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Investigating the Relationship between Lack of Self-compassion and Social Support: The Mediating Role of Disease Awareness in Women with Autoimmune Diseases

Leila Rahmati Nezhad[1], Parisa Sattari Mahmudi[1], Elmira Shayegh[2], Arman Eftekhari[3], Shadi Karimzadeh Viyarsagh[4*]

1. Department of Psychology, Faculty of Education and Psychology, Karaj Branch, Islamic Azad University, Alborz, Iran
2. Department of Psychology, Faculty of Education and Psychology, Shahid Beheshti University, Tehran, Iran
3. Department of Psychology, Faculty of Education and Psychology, Kish International, Islamic Azad University, Kish, Iran
4. Department Psychology, Faculty of Education and Psychology, Science and Research Branch, Islamic Azad University, Tehran, Iran

***** ***Corresponding author:*** Shadi Karimzadeh Viyarsagh, Department Psychology, Faculty of Education and Psychology, Science and Research Branch, Islamic Azad University, Tehran, Iran. Email: arman.eftekhariii@gmail.com

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Abstract

Background: Autoimmune diseases are more common in women than men, leading to increased vulnerability to mental health issues among women with these conditions.

Objectives: The present study aimed to assess how a lack of self-compassion and social support, combined with disease awareness, impacts women with autoimmune diseases.

Methods: This cross-sectional research was conducted using structural equation modeling. The research focused on women with a history of autoimmune diseases in Tehran between July and October 2023. A total of 141 women with autoimmune diseases were included in the study, confirmed by specialists in research hospitals using targeted sampling. Data collection tools included the Multidimensional Scale of Perceived Social Support, the Self-Compassion Questionnaire, and the Mindful Attention Awareness Scale. Descriptive statistics were conducted using SPSS software (version 27), while path coefficients between variables were analyzed using SmartPLS software (version 4). Sobel's test was employed to determine the significance of the mediator variable.

Results: The current study revealed that the absence of self-compassion negatively impacted social support significantly (β=-0.512; P<0.001). Moreover, the absence of self-compassion had a significant detrimental impact on disease awareness (β=-0.464; P<0.001). On the contrary, the lack of self-compassion had an adverse and significant impact on social support as affected by disease awareness (β=-0.166; P=0.001).

Conclusion: As evidenced by the results of this study, the absence of self-compassion leads to a decrease in social support among women with autoimmune diseases.

Keywords: Autoimmune diseases, Disease awareness, Self-compassion, Social support

1. Background

Autoimmune disease is a diverse group of disorders characterized by the immune system attacking itself, leading to inflammation and tissue damage. It affects 5%-8% of the population, with women being four times more likely than men to be affected (1). These diseases include systemic lupus erythematosus, antiphospholipid syndrome, rheumatoid arthritis, and Sjogren's syndrome, among others, primarily affecting women of reproductive age (2). There are more than eighty known autoimmune diseases, with a

global prevalence estimated to be around 4.5%. The incidence of these diseases is increasing in industrialized societies by 3.7%-7.1% annually (3). A study suggests that controlling chronic inflammation in untreated depression may help prevent autoimmune diseases (4).

Women with autoimmune diseases experience both physical and mental suffering; nonetheless, practicing self-compassion can lead to improved health outcomes, such as decreased inflammation and enhanced immune system function. This approach can also help lower stress and depression levels, build emotional flexibility, and foster better interpersonal relationships (5). Self-compassion refers to recognizing one's suffering and treating oneself with kindness instead of trying to ignore or push away uncomfortable emotions. This approach enables a gentler and supportive way of coping with challenging situations (6). Nevertheless, a lack of self-compassion is connected to an increased susceptibility to indicators of psychopathology and can lead to heightened self-criticism, negative self-assessment, feelings of shame, submissive behavior, overthinking, and anxiety (7). A study by Finlay-Jones et al. (2023) revealed that individuals with chronic illnesses who possess self-compassion tend to experience more beneficial outcomes, such as reduced shame, fewer risky health behaviors, and less impairment in functioning (8). In addition, research indicated a positive correlation between self-compassion and social support (9).

In the face of life challenges, such as illness, social connections can offer necessary psychological resources to help individuals manage stress, as social support has consistently been found to be crucial for both physical and mental health outcomes and is connected to improved psychological well-being, mental happiness, positive emotions, and quality of life (10). Social support typically involves assistance provided by significant individuals, such as family members, friends, and coworkers, and higher levels of support can enhance the positive impact of self-efficacy on mental health perception (11). Research has indicated that the amount of social support a person receives has a negative correlation with their levels of self-efficacy, sleep quality, anxiety, and stress (12). Studies have also confirmed that strong social support can help protect against feelings of depression and anxiety and is connected to better psychological well-being indicators, such as self-compassion (13).

Moreover, diseases can trigger various behaviors and psychological responses, with the extent of one's knowledge about the disease impacting the likelihood of developing mental health issues. Lack of familiarity with a disease can heighten perceptions of its severity, while a positive attitude and understanding can lead to adaptive behaviors (14). Women's sufficient awareness of autoimmune diseases can help them identify triggers, effectively manage symptoms, follow treatment plans, and ultimately enhance health outcomes (15). Research findings have indicated that women, individuals with higher levels of education, single people, and residents of urban areas have significantly higher awareness and knowledge about rheumatic diseases, a type of autoimmune disease, compared to others (16). Another study suggested that raising public awareness about the disease and introducing positive psychological programs in the media to manage stress can help decrease anxiety in society (17). Lack of clinical awareness was found to potentially lead to delays in the timely diagnosis and proper treatment of the illness, according to another study (18). In addition, research has pointed out that increased social support is connected to higher levels of awareness about the disease (19). In autoimmune diseases, 80% of patients are women, and the incidence of these diseases is increasing faster in women than in men (3).

2. Objectives

Due to the complications that autoimmune

diseases bring to women's mental and physical health, it is essential to address the factors that can help these patients. Nonetheless, previous research has not explored the relationship of autoimmune diseases with a lack of self-compassion, social support, insight, and disease awareness in women. This gap in research led to the present study, which aimed to investigate this relationship. The researcher created a conceptual model of the study in Figure 1.

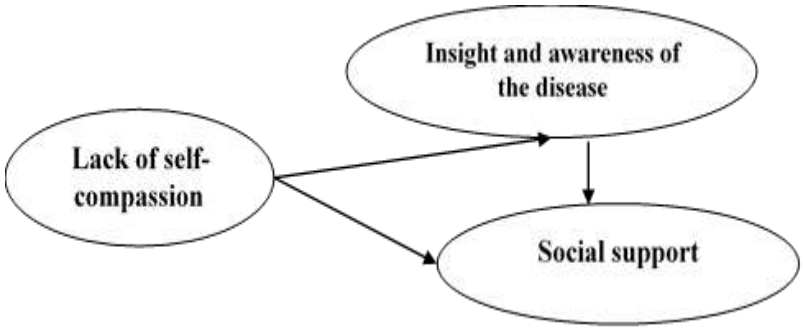

Figure 1. Conceptual framework of the research

3. Methods

This descriptive cross-sectional research was conducted using structural equation modeling (SEM). The statistical population for the study consisted of women with a history of autoimmune diseases in Tehran between July and October 2023.

A total of 141 women with confirmed autoimmune diseases, diagnosed by specialists in research hospitals using targeted sampling, were included in the statistical sample. Participants were required to have received a clinical diagnosis of autoimmune disease before the study, following a thorough evaluation by a healthcare provider. Diagnostic tests, including the antinuclear antibody test, were conducted to confirm the presence of antibodies associated with autoimmune diseases. Additional tests were performed based on the physician's judgment to determine the specific type of autoimmune disease. Approval for participant selection was obtained from the research hospitals, and sample size adequacy was determined using Cohen's formula to account for observed and latent variables, effect size, desired probability levels, and statistical power in SEM analysis in 2013 (20).

Based on this formula, the following were calculated to determine the sample size:

Anticipated effect size: 0.3
Desired statistical power level: 0.8
Number of latent variables: 3
Number of observed variables: 53
Probability level: 0.01

Based on the aforementioned values, the researcher determined that there were 119 individuals in the study. In anticipation of potential dropout rates in the sample group, the researcher decided on a sample size of 150 individuals to mitigate the effects of attrition. To be eligible for participation in the study, individuals had to possess a medical record indicating an autoimmune disease, provide informed consent, demonstrate adequate literacy to answer questions, and have an understanding of the research purpose.

The inclusion criteria for participants in the study entailed an age range of under 20 years old, the absence of any physical or mental disorders that

would impede participation, provision of a minimum of eight0-99 items in the questionnaires, being diagnosed with the disease for over a year, and not causing any issues during the study. The researchers first obtained permission from their university to carry out the study. Thereafter, they visited two hospitals in Tehran related to the disease

under investigation (the name of the hospitals was withheld for confidentiality). Following the visits, the researchers coordinated with hospital management to proceed with the research. Subsequently, an online announcement was made on behalf of the hospitals, targeting women with a history of autoimmune disease and existing medical records in the hospitals.

In the next phase, more detailed information about the research was shared with women who had consented through social media platforms. This information included research objectives, permits, and guidelines regarding adherence to ethical principles. Women were informed that the research forms did not contain personal information, and they could withdraw from the research process if desired. Following that, 150 subjects were purposefully selected for the study. Due to challenges in participant cooperation, it took three months to conduct the research and collect online questionnaires. Ultimately, 141 out of 150 completed questionnaires were used for the analysis, with nine questionnaires being excluded due to incomplete responses or intentional errors. Participants completed online questionnaires to evaluate their self-compassion, social support, and disease awareness. The study adhered to all ethical guidelines, and participants had the right to withdraw from the study at any point.

Data collection tools

Multidimensional Scale of Perceived Social Support: This self-report questionnaire designed by Dahlem, Zimet, and Walker in 1988 aims to assess perceived social support (21). It consists of 12 items rated on a seven-point Likert scale, from 1 for completely disagree to 7 for completely agree, measuring support from friends, family, and others. The total scores reflect the level of perceived social support, with higher scores indicating greater support. Scores range from 12-84. In a study conducted in Iran, Cronbach's alpha coefficient for this scale was determined to be 0.88 (22). The researcher in this study obtained a Cronbach's alpha coefficient of 0.80 for the scale.

Self-compassion questionnaire: Neff developed this self-report questionnaire in 2003 to assess levels of self-compassion(23). The questionnaire consists of 26 items rated on a five-point Likert scale. This scale examines the positive and negative elements of self-compassion in three key dimensions: self-kindness (5 items) compared to self-judgment (5 items), connectedness with others (4 items) versus feelings of isolation (4 items), mindfulness (4 items), and over-identification (4 items). When calculating overall self-compassion, it is crucial to reverse scores for negative subscales. This study only focused on the negative aspects of the scale. Scores for the negative dimension range from 13-65, with higher scores suggesting lower levels of self-compassion. This scale demonstrated good internal consistency in Iran with a Cronbach's alpha coefficient of 0.72 (24). The Cronbach's alpha coefficient reported in this research was 0.70.

***Mindful Attention Awareness Scale*:**

Brown and Ryan developed this self-report questionnaire in 2003 to assess an individual's level of mindfulness and attention to life events(25). The questionnaire comprises 15 items rated on a six-point Likert scale, with higher scores illustrating greater mindfulness (1=always to 6=never"). The overall score on this scale ranges from 15-90, reflecting the person's level of insight and awareness. In a study conducted in Iran, the Cronbach's alpha coefficient for this questionnaire was found to be 0.88 (26). The researcher in this study reported a Cronbach's alpha coefficient of 0.80 for the questionnaire. Furthermore, the researcher found the Cronbach's alpha coefficient to be 0.88 in their investigation.

Statistical analyses

Descriptive statistics were conducted using

SPSS software (version 27), while data trends and standard coefficients were analyzed using SmartPLS software (version 4). Sobel's test was employed to assess the significance of the mediator variable. The normality of the distribution of research variables was checked using the Shapiro-Wilk test, which indicated that the research variables did not have a normal distribution, leading to the use of SmartPLS software. A sample size of 141 individuals was deemed sufficient for implementing the structural equation model using the partial least squares method. The analysis used a significance level of 0.05.

4. Results

The researcher initially examined the descriptive statistics of the variables in the study. Regarding age, females were assigned to three categories: 20-30 years old (7.1%), 31-40 years old (23.4%), and 41 years old and above (69.5%). In a similar vein, female participants were allocated to two groups based on disease duration: 1-2 years (80.9%) and 2-3 years (19.1%). Female participants were also divided based on the number of children they had: one child, two children, and more than two children. Regarding education, they were assigned to four groups: illiterate, high school, diploma, and associate degree (Table 1).

Table 2 displays the mean and standard deviation of the research variables.

As displayed in Table 3, lack of self-compassion and social support are negatively and significantly correlated (P<0.001). Similarly, disease awareness was positively and significantly associated with social support (P<0.001). After conducting the model, the researcher examined the path coefficients and significance levels between the research variables in Table 4. For this study, the researcher specified the bootstrap value as 5000.

Table 1. Description of the demographic variables

Variables	Groups	Frequency	Percent	Sample size	Median
Duration of illness	1-2	114	80.9	141	1
	2-3	27	19.1		
Age	20 to 30 years old	10	7.1	141	3
	31 to 40 years old	33	23.4		
	41 and above	98	69.5		
Number of children	One child	10	7.1	141	2
	Two children	86	61.0		
	More than two children	45	31.9		
Education	Illiterate	31	22.0	141	2
	High school	72	51.1		
	Diploma	29	20.6		
	Associate Degree	9	6.4		

Table 2. Description of the main research variables

Variables	N	Mean	SD	Max	Min	Skewness	Skewness	Shapiro-Wilk	
								W	p
Social Support	141	46.8	8.52	60.0	30.0	-0.460	-0.968	0.931	p <0.001
Lack of self-compassion	141	32.7	4.92	40.0	19.0	-0.574	-0.106	0.942	p <0.001
Awareness of the disease	141	63.8	6.89	75.0	49.0	-0.420	-0.739	0.951	p <0.001

Table 3. Pearson's correlation coefficient

Variables	1		2		3	
Social Support	—					
Lack of self-compassion	-0.677	***	—			
Awareness of the disease	0.595	***	-0.464	***	—	

Note. * p<.05, ** p<.01, *** p<.001

Table 4. Standard research coefficients, in general

Path between variables	Path coefficient	STDEV	significance level	T-value	Result
Awareness of the disease -> Social Support	0.358	0.073	p<0.001	4.882	confirmation
Lack of self-compassion -> Awareness of the disease	-0.464	0.069	p<0.001	6.687	confirmation
Lack of self-compassion -> Social Support	-0.512	0.065	p<0.001	7.898	confirmation

Lack of self-compassion was found to have a detrimental impact on social support, as illustrated in Table 4 and Figure 2 (β=-0.512; P<0.001). Similarly, a negative and significant association was observed between lack of self-compassion and disease awareness (β=-0.464; P<0.001). On the contrary, the study revealed a positive and significant relationship between disease awareness and social support (β=0.358; P<0.001). The researcher then employed the bootstrap method to analyze the indirect effects of variables in the study.

Table 5 illustrates that a deficiency in self-compassion had a notable adverse effect on social support via disease awareness (β=-0.166; P=0.001). The direct path coefficient was -0.512, while the indirect path coefficient was -0.166, indicating that disease awareness negatively affected the lack of self-compassion. The researcher employed Sobel's test to examine the significance of the mediating variables in the study. The formula used for this test is as follows.

a: the value of the path coefficient between the independent variable and the mediator

b: Path coefficient value between mediating and dependent variable

Sa: the standard error of the path between the independent variable and the mediator

Sb: standard error of the path between the mediator and dependent variable

In the Sobel test, if the Z value is greater than 1.96, it indicates that the mediating effect of a variable is significant at the 95% confidence level. The Z value for disease awareness as a mediator between lack of self-compassion and social support was -3.9623. Based on the results of the Sobel test, it can be inferred that the mediating variable in the study is statistically significant. The researcher also assessed the determination coefficient of endogenous variables in the study (Table 6).

$$\text{Z value} = \frac{|a \times b|}{\sqrt{(b^2 \times S_a^2) + (a^2 \times S_b^2) + (S_a^2 \times S_b^2)}}$$

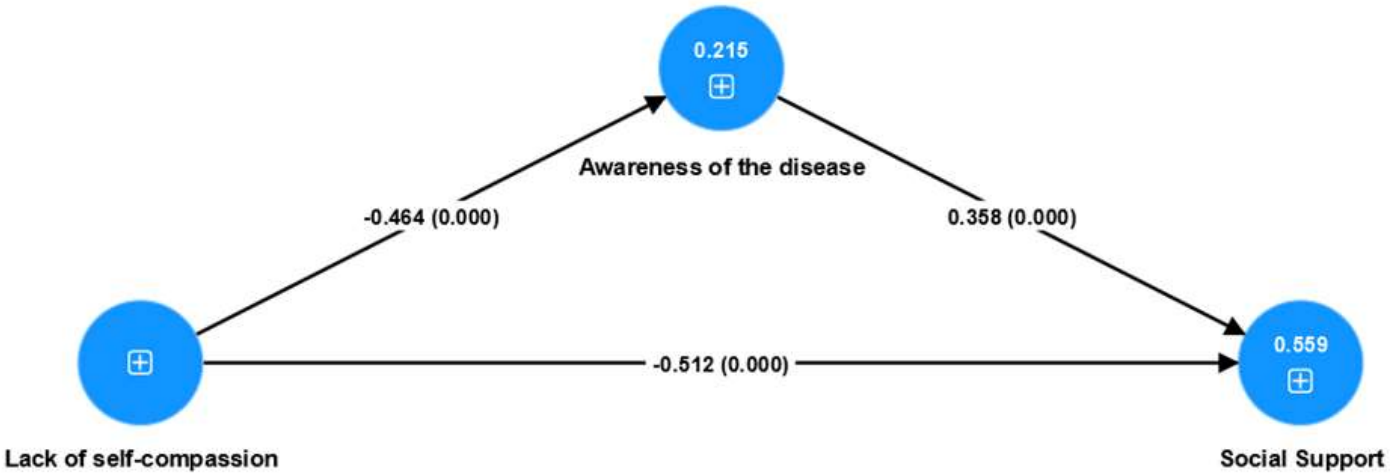

Figure 2. Path coefficients between variables and significance level

Table 5. Total Indirect effects between research variables

Path between variables	Path coefficient	STDEV	Significance level	T-value	Result
Lack of self-compassion -> Awareness of the disease -> Social Support	-0.166	0.048	0.001	3.468	confirmation

Table 6. Coefficient of determination of the model

Variables	R-square	R-square adjusted
Awareness of the disease	0.215	0.209
Social Support	0.559	0.553

5. Discussion

The current research aimed to assess the mediating role of disease awareness in the relationship between the absence of self-compassion and social support in women with autoimmune conditions. According to the findings of this study, the absence of self-compassion negatively impacted social support and disease awareness. Disease awareness had a beneficial impact on social support and played a crucial role as a mediating factor in the research. In line with previous research, the results of this study revealed that a lack of self-compassion leads to reduced social support in women with autoimmune diseases (9, 13). Previous studies have pointed to a positive correlation between self-compassion and social support (9). In addition, research has demonstrated that social support serves as a protective factor against anxiety when self-compassion is low (13).

Nevertheless, despite previous findings, this study found that a lack of self-compassion resulted in decreased disease awareness among women with autoimmune diseases. Unlike previous research, this study directly addresses the impact of self-compassion on disease awareness, making a significant contribution to the field. Therefore, despite a lack of direct research on this topic, we support our study with previous findings highlighting the benefits of disease awareness in the enhancement of patient outcomes (17, 18). One study suggested that raising public awareness of the disease and promoting positive psychological interventions through the media to manage stress can lower anxiety levels within the community (17). Another study also found that a lack of expertise in the medical field could result in delays in the diagnosis and proper treatment of the disease (18).

In explaining this outcome, it is important to note that managing a chronic illness can involve efforts to alleviate symptoms, such as adhering to treatment plans and coping with the repercussions of the condition, such as striving to maintain independence and adapting to changes in social roles. Individuals living with chronic illnesses may experience feelings of self-blame, self-criticism, and negative emotions when they are unable to meet their own or others' expectations regarding managing their condition and when facing both short-term and long-term stressful situations. These feelings can diminish their sense of compassion and impede their ability to attain optimal mental, social, and physical health and overall well-being (27). Research suggests that experiencing lower levels of physical and social well-being and lacking social support are connected to more intense symptoms of grief, with individuals who perceive their support system to be lacking (e.g., absence of understanding or assistance from close family members) reporting heightened grief symptoms.

Simultaneously, social support has a negative association with anxiety and a positive connection to self-compassion. The perceived social support benefits are effective in decreasing anxiety, enhancing self-compassion, and reducing symptoms of sadness (10). Individuals with lower self-compassion may be less inclined to engage in self-advocacy, such as actively participating in

decisions regarding their health and well-being, and may have limited access to crucial healthcare services, impacting their ability to make informed choices. The lack of public awareness of the disease can result in various forms of stigma, including workplace discrimination, social exclusion, and negative attitudes from healthcare providers. This can lead to the internalization of shame and self-blame, acting as a barrier to seeking more self-support, expressing needs, and engaging in appropriate treatment (16)."

In line with previous research, the results of the current study suggested that disease awareness can lead to increased social support and mediate the lack of self-compassion (19, 27). Previous studies have demonstrated that social support and disease awareness can help individuals adapt to chronic diseases (28). In addition, research has indicated that higher levels of social support are connected to greater disease awareness (19). It is noteworthy that there is a reciprocal relationship between disease awareness and disease management. Factors, such as cultural beliefs, misconceptions about the disease, fear of medication side effects, and inadequate communication between patients and healthcare providers, can contribute to a lack of understanding about diseases. Furthermore, cultural norms, healthcare system characteristics, and socio-economic factors also affect people's knowledge of diseases.

Improving disease awareness and the significance of social support can enhance self-care and self-compassion. This is particularly vital in vulnerable populations, as it can lead to better screening practices and early detection(15). Social support involves the care and assistance individuals feel they receive from others. When individuals have a thorough understanding of their condition, they can seek support from friends and family who provide emotional and social support during challenging times. This support can enhance mental well-being, improve sleep quality, reduce anxiety, boost self-efficacy, and decrease the negative impact of stress on physiological responses and behavior. Appropriate social support can help individuals cope better with stress (12).

As with all research, the current study has limitations that, when acknowledged, can enhance the understanding of the findings and recommendations. This transparency can also assist future researchers in addressing potential issues related to the internal and external validity of their research projects. One limitation of the current study is that some patients faced physical limitations or lacked the patience to complete the questionnaires, while others had literacy issues. It is suggested that these constraints be addressed by conducting a similar study among other patients, such as male patients with autoimmune diseases, to validate the results and expand the range of connections. The findings of this study are specifically applicable to women with autoimmune diseases, and generalizing them to other diseases should be made cautiously due to potential differences in disease characteristics, gender, patient conditions, and disease severity. Furthermore, the study did not assess participants' prior mindfulness training, which could impact their understanding of mindfulness concepts. The current research had some other limitations, such as time constraints, difficulties in dealing with patients with autoimmune disorders, as well as the need for collaboration, information, and approval from physicians. In addition, the study focused on Iranian female participants with autoimmune diseases who shared similar race and ethnicity, which restricted the examination of demographic differences in social support based on racial or ethnic background. Social support may vary among different racial or ethnic groups. Future research should consider conducting more extensive studies at a national level to account for the geographical distribution of autoimmune diseases in the country. It is

recommended that future studies include samples from various provinces and cities. Future research should also explore self-compassion, social support, and awareness in men with autoimmune diseases.

6. Conclusion

The results of the present study suggested that a lack of self-compassion results in decreased social support in women with autoimmune diseases, while disease awareness enhances social support and serves as a mediator in alleviating a lack of self-compassion. These results highlight the importance of implementing intervention programs focusing on raising awareness of autoimmune diseases to enhance knowledge among women with such conditions and increase their social support. This information is also valuable for healthcare providers and policymakers involved in developing strategies to promote understanding of autoimmune diseases. Policymakers addressing challenges within the healthcare system should work on removing structural barriers to information about autoimmune diseases through enhanced media education and dissemination of information. Furthermore, integrating education on autoimmune diseases into primary healthcare systems will be crucial in improving access to this information. The author suggests that forming social networks is essential to enrich the concept of social support and facilitate the development and implementation of effective programs and strategies that involve active participation from all members of society.

Acknowledgments: The researchers are thankful to all the individuals who participated in the study, as their involvement was crucial for the research to be completed. The study was carried out following ethical guidelines and received approval from the appropriate authorities. Approval for the research was granted by the Ethics Committee of the Islamic University of Karaj branch (Code: IR.IAU.K.REC.1402.321). The study strictly followed ethical principles to protect the confidentiality and privacy of participants' data.

Availability of data and materials: The data for the study can be obtained by getting in touch with the author either while submitting the study or after it has been published.

Conflicts of interests: The authors stated that they have no conflict of interest**.**

Consent for publication: By signing the Consent to Publish form and submitting it to the Publisher, the authors authorize the publication of their work.

Ethics approval and consent to participate: Approval for the research was granted by the Ethics Committee of the Islamic University of Karaj branch under the Ethics Code IR.IAU.K.REC.1402.321.The study was conducted according to the guidelines of the Declaration of Helsinki.

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Author contributions: L. R.N.: Contributed to the conception of the work, revising the draft; P.S.M.: Approving the final version of the manuscript, L. R.N.: Agreeing on all aspects of the work; A.E. and E. SH.: Contributed to the data analysis and interpretation, critical revision, and approval of the final version of the manuscript; A. E. and SH. K. V.: Contributed to acquiring data, drafting the manuscript, and approving the final version; P.S.M. and A. E.: Contributed to the conception and design of the study, critical revision, and approval of the manuscript's final version; SH. K. V.: Contributed to the conception and design of the study, data interpretation, drafting of the manuscript andcritical revision, and approval of final version.

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