




# The Effectiveness of Systemic Family Therapy on Alexithymia, Psychological Capital, and Mental Vitality in Mothers Infected with COVID-19 with Autistic Children

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### ABSTRACT

**Objective:** The objective of the present study was to compare the effectiveness of systemic family therapy in reducing alexithymia, increasing psychological capital, and enhancing mental vitality in mothers infected with COVID-19 who have autistic children.

**Methods:** The research method was a quasi-experimental design utilizing a pretest-posttest and follow-up with a control group. The statistical population included mothers infected with COVID-19 who have autistic children in the city of Mashhad, referring to the Avaye Salamet Center (total number: 70 individuals). Data were collected using a cluster random sampling method, ultimately selecting 30 individuals and assigning them into two groups of 15 each, experimental and control. For data collection and assessment of desired features and conditions, demographic forms and marital intimacy, forgiveness, and marital burnout questionnaires were used. Participants in the experimental group underwent systemic family therapy according to Bowen's (2009) protocol in 8 sessions of 90 minutes each, twice a week. Data analysis was conducted using repeated measures analysis of variance and SPSS-16 statistical software.

**Findings:** The results indicated that systemic family therapy significantly reduced alexithymia ( $F=6.25$ ,  $P=0.004$ ), increased psychological capital ( $F=9.65$ ,  $P=0.001$ ), and enhanced mental vitality ( $F=7.29$ ,  $P=0.001$ ) in mothers infected with COVID-19 who have autistic children ( $P<0.05$ ).

**Conclusion:** Systemic family therapy can be utilized to improve alexithymia, psychological capital, and mental vitality in mothers infected with COVID-19 who have autistic children.

**Keywords:** systemic family therapy, alexithymia, psychological capital, mental vitality, COVID-19, autism.

## 1. Introduction

Autism Spectrum Disorder (ASD) is classified among neurodevelopmental disorders characterized by persistent deficits in communication and social interactions across multiple contexts (Aishworiya et al., 2022). Prominent features of children with autism include stereotyped and repetitive behaviors, impairments in verbal and non-verbal communication, and difficulties in social behaviors (American Psychiatric Association, 2022). This disorder significantly impacts individuals, families, and society (Robinson-Agramonte et al., 2022). Although all family members of a child with special needs experience psychological stress, mothers, as primary caregivers, encounter higher levels of psychological pressure (Nisar et al., 2022).

Moreover, the COVID-19 virus, known as a novel coronavirus with respiratory symptoms, is believed to have emerged and mutated as a zoonotic virus or adapted to cause disease in humans (Liu et al., 2022). The emergence of this virus has threatened the lives and health of millions of people worldwide. This pandemic has not only resulted in high mortality rates due to viral infection but has also caused a psychological catastrophe globally (Joshi et al., 2022). Various studies on COVID-19 patients in China during the outbreak have reported high prevalence rates of psychological disorders, including anxiety, fear, post-traumatic stress disorder, emotional changes, insomnia, and depression (Liu et al., 2020).

One of the psychological issues faced by mothers infected with COVID-19 with autistic children is increased alexithymia (Dubé et al., 2024). Alexithymia is characterized by difficulty in emotional self-regulation or the inability to cognitively process emotional information and regulate emotions (Diop et al., 2022; Dubé et al., 2024). Alexithymia is a multifaceted construct, with primary features including difficulty in recognizing, processing, regulating, and verbally describing personal emotions, differentiating internal feelings from bodily sensations, and a significant lack of symbolic thinking, which limits the expression of feedback, feelings, and tendencies (Diop et al., 2022). Individuals with alexithymia often amplify normal bodily arousals and misinterpret physical signs of emotional arousal, hindering emotional regulation and successful adaptation (Hocoglu et al., 2023).

An important factor influencing the psychological functioning of mothers infected with COVID-19 with autistic children is psychological capital (Nimmi et al.,

2022). Psychological capital encompasses the positive aspects of human life and is a key indicator of positive psychology. It involves traits such as self-efficacy, optimism, hope, and resilience, which contribute significantly to success in life and activities (Mohammadi et al., 2021; Saadati & Parsakia, 2023). Psychological capital includes an individual's perception of self and acts as a potential factor, combining four interrelated perceptual-cognitive components: hope, optimism, self-efficacy, and resilience (Nimmi et al., 2022).

As mentioned, the quality of life of mothers with autistic children is influenced by this disorder (Sim et al., 2022). When the quality of life is compromised, psychological well-being and subsequently the mental vitality of mothers with autistic children are affected (Borji & Tarjoman, 2020). Mental vitality, as a component of psychological well-being in the self-determination theory, is defined as an individual's conscious experience of energy, enthusiasm, and excitement (Sim et al., 2022). It is a unique positive psychological experience where individuals feel energized and vibrant, deriving this feeling from within themselves and their inner resources. Vitality can reduce parenting stress in mothers by creating energy, enthusiasm, and excitement (Borji & Tarjoman, 2020; Sim et al., 2022).

A therapeutic approach that can reduce problems in families with autistic children and facilitate better adaptation to ongoing issues and learning more effective communication methods is systemic family therapy (Lax, 2020). Bowen considers the family as an emotional unit and a network of relationships. His theoretical beliefs and practical therapeutic actions bridge the gap between psychodynamic approaches, which emphasize the importance of the past, and systems theory-based approaches, which focus on the current state of the family and its interactions in the present (Carr, 2019). Bowen asserts that chronic anxiety exists throughout life, both physically and psychologically. Some individuals are more affected by this anxiety due to how past generations have transmitted it. Low anxiety indicates that there are few problems between individuals or within the family, suggesting that the family's emotional system is not disturbed (Usta et al., 2021). Various studies on the effectiveness of Bowen family therapy indicate increased differentiation among individuals, the core concept of Bowen's theory (McGoldrick & Hardy, 2019). This therapy eliminates physical symptoms of anxiety, reduces anxiety, and enhances self-efficacy, adaptability, improvement of early maladaptive schemas, and other positive effects on

mood, behavior, and life (Minuchin et al., 2021). The primary goal of acceptance and commitment therapy is for individuals to control the inevitable pains, sufferings, and tensions in life effectively, creating a meaningful and fulfilling life (Zarling & Russell, 2022). Therefore, considering the importance of the effects and consequences of autism and COVID-19, the present study aims to determine the effectiveness of systemic family therapy in reducing alexithymia, increasing psychological capital, and enhancing mental vitality in mothers infected with COVID-19 who have autistic children.

## 2. Methods

### 2.1. Study design and Participant

The present study is applied research and a quasi-experimental study using a pretest-posttest and follow-up with a control group. The statistical population consisted of mothers infected with COVID-19 who have autistic children in Mashhad, referring to the Avaye Salamet Center (total: 70 individuals). Convenience sampling was used to select the samples. Thus, 30 individuals were chosen and randomly assigned to two groups, the experimental group (15 individuals) and the control group (15 individuals). Using G-Power software, based on an effect size of 0.25, an alpha of 0.05, and a power of 0.80, the minimum sample size required to achieve the desired power was 15 individuals per group, totaling 30 individuals. Considering sample attrition based on previous studies, an estimated drop-out rate of 2 individuals per group was predicted, resulting in a total sample size of 30 individuals (15 individuals in each experimental group and 15 in the control group). The control group did not receive any training. Inclusion criteria were a minimum of 1 month after a negative COVID-19 test, an age range of 25-50 years, at least a high school diploma, and full consent to participate in the study. Exclusion criteria included a history of psychiatric and psychological interventions in the past year, use of psychiatric medications, and absence from more than two group therapy sessions.

After defining the objectives, appropriate tools were identified. The selected tests and scales were described in the research tools section. After sample selection, permission was obtained from the Mashhad Welfare Organization. With the cooperation of the prevention office, two specialized family counseling centers in District 6 of Mashhad were chosen. A call for participation was announced, resulting in 93 volunteers. Finally, 30 mothers infected with COVID-19 with autistic children were randomly assigned to the

experimental group (systemic family therapy intervention, 15 individuals) and the control group (15 individuals). A briefing session was held to explain the research objectives and motivate participants. The experimental group underwent systemic family therapy in eight 90-minute sessions held twice a week (Saturdays and Tuesdays). Post-tests were conducted simultaneously for both groups after the final session. A follow-up was conducted three months later. Participants were assured of confidentiality and could withdraw at any time.

### 2.2. Measures

#### 2.2.1. Psychological Capital

The Psychological Capital Questionnaire (PCQ) was designed by Luthans in 2007. This questionnaire comprises 24 items and 4 subscales: hope, resilience, optimism, and self-efficacy, with each subscale containing 6 items. It is rated on a six-point Likert scale with questions such as "I am confident in analyzing a long-term problem to find a solution." The validity and reliability of the questionnaire were assessed in a study by Bahadari Khosrowshahi et al. (2012), with a Cronbach's alpha coefficient of over 0.7 (Mohammadi et al., 2021; Saadati & Parsakia, 2023).

#### 2.2.2. Alexithymia

The Toronto Alexithymia Scale (TAS-20) is a 20-item test designed by Taylor, Bagby, and colleagues in 1997 to assess alexithymia. It includes three subscales: Difficulty Identifying Feelings (DIF) with 7 items, Difficulty Describing Feelings (DDF) with 5 items, and Externally-Oriented Thinking (EOT) with 8 items. The questionnaire is rated on a 5-point Likert scale from "strongly disagree" to "strongly agree," with scores ranging from 20 to 100. Scores between 20-40 indicate low alexithymia, 40-60 indicate moderate alexithymia, and above 60 indicate high alexithymia. The psychometric properties of the TAS-20 have been validated in various studies. The concurrent validity of the TAS was confirmed by correlations with measures of emotional intelligence, psychological well-being, and psychological distress. In the Persian version validated by Basharat (2008), the Cronbach's alpha coefficients were 0.85 for total alexithymia, 0.82 for DIF, 0.75 for DDF, and 0.72 for EOT, indicating good internal consistency. Test-retest reliability ranged from 0.71 to 0.77 for total alexithymia and its dimensions over a four-week interval (Sadidi & Yamini, 2018; Salemi et al., 2023).

### 2.2.3. *Mental Vitality*

This scale, developed by Ryan and Frederick in 1997, consists of 7 items rated on a seven-point Likert scale from 1 (not at all true for me) to 7 (very true for me). Higher scores indicate greater mental vitality. Ryan and Frederick reported a factor exploratory validity of 70% and a Cronbach's alpha of 0.92. Rashwanlou et al. (2018) found internal consistency and item discrimination between 0.32 and 0.81. Test-retest reliability ranged from 0.73 to 0.87, and Cronbach's alpha was 0.91. In Iran, the Cronbach's alpha for the scale was 0.79. The face and content validity were confirmed by five psychology professors. Arabzadeh (2017) reported a Cronbach's alpha of 0.79. This scale was first translated and validated in Iran by Arizi (2003), with a Cronbach's alpha of 0.85. Taghizadeh (2006) reported an internal reliability of 0.74. Abolghasemi (2003) reported an internal consistency of 0.84 (Borji & Tarjoman, 2020).

## 2.3. *Intervention*

### 2.3.1. *Systemic Family Therapy*

The experimental group underwent systemic family therapy based on Bowen's (2009) protocol, consisting of eight 90-minute sessions held twice a week (Ghaffari et al., 2010).

#### Session 1:

Welcome and introduction to the group members and therapist. Participants express their feelings before attending the session, discuss why they came, and what they expect from the therapy sessions. They share similar past experiences and discuss the rules of the group, such as punctuality, non-absence, completing assignments, maintaining confidentiality, and showing mutual respect. The therapist explains the research topic and its objectives, emphasizing the need to reflect on these goals. An overview of the educational content about understanding the problem and the family factors contributing to it and its impact on the family is provided. The pre-test is conducted.

#### Session 2:

Evaluation of the family, constructing a genogram of the members, and examining their patterns.

#### Session 3:

Introduction and exploration of the concept of differentiation, explaining the separation of thoughts from emotions and individuals from the family. The evaluation of individuals in this regard is conducted.

#### Session 4:

Introducing members to the concept of codependency and ways to improve it.

#### Session 5:

Familiarizing the family with concepts such as triangulation and the emotional system of the nuclear family and their effects on the creation and persistence of the problem.

#### Session 6:

Introducing the family to concepts of family projection and emotional cutoff and their impact on family issues.

#### Session 7:

Familiarizing members with the position of siblings and the multigenerational transmission process.

#### Session 8:

Reviewing all the sessions and providing final strategies for improving the situation. The session concludes with expressions of gratitude and appreciation for their participation, followed by the post-test.

## 2.4. *Data Analysis*

Data analysis was performed using descriptive statistics (central and dispersion measures) and inferential statistics. The Kolmogorov-Smirnov test checked data normality, Levene's test assessed error variance equality, and repeated measures ANOVA with Bonferroni post hoc tests analyzed the hypotheses. Data analysis was conducted using SPSS-16.

## 3. **Findings and Results**

The mean (standard deviation) age of participants in the experimental group was 39.7 (9.4) years, and in the control group, it was 36.2 (7.9) years. The minimum and maximum ages in the experimental group were 25 and 48 years, and in the control group, they were 26 and 50 years, respectively. Descriptive statistics for the study variables, including mean and standard deviation, for the three groups in the pre-test and post-test stages, are presented in Table 1.

**Table 1**

*Descriptive Statistics of Research Variables*

Variable	Group	Stage	Mean	SD
Alexithymia	Systemic Family Therapy	Pre-test	57.67	16.90
		Post-test	54.67	16.27
		Follow-up	54.11	16.20
	Control	Pre-test	56.73	16.38
		Post-test	57.20	16.25
		Follow-up	57.38	16.44
Psychological Capital	Systemic Family Therapy	Pre-test	91.27	26.82
		Post-test	95.13	26.38
		Follow-up	96.79	26.86
	Control	Pre-test	91.73	30.30
		Post-test	92.67	29.56
		Follow-up	92.44	29.38
Mental Vitality	Systemic Family Therapy	Pre-test	20.07	5.98
		Post-test	24.67	6.50
		Follow-up	25.52	6.47
	Control	Pre-test	19.87	5.93
		Post-test	20.33	6.08
		Follow-up	20.40	6.18

To ensure the normality of the research data, the Shapiro-Wilk test was used. The results showed that the significance level of the Shapiro-Wilk test for all groups in both the pre-test and post-test stages was greater than 0.05, indicating the normality of the data related to the research variables in the experimental and control groups in the two stages. The M. Box test evaluates the null hypothesis that the observed

covariance matrices of the dependent variable (research variables) are equal across different groups. Given that the significance level of the test was 0.984, which is greater than 0.05, it supports the null hypothesis that the observed covariance matrices of the dependent variable (research variables) are equal across different groups, confirming this assumption.

**Table 2**

*Repeated Measures Analysis of Variance for Comparison of Pre-Test, Post-Test, and Follow-Up for Alexithymia, Psychological Capital, and Mental Vitality in Experimental and Control Groups*

Scale	Source of Effect	Sum of Squares	df	Mean Square	F	Sig	Partial Eta Squared
Alexithymia	Time*Group	170.556	2	85.278	25.632	0.001	0.423
	Group	63.734	1	63.734	6.258	0.004	0.243
Psychological Capital	Time*Group	261.622	2	130.811	46.573	0.001	0.478
	Group	54.736	1	54.736	9.650	0.001	0.331
Mental Vitality	Time*Group	1086.467	2	287.233	29.704	0.001	0.515
	Group	14.275	1	14.275	7.293	0.002	0.272

The results from Table 2 indicate that the obtained F-ratio for the group factor in the dimensions of alexithymia, psychological capital, and mental vitality was significant ( $p < 0.01$ ). This finding suggests that systemic family therapy was effective in reducing alexithymia, increasing psychological capital, and enhancing mental vitality in

mothers infected with COVID-19 with autistic children. In this regard, a repeated measures analysis of variance for the experimental group was conducted across three stages of the intervention. The observed F-ratio indicated improvements in alexithymia, psychological capital, and mental vitality.

**Table 3**

*Bonferroni Post Hoc Test Results Within the Systemic Family Therapy Group for Dimensions of Alexithymia, Psychological Capital, and Mental Vitality*

Variable	Time 1	Time 2	Mean Difference	Standard Error	P-value
Alexithymia	Pre	Post	2.96	1.25	0.002
		Follow-up	2.86	1.25	0.002
	Post	Follow-up	0.50	1.22	0.896
Psychological Capital	Pre	Post	4.56	1.25	0.001
		Follow-up	5.91	1.31	0.001
	Post	Follow-up	0.45	1.29	0.945
Mental Vitality	Pre	Post	4.67	1.25	0.001
		Follow-up	5.43	1.31	0.001
	Post	Follow-up	0.28	1.33	0.835

Changes in the experimental group over time, shown in Table 3, indicated that the dimensions of alexithymia, psychological capital, and mental vitality in the experimental group were significant in the post-test compared to the pre-test ( $P < 0.001$ ). Additionally, significant differences were observed in the follow-up stage compared to the pre-test ( $P < 0.001$ ), but there were no significant differences in the follow-up stage compared to the post-test ( $p < 0.01$ ).

#### 4. Discussion and Conclusion

The present study aimed to compare the effectiveness of systemic family therapy in reducing alexithymia, increasing psychological capital, and enhancing mental vitality in mothers infected with COVID-19 with autistic children. Based on the obtained findings, it is evident that systemic family therapy was effective in reducing alexithymia, increasing psychological capital, and enhancing mental vitality in these mothers. These results align with the prior findings (Lax, 2020; Wampler, 2020).

To explain these findings, it can be stated that systemic family therapy increases self-differentiation, reducing the fear of anxiety related to illness. As a result, systemic family therapy can be effective during times of distress and anxiety because self-differentiation is significantly correlated with optimal levels of positive relationships. Systemic family therapy can create this balance in individuals (Carr, 2019, 2020). In marital relationships, if both partners have low levels of differentiation, fusion occurs between them, leading to increased alexithymia, decreased psychological capital, and mental vitality in mothers infected with COVID-19 with autistic children. All these factors are strong predictors of incompatibility. Additionally, systemic family therapy posits that the relationship between family members is directly related to the functioning of each member, and

each member's ability to function individually is directly related to the functioning of the entire family. Differentiation is one of the fundamental concepts of Bowen's theory, referring to the ability to experience intimacy with others while maintaining independence from others. In systemic family therapy, the therapist helps the individual understand the logical impacts of decision-making and enhance their level of differentiation, thus improving effective individual relationships (Wampler, 2020).

Systemic family therapy has a significant impact on various dimensions of individual, family, and societal mental health, thereby improving the quality of an individual's relationships with themselves and others (Carr, 2019, 2020; Minuchin et al., 2021). By integrating these results and therapeutic experiences, it can be concluded that systemic family therapy plays a crucial role in enhancing an individual's relationships with other family members. In systemic family therapy theory, all symptoms, including psychological, physical, and social problems, are associated with failures in adapting to low self-differentiation and exaggeration in emotional communication processes. According to systemic family therapy, a significant portion of an individual's anxiety is rooted in their past and family. The theoretical foundation assumes that a certain level of anxiety is always present in life, which is considered an inevitable part of nature (Minuchin et al., 2021). This chronic anxiety is transmitted through previous generations, constantly balancing the feelings of togetherness and differentiation among family members. Anxiety is the basis for all pathological symptoms. This therapeutic method helps individuals improve their self-differentiation. The degree of self-differentiation in an individual indicates their ability to separate cognitive processes from the emotional processes they experience. Individuals with the most fusion between thoughts and emotions exhibit the weakest

functioning. The primary goal of self-differentiation is to balance emotion and cognitive emotion. In systemic family therapy, due to its fundamental focus on differentiation and addressing the psychological adhesions within family members referred to as the "undifferentiated ego mass," individuals practice separating emotions from thoughts during times of psychological pressure and anxiety. Through repeated practice, individuals gain the ability to differentiate themselves and, instead of being carried away by the family's emotional wave, use their logic. Hence, systemic family therapy was effective in reducing alexithymia, increasing psychological capital, and enhancing mental vitality in mothers infected with COVID-19 with autistic children.

Due to the implementation of the study on mothers infected with COVID-19 with autistic children in Mashhad, the generalizability of the results to mothers infected with COVID-19 with autistic children in other cities and provinces is limited. Participants may have been influenced by repeated responses to a single questionnaire (pre-test and post-test), reducing their accuracy in responding. Despite the researcher's efforts to implement the therapeutic protocol precisely, the challenges encountered in working with mothers infected with COVID-19 with autistic children cannot be ignored, which is a limitation of this study. The final limitation is that the measurement of variables in this study was self-reported, and caution should be exercised in interpreting the results, as some participants may not have responded accurately due to the large volume of information requested or may have unconsciously answered the questionnaires in a self-confirming manner. The only tool used in this study was a questionnaire, and using a single tool may not provide accurate information. Additionally, this study could not control variables such as family support or lack thereof for mothers infected with COVID-19 with autistic children.

## 5. Suggestions and Limitations

The data in this study were obtained using self-report tools; future research should consider using other data collection methods such as interviews and observations. This study was cross-sectional, and future researchers should conduct qualitative and longitudinal studies. Future research should control demographic variables such as economic status, religion, and ethnicity. Future studies should include participants with lower education levels and a broader age range. Other psychotherapeutic approaches such as logotherapy, reality therapy, dialectical behavior therapy,

cognitive-behavioral therapy, and compassion-focused therapy for mothers infected with COVID-19 with autistic children can enrich the research literature in this area. The results of this study should be disseminated to counseling centers through brochures, newsletters, etc., for more awareness and information. Considering the effectiveness of systemic family therapy, it is recommended to use these methods in the early stages and when the problem severity is lower for better preventive outcomes. Given the effectiveness of systemic family therapy, it should be prioritized in counseling to improve alexithymia, increase psychological capital, and enhance mental vitality in mothers infected with COVID-19 with autistic children. It is suggested that systemic family therapy be used for counseling individuals with family problems and issues similar to the research variables. Given the effectiveness of systemic family therapy in improving alexithymia, increasing psychological capital, and enhancing mental vitality in mothers infected with COVID-19 with autistic children, practical techniques and methods of this theory should be utilized by family counselors to improve these aspects. The exercises and skills of this approach can be provided in pre-marital education sessions, family education workshops, and practical booklets for spouses and students of counseling and psychology.

## Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

## Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

## Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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## Declaration of Interest

The authors report no conflict of interest.

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## Ethical Considerations

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

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