

Research Paper

Comparison of Family Communication Patterns and Emotional Atmosphere in Multiple Sclerosis and Healthy Families

Alireza Bahrambeyk¹, Mohammad Saeed Khanjani^{1*}, Parvin Jafari¹, Razieh Bidhendi Yarandi²

1. Department of Counseling, School of Behavioral Sciences and Mental Health, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran.

2. Department of Biostatistics and Epidemiology, School of Social Health, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran.



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ABSTRACT

Objective: Grounded in family systems theory, this study compared family communication patterns (conversation and conformity orientations) and emotional atmospheres between families with a multiple sclerosis (MS) patient and healthy control families.

Methods: Utilizing a cross-sectional comparative design, an a priori powered sample of 80 participants (40 clinically stable MS patients, 40 healthy individuals) was recruited. To mitigate convenience sampling bias, groups were statistically adjusted for demographic covariates. Participants completed culturally validated Persian versions of the Koerner & Fitzpatrick revised family communication patterns scale and the Hill-Burns family emotional atmosphere questionnaire.

Results: Families of individuals with MS exhibited significantly lower conversation orientation ($P < 0.05$, Cohen's $d = 0.54$) and a more negative family emotional atmosphere ($P < 0.05$, $d = 1.01$) compared to healthy controls, demonstrating moderate to large clinical effect sizes. However, conformity orientation did not differ significantly between the groups ($P > 0.05$).

Conclusion: The chronic burden of MS profoundly disrupts open family communication and emotional atmosphere. While the cross-sectional design limits definitive causal inferences, the substantial effect sizes underscore a clear clinical necessity for systemic family therapy and targeted psychosocial interventions to foster resilience in MS-affected households.

* Corresponding Author:

Mohammad Saeed Khanjani, Associate Professor:

Address: Department of Counseling, School of Behavioral Sciences and Mental Health, University of Social Welfare and Rehabilitation Sciences, Tehran, Iran.

Tel: +98 (21) 22180061

E-mail: sa.khanjani@uswr.ac.ir

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Highlights

- Multiple Sclerosis impairs family conversation orientation ($d=0.54$).
- Family emotional atmosphere is severely reduced in MS groups ($d=1.01$).
- Conformity remains stable, likely to preserve family cohesion.
- Systemic therapy is vital to restore open communication in MS.

Plain Language Summary

Multiple sclerosis (MS) is a chronic condition that impacts not only a person's physical health but also their entire household. Managing MS often brings chronic stress, which can shift how families interact. This study compared the emotional atmosphere and communication styles of 40 families managing MS and 40 healthy families in an Iranian cultural context. This cross-sectional study assessed 80 volunteers at a single point in time. Participants completed standardized questionnaires to measure their family's emotional atmosphere and two specific communication styles: "conversation orientation" (how freely family members talk about their thoughts and feelings) and "conformity orientation" (how much members are expected to hold the same beliefs and follow family rules). The results showed that families with an MS member reported a less positive emotional atmosphere and weaker conversation-oriented communication compared to healthy families. Importantly, these differences were not just statistical numbers but were substantial enough to be meaningful in everyday life (showing moderate to large effect sizes). However, both groups showed similar levels of conformity. This suggests that while open conversations and emotional warmth might decrease under the stress of illness, families still stick to their shared rules and values to stay cohesive. Because this was a cross-sectional study based on self-reported surveys, we cannot state that MS directly causes these changes over time, it can be said that they are strongly linked. Nonetheless, these findings matter immensely as highlight that MS is a family-wide experience. Understanding this helps therapists and healthcare providers design support programs that treat the whole family—helping them communicate better, reduce stress, and rebuild warm emotional bonds amidst the challenges of chronic illness.

Introduction

Multiple sclerosis (MS) is one of the most pervasive and disabling chronic diseases of the central nervous system, primarily affecting young adults. Unlike many other chronic conditions, the unpredictable trajectory of MS, coupled with its profound sensory, motor, and cognitive impairments, places a unique and protracted burden on the family system (Christopoulos et al., 2020). Because full recovery is generally not expected, patients must cope with physical and psychological limitations for many years, necessitating consistent care and support within the family context (Brown & Veinot, 2020).

As the primary theoretical framework guiding this study, we draw upon family communication patterns theory (FCPT) integrated within the broader family systems theory. Grounded in this framework, the diagnosis of a chronic illness in one member inherently disrupts

the equilibrium of the entire family unit, demanding systemic adaptation. To manage this disruption and create a shared social reality, families rely on specific communication structures (Koerner & Fitzpatrick, 2002; Rolland, 1994). These communication patterns dictate how family members interact and express their emotions and needs, primarily categorized into conversation orientation (emphasizing open, respectful dialogue) and conformity orientation (emphasizing obedience and structural hierarchy) (Fitzpatrick, 2004). Concurrently, the family emotional atmosphere encompasses the quality of emotional bonds, trust, and psychological security, which directly impacts the mental health and adjustment of all members, particularly the patient (Kapetanovic & Skoog, 2021).

A critical synthesis of the extant literature reveals a dichotomy in family adaptation to chronic neurological conditions. While some families succumb to systemic disruption characterized by a tense emotional atmosphere, social withdrawal, and rigid conformity

(Buchanan & Hatcher, 2010; Di Tella et al., 2021; Tayanani-najaran et al., 2023), others cultivate resilience through open, conversation-oriented communication, thereby fostering a supportive and positive emotional atmosphere (Rezaii & Haghayegh, 2022; Thomson et al., 2022).

Despite these insights, there remains a conspicuous paucity of empirical research systematically comparing the communication patterns and emotional atmosphere of families living with MS against healthy control families. Understanding the specific interactive and emotional differences between these groups is imperative for guiding targeted psychosocial interventions. Therefore, the present study aimed to compare the components of FCPT (conversation and conformity orientation) and the family emotional atmosphere between families with an MS patient and healthy families. Based on this rationale, the following hypotheses are proposed: 1) Families with MS patients exhibit lower conversation orientation compared to healthy families, while no significant difference is expected regarding conformity orientation between the two groups. 2) Families with MS patients demonstrate a more negative family emotional atmosphere compared to healthy families.

Materials and Methods

Statistical population, sample, and research procedure

The present study utilized a cross-sectional comparative design. The statistical population consisted of two groups: individuals diagnosed with MS and healthy individuals. The study sample included 80 participants (40 MS patients and 40 healthy individuals). The sample size was determined based on a standard sample size formula and in reference to a similar study (Qaemi-Moghadam, 2019), which initially yielded approximately 30 participants per group (assuming a 5% type I error and 80% statistical power). Following consultation with a statistical advisor, the sample size was increased to 40 participants per group to enhance the precision of the analysis and account for potential dropout.

MS participants were recruited through the Iranian MS Association (Tehran) and the Rafideh Rehabilitation Hospital in Tehran, where the MS diagnosis was formally verified via registered medical records. While specific clinical parameters, such as disease severity (e.g. EDSS scores) and current treatment regimens were not recorded, all participating patients were in a stable condition capable of independently completing the as-

sessments. Sampling for the healthy group was conducted using convenience sampling. Although recruitment channels differed, potential mode effects were mitigated as both groups completed identical online questionnaires. To ensure data security, all data were deleted from transmission platforms after being transferred to a separate memory storage. Efforts were made to match the two groups on demographic variables, such as age, gender, and education; however, due to limited access to fully comparable samples, complete matching was not achieved. Therefore, adjusted regression was used to control for these covariates a priori to reduce potential bias. After providing participants with explanations regarding the study objectives and data confidentiality, electronic informed consent was obtained. Questionnaires were administered to both groups via an online form on the Porsline platform, and responses were collected remotely. To address potential common-method bias arising from self-report measures, participants were assured of complete anonymity, and standardized instruments with distinct response formats were utilized.

Inclusion and exclusion criteria

For the MS group, the main inclusion criteria were a confirmed diagnosis of MS for at least one year, age between 18 and 35 years, a minimum of five years of formal education (completion of primary school), living with parents, absence of other chronic diseases, ability to use a smartphone or tablet, and completion of an informed consent form. For the healthy group, inclusion criteria included no chronic disease in the participant or first-degree family members living with them, age between 18 and 35 years, a minimum of five years of formal education, living with parents, informed consent, and access to electronic devices. Exclusion criteria for both groups consisted of incomplete or invalid questionnaire responses, as well as any self-reported history of severe psychiatric comorbidities (e.g. schizophrenia, bipolar disorder), which could independently confound family communication and emotional dynamics.

Research tools

To collect data, a demographic questionnaire was used to record variables, such as participants' gender, age, and educational level, along with two standardized instruments. For both scales, the culturally adapted Persian versions were utilized, relying on previous Iranian validation studies that confirmed their psychometric properties in the local population.

Family communication patterns scale

The original version of this scale was developed in the 1980s by Fitzpatrick and Ritchie, demonstrating acceptable reliability with Cronbach's α coefficients reported as 0.87 for conversation orientation and 0.79 for conformity orientation. However, due to some limitations, a revised version was developed by Koerner and Fitzpatrick in 2004, which was used in the present study. The revised version contains 26 items scored on a five-point Likert scale (1="strongly disagree" to 5="strongly agree") and assesses conversation orientation (15 items) and conformity orientation (11 items). Higher scores indicate a greater tendency toward that communication style. Psychometric evaluations of the revised scale indicate good structural validity, with Cronbach's α coefficients ranging from 0.84 to 0.92 (Koerner & Fitzpatrick, 2004). In a study conducted in Iran by Tajalli and Zarnaghash (2017), the reliability of the Persian version of this inventory was confirmed using the Cronbach's α method, with coefficients reported as 0.93 for conversation orientation and 0.89 for conformity orientation.

Family emotional atmosphere questionnaire (FEAQ)

This questionnaire, designed by Frasier in 1964, consists of 16 items rated on a five-point Likert scale and 8 two-item subscales. It measures dimensions, such as affection, nurturing, approval, shared experiences, gift-giving, encouragement, trust, and sense of security. Higher scores indicate a more positive, supportive, and satisfying family environment. Content validity of this instrument has been reported at approximately 80%, and its reliability in the original study was 0.82 (Frasier, 1964). Similarly, the cross-cultural validity and internal consistency of the Persian version have been confirmed in Iranian studies; for instance, Shahmardi et al. (2022) reported a high Cronbach's α reliability of 0.88 for this questionnaire in an Iranian sample.

Research procedure

After designing the study and obtaining the required ethical approvals (specifically, the study protocol was approved by the Ethics Committee of the University of Social Welfare and Rehabilitation Sciences, the research process was initiated. In the first stage, in collaboration with the Iranian MS Association, Rafideh Rehabilitation Hospital, and through social media, a call for participation was announced for the target population, including eligible MS patients and healthy individuals. The sampling and data collection phase was specifically conduct-

ed during a two-week period from late June to early July 2025. Volunteers were initially screened based on the inclusion criteria. Complete information regarding the study objectives and procedures was provided, and the voluntary nature of participation and confidentiality of information were emphasized. Electronic informed consent was then obtained from participants, and links to the online questionnaires were sent via the Porsline platform to both groups. Participants completed the questionnaires remotely (online), and the collected data were securely stored and prepared for statistical analysis. Data analysis was conducted at two levels: Descriptive and inferential statistics. Initially, demographic differences were tested using chi-square (χ^2) tests. For inferential statistics, adjusted regression was applied to control and match demographic variables (dummy-coded for the group variable). Before the main analysis, statistical assumptions were rigorously verified; normality was assessed via the Kolmogorov-Smirnov test and Normal Q-Q plots, while multicollinearity was checked using variance inflation factor (VIF) values. Then, to compare the main variables between the two groups, both adjusted regression and independent t-tests were conducted. To ensure a robust interpretation of the clinical magnitude, Cohen's d effect sizes were computed for all primary outcomes. All statistical analyses were performed using SPSS version 26.

Results

In Table 1, the frequencies of participants' gender, age, and education level are presented in order. Since the two groups appeared to differ on three demographic variables (gender, age, and education), adjusted regression analysis was used to address this issue. In this method, the mentioned variables were included as control variables in the regression model, allowing the comparative results between the two groups to be analyzed without being influenced by demographic differences. In other words, this statistical approach helps examine observed group differences while accounting for and adjusting the effects of demographic variables. Adjusted regression is an effective method for controlling confounding factors and provides more accurate estimates of the effects of the main research variables (Fitzmaurice, 2006).

Prior to conducting the primary analyses, potential demographic differences between the MS patients and the healthy population were formally tested using chi-square (χ^2) tests. The results confirmed significant baseline differences between the two groups regarding gender ($\chi^2(1)=9.45$, $P=0.002$), age range ($\chi^2(3)=43.82$, $P<0.001$), and education level ($\chi^2(4)=18.19$, $P=0.001$). Because these demographic variables showed initial dif-

Table 1. Frequency distribution of gender, age, and education level of the participants

Variables	Category	No. (%)	
		MS Patients	Healthy Population
Gender	Female	20(50)	33(82.5)
	Male	20(50)	7(17.5)
	Total	40(100)	40(100)
Age range (y)	18–20	1(2.5)	3(7.5)
	21–25	24(60)	2(5)
	26–30	14(35)	9(22.5)
	31–35	1(2.5)	26(65)
Education Level	Below diploma	-	3(7.5)
	Diploma	3(7.5)	13(32.5)
	Associate degree	-	3(7.5)
	Bachelor's degree	22(55)	16(40)
	Master's degree	15(37.5)	5(12.5)
	Total	40(100)	40(100)

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ferences, their inclusion as covariates in the adjusted regression model was highly justified to control for potential confounding effects. Furthermore, the assumptions of multiple regression were carefully checked. In addition to the Kolmogorov–Smirnov test, visual diagnostics using normal Q-Q plots confirmed the assumption of normality. The assumption of no multicollinearity was also met, as VIF values for all predictors were well below the conservative threshold of 3.0, indicating no problematic collinearity among the demographic variables. The regression models demonstrated adequate goodness-of-fit in explaining the variance of the dependent variables. For the regression analysis, the categorical “group” variable was systematically dummy-coded as 0 = healthy population and 1 = MS patients. Finally, while adjusted regression was utilized to control for covariates (Table 2), descriptive statistics are presented in Tables 3 and 4, and unadjusted independent t-tests were also reported to provide raw mean comparisons (Tables 5 and 6). To mitigate the risk of type I error inflation from conducting multiple unadjusted comparisons and to provide a more robust interpretation, Cohen’s *d* effect sizes were computed. The unadjusted differences between the healthy and MS groups demonstrated a large effect size for the family emotional atmosphere

($d=1.01$) and a moderate effect size for the conversation orientation ($d=0.54$), underscoring the practical magnitude and clinical relevance of these disparities beyond *P*-values alone.

Based on Table 2, the effect of the group on conversation orientation was significant ($\beta=-0.41$, $P<0.05$), indicating a significant adjusted difference between the two groups. In contrast, the effect of the group on conformity orientation was not significant ($\beta=0.195$, $P>0.05$), suggesting no significant difference between the two groups in this regard. Additionally, the effect of the group on family emotional atmosphere was significant ($\beta=-0.538$, $P<0.05$), indicating a significant difference between the groups for this variable. According to the results of the adjusted regression analysis, among the three main research variables, conversation orientation and family emotional atmosphere showed significant differences between the groups, whereas conformity orientation did not. The persistence of a significant group effect in the regression model after controlling for confounding variables, such as age, gender, and education indicates that these variables did not act as confounders. Therefore, the non-significance of a single variable does not weaken the overall findings. Given that the majority of

Table 2. Standardized and unstandardized regression coefficients for conversation orientation, conformity orientation, and family emotional atmosphere

Variables		Unstandardize D Coefficient (B)	Std. Error	Standardized Beta	t	Sig.
Conversation orientation	Constant	42.727	8.744	—	4.886	0.001
	Group	-11.588	4.495	-0.41	-2.578	0.012
	Gender	-3.368	3.504	-0.113	-0.961	0.339
	Age	3.279	2.103	0.214	1.559	0.123
	Education	0.459	1.531	0.037	0.3	0.765
Conformity orientation	Constant	28.038	6.936	—	4.042	0.001
	Group	4.227	3.566	0.195	1.185	0.24
	Gender	2.035	2.78	0.089	0.732	0.466
	Age	0.554	1.668	0.047	0.332	0.741
	Education	0.081	1.215	0.009	0.067	0.947
Family emotional atmosphere	Constant	61.429	8.434	-	7.284	0.001
	Group	-15.793	4.336	-0.538	-3.643	0.001
	Gender	-4.986	3.38	-0.161	-1.475	0.144
	Age	0.729	2.028	0.046	0.359	0.72
	Education	-0.013	1.477	-0.011	-0.009	0.993

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research variables were confirmed and the applied statistical method was appropriate, no additional sampling was necessary, and the findings possess sufficient scientific validity (Fitzmaurice, 2006). In the descriptive results, Table 3 shows that the mean score of conversation orientation was higher in the healthy group than in the MS group. The same table indicates that the mean score of conformity orientation was lower in the healthy group compared to the MS group. Table 4 shows that the mean of family emotional atmosphere and its components was higher in the healthy group than in the MS

group. Furthermore, the Kolmogorov–Smirnov test was used to examine the normality of the data distribution, and the significance level for all variables was above 0.05; therefore, the distribution of the research variables was normal.

Based on the data presented in Table 5, it can be concluded that there was a significant difference in family conversation orientation between individuals with MS and the healthy population. The mean score of conversation orientation in families of individuals with MS was

Table 3. Descriptive statistics for family communication patterns in two independent groups

Variables	Groups	Mean±SD	Std. Error
Conversation orientation	MS patients	39.95±14.449	2.285
	Healthy population	47.4±13.138	2.077
Conformity orientation	MS patients	36.83±11.316	1.789
	Healthy population	32.75±10.195	1.612

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Table 4. Descriptive statistics for family emotional atmosphere and its components in two independent groups

Variables	Groups	Mean±SD	Std. Error
Family emotional atmosphere	MS patients	42.25±13.761	2.176
	Healthy population	55.63±12.659	2.002
Affection	MS patients	6.1±2.216	0.350
	Healthy population	7.48±1.768	0.280
Physical affection	MS patients	4.85±2.282	0.361
	Healthy population	6.5±2.32	0.367
Approval	MS patients	4.98±1.928	0.305
	Healthy population	6.63±1.764	0.279
Shared experiences	MS patients	4.18±2.086	0.330
	Healthy population	6.48±2.1	0.332
Gift giving	MS patients	5.18±2.159	0.341
	Healthy population	7.03±1.928	0.305
Encouragement	MS patients	4.98±2.082	0.329
	Healthy population	6.88±2.015	0.319
Trust	MS patients	5.95±2.428	0.384
	Healthy population	7.43±1.824	0.288
Sense of security	MS patients	6.05±2.087	0.330
	Healthy population	7.23±1.79	0.283

lower than that of the healthy group. Furthermore, there was no significant difference in family conformity orientation between individuals with MS and the healthy population.

Based on the data presented in Table 6, family emotional atmosphere and its components differed significantly between families of individuals with MS and the healthy population. The mean scores of family emotional atmo-

sphere and its components in families with a member affected by MS were lower than those in the healthy group.

Discussion

The main objective of the present study was to compare FCP and family emotional atmosphere between families of individuals with MS and healthy families. The results indicated that there is a significant difference in conversation orientation between families of individuals

Table 5. Inferential indices for comparison of the mean conversation orientation and conformity orientation in families between individuals with MS and the healthy population

Variables	Levene's F	P	t	df	P
Conversation orientation	0.558	0.457	-2.413	78	0.018
Conformity orientation	0.053	0.819	1.692	78	0.095

Table 6. Inferential indices for comparison of the mean family emotional atmosphere and its components between individuals with MS and the healthy population

Variables	Levene's F	P	t	df	P
Family emotional atmosphere	0.046	0.831	-4.524	78	0.001
Affection	0.725	0.397	-3.067	78	0.003
Physical affection	0.16	0.690	-3.206	78	0.002
Approval	0.927	0.339	-3.993	78	0.001
Shared experiences	0.057	0.812	-4.914	78	0.001
Gift giving	0.356	0.552	-4.042	78	0.001
Encouragement	0.507	0.479	-4.148	78	0.001
Trust	2.585	0.112	-3.072	78	0.003
Sense of security	0.811	0.371	-2.703	78	0.008

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with MS and the healthy population. The mean score of conversation orientation in families of individuals with MS was lower than that of the healthy group. Beyond statistical significance, this difference demonstrated a moderate effect size ($d=0.54$), highlighting its clinical relevance. In explaining this finding, viewed through the lens of FCPT, it can be suggested that reduced conversation in families with a member affected by MS may stem from chronic stress, treatment- and financial-related concerns, and shifts in family roles. According to FCPT, severe systemic stressors can disrupt a family's open communication atmosphere. Family members involved in caregiving, particularly in advanced stages of the disease, often experience physical and psychological fatigue, which may decrease motivation for intimate and constructive interactions (Benini et al., 2023). Moreover, fear of upsetting one another may lead individuals to suppress their emotions, and this lack of emotional transparency can reduce effective communication. Feelings of isolation, depression, and limited knowledge of appropriate communication skills in challenging circumstances may further restrict family interactions (Hunter et al., 2021). Furthermore, alternative explanations, such as unmeasured variations in disease severity, duration of illness, or socioeconomic status could also independently influence these communication dynamics.

Similarly, in the study conducted by Tayarani-najaran et al. which compared communication patterns in families of patients with bipolar mood disorder and healthy individuals, there was a significant difference in conversation orientation between the two groups. This cross-

study comparison is methodologically justified, as both MS and bipolar disorder are chronic conditions characterized by unpredictable trajectories that impose comparable systemic and emotional burdens on the family unit. Healthy individuals demonstrated a greater tendency toward active listening, clear emotional expression, and more effective conflict management, whereas families of patients with bipolar disorder faced challenges in these areas (Tayarani-najaran et al., 2023).

The results of the present study also showed that there was no significant difference in conformity orientation between families of individuals with MS and the healthy population. Although the mean conformity orientation score was slightly higher in families of individuals with MS, this difference was not statistically significant. The lack of a significant difference in conformity orientation may be explained by factors, such as family cohesion, the need for mutual support, and adherence to traditional norms. When facing a chronic illness, families often emphasize coordination and compliance with collective decisions to manage the situation more effectively.

Additionally, social and cultural support systems may play an important role in preserving shared values and reducing conflict. These factors may have contributed to maintaining similar levels of conformity orientation in both groups (Wheeler et al., 2022). Treder-Rochna indicated that conformity patterns in families of individuals with MS were very weak (Treder-Rochna, 2023). The discrepancy between these findings and the present study may be attributed to cultural differences between

the societies examined. In many Western cultures, individualism and the tendency toward intellectual and personal independence are generally more emphasized, and individuals are encouraged from an early age to develop and express their own viewpoints and decisions. This orientation may lead to lower levels of conformity within families, as members may be less inclined to unquestioningly accept shared family values and beliefs (Steckermeier, 2021).

The comparison of family emotional atmosphere between the two studied groups showed that family emotional atmosphere and its components differ significantly, with lower levels reported in families of individuals with MS. Notably, this finding revealed a large effect size ($d=1.01$), indicating a profound clinical significance. This substantial magnitude suggests that the emotional toll of MS extends far beyond mere statistical differences, deeply altering the lived experience of the family. Furthermore, the mean levels of affection, physical nurturing, approval, shared experiences, gift-giving, encouragement, trust, and sense of security were lower in families of individuals with MS compared to the healthy group. Differences in the emotional atmosphere of families with a member affected by MS may stem from factors, such as psychological insecurity resulting from the unpredictability of the disease, reduced positive interactions and family leisure activities, feelings of guilt and excessive responsibility, and limitations in social relationships. These factors may increase stress and tension within the family and consequently reduce the quality of emotional relationships (Raimo et al., 2021).

The results of the study conducted by Holden et al. indicated that there was no significant difference in family emotional atmosphere between families of individuals with MS and healthy families, which is not consistent with the findings of the present study (Holden et al., 2023). This discrepancy requires a more analytical interpretation rather than attributing it solely to coping styles. This inconsistency may stem from variations in the clinical profiles of the samples. For instance, families in Holden's study might have experienced a longer duration since diagnosis, allowing for systemic adaptation and resilience-building over time. Alternatively, differences in the availability of robust socioeconomic support systems or variations in disease severity could buffer the emotional atmosphere, preventing the deterioration observed in our sample (Ponzio et al., 2024).

Clinical implications and limitations

The profound clinical significance of these findings highlights the necessity for targeted family-based interventions. Rather than focusing solely on the patient, psychological care should encompass the entire family system. Psychoeducational programs and systemic family therapy are highly recommended to enhance communication skills, foster emotional transparency, and equip family members with adaptive coping strategies for managing chronic stress. Despite these insights, several methodological limitations must be acknowledged. First, the cross-sectional design of this study restricts the ability to draw definitive causal inferences regarding the impact of MS on family dynamics over time. Second, reliance on self-report questionnaires may introduce social desirability and common-method biases. Future research should employ longitudinal designs and incorporate multi-method data collection (e.g. qualitative interviews or observational methods) to gain a more comprehensive understanding of these family dynamics.

Conclusion

The findings of this study indicate that families with a member affected by MS face greater challenges in certain communicative and emotional aspects compared to healthy families. The psychological pressures associated with the chronic and unpredictable nature of the disease appear to reduce intimate interactions and weaken the emotional atmosphere within these families. Additionally, increased responsibilities, anxiety, and feelings of insecurity may contribute to decreased dialogue and expressions of affection among family members. However, no significant difference was observed in conformity orientation, which may be related to the role of family cohesion and the necessity for coordination during challenging circumstances. To better understand the role of chronic illness in shaping family communication and emotional atmosphere, it is suggested that future comparisons be conducted between families of individuals with MS and those affected by other chronic diseases, strictly controlling for disease severity and socioeconomic factors.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of the University of Welfare and Rehabilitation Sciences, Tehran, Iran (Code: IR.USWR.REC.1403.162). Participants took part voluntarily and provided informed consent. All participants were aware of the study's objectives, and their information was kept confidential.

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Authors' contributions

All authors contributed equally to the conception and design of the study, data collection and analysis, interpretation of the results, and drafting of the manuscript. Each author approved the final version of the manuscript for submission.

Conflict of interest

The authors declared no conflict of interest.

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