 to March 2024. They completed only the demographic questionnaire, the ADHD symptom questionnaire, the Quality of Life Questionnaire, and the Anxiety Questionnaire both before and after the intervention, concurrently with the experimental group. The experimental group received the intervention program individually. Ethically, there was no communication between the control and experimental groups during the study. Participants were assured that their information would remain confidential, and their full consent was obtained for participation, with informed consent also secured from parents. At the conclusion of the study, all educational materials provided to the experimental group were given to the control group in the form of an educational package.

A follow-up assessment and data collection were scheduled for three months after the intervention. It was required that participants not engage in other psychotherapy programs or alter their pharmacological treatments outside of the study's educational and therapeutic intervention. All participants were required to be under Ritalin medication. The experimental group underwent 8 one-hour intervention sessions, while the control group did not receive any treatment. Data were analyzed using multivariate analysis of covariance (MANCOVA), univariate analysis of covariance (ANCOVA), and Tukey's post-hoc test with SPSS software, at a significance level of $p<.01$.

2.2. Instruments

Short Form-36 Health Survey (SF-36)

The SF-36 Health Survey, developed by Ware and Sherbourne (1992), is one of the

most widely used instruments for assessing health-related quality of life. It consists of 36 items grouped into eight domains: physical functioning (items 3–12), role limitations due to physical health problems (items 13–16), role limitations due to emotional problems (items 17–19), energy/fatigue (items 23, 27, 29, 31), emotional well-being (items 24–26, 28, 30), social functioning (items 20, 32), bodily pain (items 21–22), and general health perceptions (items 1–2, 33–36). The SF-36 can be self-administered or conducted through interview and is appropriate for individuals aged 14 years and older. It has been validated across diverse populations and disease contexts. Each domain is scored separately, and responses are transformed into a 0–100 scale, with higher scores indicating better health status.

The Cronbach's alpha coefficient for reliability testing ranged from 77% to 95% for all dimensions of the questionnaire, with the exception of the vitality dimension, which had an alpha of 65% (Kidgell et al., 2013). In a study by Moliadze et al. (2015), internal consistency analysis revealed that, apart from the vitality scale (Cronbach's alpha = 65%), the other scales of the SF-36 demonstrated standard reliability coefficients ranging from 77% to 90%.

Beck Anxiety Inventory (BAI)

The Beck Anxiety Inventory was developed by Beck et al. (1988). This questionnaire specifically measures the severity of clinical anxiety symptoms in individuals. The BAI is a 21-item scale where respondents select one of four options for each item, indicating the intensity of their anxiety. The four-point Likert scale for each question is scored from 0 to 3. Consequently, the total anxiety score ranges from 0 to 63 (Montazeri et al., 2006).

Scores are interpreted as follows: a score of 0-7 indicates minimal anxiety; 8-15, mild anxiety; 16-25, moderate anxiety; and 26-63, severe anxiety (Kaviani & Mousavi, 2008). Previous studies have demonstrated the high reliability of this questionnaire. Its internal consistency coefficient (Cronbach's alpha) is 0.92, and its test-retest reliability over a one-week interval is 0.75. Item correlations range from 0.30 to 0.60 (Salari-Moghaddam et al., 2018). More recently, its validity and test-retest reliability over a one-week interval were reported as 0.75, with item correlations varying from 0.30 to 0.76 (Nahavandi et al., 2024).

2.3. Treatment Sessions

In the current study, the experimental group received the effective parent-child interaction patterns intervention by Funderburk and Eyberg (2011) over two months (8 sixty-minute sessions). Table 1 provides a summary description of the sessions for Funderburk and Eyberg's (2011) parent-child interaction patterns training.

Table 1

Summary Description of Parent-Child Interaction Patterns Training Sessions (Funderburk & Eyberg, 2011)

Session	Content
First	Objective: Group member introductions, establishment of therapist-participant rapport, pre-test administration. Explanation of the concept of oppositional defiance. Homework: Observe the child in various situations and record defiant behaviors.
Second	Objective: Discuss key aspects of parent-child interaction and parental stress, along with management strategies. Homework: Gather information on the thoughts children might have during defiant-oppositional behavior (e.g., "Something bad might happen to my mom," or "Maybe I'll never see my parents again; they don't love me"). Discuss parents' feelings and concerns resulting from these thoughts (e.g., crying, anger, tantrums). Discuss the child's behavioral responses to defiant-oppositional behavior. Ask parents to identify and specify anxious thoughts, feelings, and behaviors in their child as homework and report them in the next session.
Third	Objective: Discuss parenting styles and their positive and negative consequences. Homework: Identify the child's emotional responses, such as crying or throwing tantrums. Provide extensive reassurance regarding the child's questions and concerns. Educate parents on how modifying these behaviors can impact the overall cycle of defiant-oppositional behavior.
Fourth	Objective: Explain factors influencing the child's psychosocial development and clarify the concept of birth order. Teach principles of behavior modification (emphasizing reinforcement and ignoring). Teach principles of reinforcement: Reinforcement can be tangible or intangible, should ideally be varied, and should be provided immediately after the desired behavior. It is preferable if the reinforcer is a preferred individual for the child, and if reinforcement is delivered by multiple people. Teach principles of ignoring: Ignoring is used for behaviors that do not harm the child. Persistence and consistency in applying ignoring initially lead to an increase in undesirable behavior, followed by a decrease. Ignoring must be implemented by all significant adults around the child whenever the undesirable behavior occurs. Homework: Reinforce appropriate behavior throughout the week.
Fifth	Objective: Familiarize parents with the misguided goals of children's behavior. Emphasize that ignoring should continue until the undesirable behavior decreases. It is best to reinforce independent behaviors simultaneously while anxious behaviors are ignored. Review and discuss with parents the application of behavior modification principles and their outcomes. Teach advanced behavior modification principles (emphasizing token economy, shaping, and differential reinforcement). Teach reinforcement via token economy to gradually reduce the child's dependence on direct reinforcement. Teach shaping: Reinforce behaviors that are similar to and approximate the desired behavior. Reinforce behaviors that are incompatible with anxious and fear-driven behaviors. Homework: Practice correct ways of listening to children's concerns without judgment throughout the week.
Sixth	Objective: Familiarize parents with their own negative behaviors and strategies for coping with them. Homework: Shape the child's behavior using reward and punishment techniques.
Seventh	Objective: Teach effective strategies for addressing the misguided goals of children's behavior. Teach self-encouragement and encouraging children. Teach effective communication skills with children. Homework: Practice expressing enthusiasm, avoiding critical remarks, and refraining from giving commands.
Eighth	Objective: Session wrap-up, clarification of ambiguities and questions. Post-test administered during this session.

2.4. Procedure

Upon obtaining university approval and coordinating with exceptional children's schools to access the target sample, participants were invited to the Jooya Clinic. After a consultation, parents and students received detailed explanations to ensure a secure and stress-free environment for the student participants. Initially, the Attention-Deficit/Hyperactivity Disorder (ADHD) questionnaire was administered. Students identified with ADHD through this questionnaire were then selected for the sample. Data analysis involved repeated measures analysis of covariance (ANCOVA) at a significance level of $p<.01$.

3. Results

Descriptive statistics revealed the following demographic distributions within the study groups. In the experimental group, there were 7 female participants (53.33%) and 8 male participants (46.66%). The control group comprised 9 female participants (60%) and 6 male participants (40%).

Regarding age distribution in the experimental group, 5 participants (33.33%) were 8 years old, 4 participants (26.66%) were 9 years old, and 6 participants (40%) were 10 years old. In the control group, 6 participants (40%) were 8 years old, 4 participants (26.66%) were 9 years old, and 5 participants (33.33%) were 10 years old.

Table 2

Mean Scores of Anxiety and Quality of Life in Groups

Group	Variable	Phase	Mean	Standard Deviation	Kurtosis	Skewness
Control	Quality of Life	Pre-test	153.67	17.803	1.039	0.296
		Post-test	154.80	17.620	0.797	0.897
		Follow-up	154.73	17.503	0.875	0.955
	Anxiety	Pre-test	23.07	4.415	0.267	--0.224
		Post-test	22.93	4.464	1.234	-1.028
		Follow-up	20.93	4.464	1.234	-1.028
Experimental	Quality of Life	Pre-test	147.73	15.443	-0.088	0.306
		Post-test	161.33	11.537	-1.522	-0.403
		Follow-up	162.40	13.048	-1.118	-0.034
	Anxiety	Pre-test	31.47	2.200	-0.127	-0.506
		Post-test	23.53	3.543	-0.325	-0.611
		Follow-up	21.53	3.543	-0.325	-0.611

Table 3 presents the descriptive statistics for scores on the anxiety and quality of life variables. Observations indicate that the anxiety and quality of life scores for participants in the control group did not show significant differences across the three measurement phases: pre-test, post-test, and follow-up. Furthermore, at the pre-test phase, there was a minimal difference between the scores of the experimental and control groups. This score difference slightly

increased at the post-test phase but then decreased at the follow-up phase.

Table 3

Results of Multivariate Analysis of Variance (MANOVA) for Anxiety and Quality of Life Scores

	Multivariate Test	Value	F	df1	df2	Sig.	Partial Eta Squared	Observed Power
Post-test	Wilks' Lambda	0.142	169.245	1	28	0.001	0.725	0.858
Follow-up	Wilks' Lambda	0.284	70.718	1	28	0.001	0.642	0.716

Based on the findings presented in the table, the main effects of group were statistically significant in both the post-test and follow-up phases for multivariate analysis of covariance ($p<.001$). Therefore, the mean scores for anxiety and quality of life in the post-test and follow-up phases showed a significant difference between the experimental and control groups ($p<.001$). The results indicate that 72.5% of the individual differences in the improvement of anxiety and quality of life at the post-test phase, and 64.2% at the follow-up phase, are attributable to the differences between the groups.

Table 4

ANCOVA Results for Post-test and Follow-up Anxiety and Quality of Life Scores (Controlling for Pre-test).

		SS	df	MS	F	Sig.	Partial Eta Squared
Post-test	Anxiety	566.689	1	283.344	131.739	0.001	0.534
	Quality of Life	458.52	1	566.689	131.739	0.001	0.652
Follow-up	Anxiety	304.2	1	152.1	70.718	0.001	0.616
	Quality of Life	442.362	1	304.2	70.718	0.001	0.514

The results presented in the table indicate that the mean scores for anxiety and quality of life in both the post-test and follow-up phases are statistically significant after controlling for pre-test scores ($p<.001$). In other words, Transactional Analysis (TA) therapy is effective in reducing anxiety and improving quality of life, and these positive effects were sustained at the follow-up stage.

Specifically, the effect size of TA therapy on anxiety reduction was 53.4% at the post-test and 65.2% at the follow-up. Meanwhile, the effect size of TA therapy on improving quality of life was 61.4% at the post-test and 51.4% at the follow-up.

Table 5

Results of Bonferroni Post-Hoc Test for Pairwise Comparisons on Anxiety and Quality of Life

variable	Time Points		Mean Difference	Standard Error	p-value
Anxiety	Pre-test	Post-test	7.80	1.06	0.001
	Pre-test	Follow-up	7.58	1.08	0.001
	Pre-test	Follow-up	-0.22	0.99	1.00
variable	Group differences		Mean Difference	Standard Error	p-value
Quality of life	Pre-test	Post-test	-3.56	1.39	0.043
	Pre-test	Follow-up	-9.80	1.39	0.001
	Pre-test	Follow-up	-0.24	0.39	1.00

The results of the Bonferroni post-hoc test in Table 5, comparing the effect of time, indicate statistically significant mean differences for anxiety and quality of life between the pre-test and post-test phases, and between the pre-test and follow-up phases. However, the mean difference for these scores between the post-test and follow-up phases is not statistically significant.

4. Discussion

The aim of this study was to determine the effectiveness of Transactional Analysis (TA) Therapy on anxiety and quality of life in students with Attention-Deficit/Hyperactivity Disorder (ADHD). The findings indicated a significant effect of time on anxiety scores across the three phases: pre-test, post-test, and follow-up. This suggests a significant difference in anxiety scores between these three time points, with the trajectory of change exhibiting a quadratic trend. Specifically, the pre-test, post-test, and follow-up scores differed from each other. This finding aligns with the research by Hofmann et al. (2014), Olthuis et al. (2015), and Mayo-Wilson et al. (2013), all of whom reported that behavioral analysis is effective in reducing anxiety. The findings of Bögels, Lehtonen et al. (2010) also support the results of the current study. Furthermore, Han (2020) demonstrated in a study that Transactional Analysis has an impact on reducing internalized problems, including anxiety, in children with ADHD.

Transactional Analysis, by modifying parents' cognitions and attitudes toward ADHD, teaches them not to assume that these children intentionally exhibit inappropriate behaviors. This leads parents to abandon authoritarian, aggressive, or neglectful approaches to their children (Tsai et al., 2019).

In explaining these findings, it appears that TA therapy fosters self-awareness in children regarding their daily activities and helps them develop appropriate behavior. It also enables them to gain awareness of their automatic mental functions related to past and future experiences. Through moment-by-moment awareness of thoughts, emotions, and physical states, they gain control over them, leading to a greater sense of calm. This

calmness, in turn, significantly influences the transmission of tranquility to their children and prevents the escalation of tensions that lead to anxiety. Transactional Analysis teaches children to focus on the present moment and ongoing interactions "here and now," rather than dwelling on past memories or future expectations. This reduces tension between the child and their environment, preventing the generation of further anxiety (Mayo-Wilson & Montgomery, 2013).

The research findings indicated that Transactional Analysis (TA) therapy is effective in improving the quality of life for children with Attention-Deficit/Hyperactivity Disorder (ADHD). Specifically, the quality of life and its components showed a significant difference between the two groups at the post-test stage ($p<.01$), thereby supporting the second sub-hypothesis of the study. There was a notable difference in mean scores for quality of life between the control and TA groups. At the post-test phase, the TA group achieved a higher score (161.33) compared to the control group. The symptoms of ADHD affect broad areas of children's functioning, especially during school age. They often lack age-appropriate interpersonal skills and have limited awareness of others' emotions, behaviors, and intentions. Consequently, their emotional functioning is impaired, and they have reduced capacity for enjoyment and engagement. The quality of life for these children is negatively impacted by the social, emotional, psychological, and physical challenges associated with the disorder. TA therapy also increases these children's chances of improving interpersonal relationships with their parents (Hofmann et al., 2014). Moreover, while this therapy's time-limited nature presents both advantages and disadvantages for children with ADHD or, more generally, those with externalizing disorders, the intervention duration for these children tends to be longer. Nonetheless, the finite nature of this treatment is beneficial in terms of treatment costs and offering hope to children and parents who may have felt helpless until that point.

Several limitations should be considered when interpreting the present findings. Firstly, the study sample was exclusively drawn from students with Attention-Deficit/Hyperactivity Disorder (ADHD) in Rasht. Therefore, the generalizability of these results to other regions or to individuals with other disorders is limited. Future researchers are encouraged to conduct similar studies in different regions of the country and explore other psychological disorders, such as autism spectrum disorder or conduct disorder. Additionally, it is recommended that participants be selected using diagnostic symptom checklists administered by specialist physicians, in addition to self-report questionnaires, to enhance the reliability of the findings.

Given the demonstrated effectiveness of Transactional Analysis Therapy on anxiety and quality of life in junior high school students with ADHD, greater attention should be given to utilizing such therapeutic approaches. As many individuals with ADHD experience significant emotional and physiological symptoms, the current results suggest that incorporating Transactional Analysis Therapy could be effective in

further reducing these symptoms. Consequently, using this therapy as a complementary approach to other psychological treatments, such as cognitive-behavioral therapy, might lead to more effective and potentially faster therapeutic outcomes.

5. Conclusion

It can be concluded that Transactional Analysis Therapy is effective in improving the quality of life and reducing anxiety in children with Attention-Deficit/Hyperactivity Disorder (ADHD). We can anticipate that with the consistent application of Transactional Analysis Therapy, children with ADHD who experience high levels of anxiety and a low quality of life will achieve a better overall state of well-being.

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Conflict of interest

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