

# Effectiveness of Cognitive Hope Training on Increasing Engagement and Academic Responsibility of Medical Science Students with a Positive Attitude Towards Cheating

Ali Gotvandi<sup>1</sup>, Saeed Moshtaghi<sup>2\*</sup>, Ehsan Mokari Menshadi<sup>3</sup>

<sup>1</sup> M.A. Student, Department of Psychology, Dez. C., Islamic Azad University, Dezful, Iran.

<sup>2</sup> Assistant Professor, Department of Psychology, Dez. C., Islamic Azad University, Dezful, Iran.

<sup>3</sup> PhD Student, Department of Psychology, Dez. C., Islamic Azad University, Dezful, Iran.

\*Corresponding Author: Saeed Moshtaghi, Department of Psychology, Dez. C., Islamic Azad University, Dezful, Iran.  
Email: moshtaghisaeed@iaud.ac.ir, Phone: +989036871600

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## Abstract

**Introduction:** This study aimed to determine the effectiveness of cognitive hope training on engagement and academic responsibility among medical science students who have a positive attitude towards cheating.

**Methods:** The research method was semi-experimental, using a pre-test-post-test design with a control group and a three-month follow-up. The statistical population included all students in Dezful University of Medical Sciences with a positive attitude towards cheating during the 2023-2024 academic year. A sample of 30 students was selected through purposive sampling and randomly assigned to two groups of 15 (experimental and control). The Academic Engagement Scale (AES, Riu & Tising, 2011) and the Academic Responsibility Scale (ARS, Akbari, Capri, & Gündüz, 2013) were used, along with an 8-session (two 60-minute sessions each week) cognitive hope training protocol based on Snyder's theory (1991). Data were analyzed using repeated measures ANOVA.

**Results:** The results indicated significant differences between pre-test and post-test scores for academic engagement and between pre-test and follow-up scores ( $p < 0.01$ ). Similarly, significant differences were found for academic responsibility ( $p < 0.01$ ), demonstrating the effectiveness of the intervention.

**Conclusion:** Therefore, cognitive hope training can significantly enhance academic engagement and responsibility among students with a positive attitude towards cheating.

**Keywords:** Engagement, Responsibility, Hope training, Academic cheating, Medical students.

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## Introduction

Academic dishonesty is a phenomenon that has existed for centuries and continues to persist, dating back thousands of years, with a significant number of learners engaging in it<sup>1</sup>. Academic dishonesty is generally defined as any deceptive act or effort by learners to use illegal or unacceptable means in their educational work<sup>2</sup>. Cheating is a specific type of academic dishonesty. While it may not be the sole factor, it is certainly one of the most significant issues that violate academic integrity and seriously undermine the quality of teaching, reliability in the assessment process, and public trust in education<sup>3</sup>.

This phenomenon is one of the most common occurrences among students in schools, and the phrase "everyone is doing it" aptly describes this dishonest behavior<sup>2</sup>. In contrast to the longstanding issue of academic cheating, efforts to uncover its causes and influencing factors are relatively recent and have only gained attention in the last few hundred years<sup>4</sup>. The multifaceted nature of academic dishonesty raises concerns about how to accurately examine and measure this variable in educational environments, as many factors contribute to cheating, complicating its investigation<sup>5</sup>. The explanations students

provide for their academic dishonesty can be divided into two categories: individual and environmental factors<sup>6</sup>. Some scholars view this behavior as complex, influenced by situational, contextual, and individual characteristics<sup>7</sup>. Among the educational factors affecting the inclination to cheat, academic engagement stands out.

Research has shown that learners with good academic engagement are autonomous, attend classes regularly, focus on learning, are committed to institutional regulations, achieve higher grades, and perform better on standardized tests<sup>8</sup>. Academic engagement reflects an individual's active involvement in a task or activity<sup>9</sup>. It plays a significant role in predicting students' academic progress and refers to the amount of energy the learner invests in academic activities as well as the effectiveness and efficiency achieved<sup>10</sup>. Schlenker<sup>11</sup> posits that engagement consists of three components: the "behavioral" component, which includes variables like positive behavior, effort, and participation; the "cognitive" component, which includes cognitive and metacognitive strategies, learning goals, and investment in learning; and finally, the "emotional" component, which includes variables such as interest, belonging, and positive attitudes towards learning. Academic engagement is a form of psychological investment and direct effort toward learning, understanding, and mastering the knowledge and skills required<sup>12</sup>. However, it is essential to note that students do not engage in learning per se, but rather in tasks, activities, and experiences that lead to learning. During cheating, this type of engagement is disrupted, resulting in academic decline. Research indicates a negative relationship between academic dishonesty and academic engagement<sup>13</sup>.

In a detailed study, the factors preventing cheating among learners were examined, revealing that academic responsibility is a crucial factor in avoiding dishonesty<sup>14</sup>. But why is this the case? To explore this further, we must examine the role of personality traits in academic dishonesty and cheating. Recent meta-analyses on the role of personality traits in explaining academic dishonesty indicate that among the Big Five personality traits, conscientiousness may be the best predictor of academic dishonesty<sup>15</sup>. Conscientiousness has the closest conceptual relationship with cheating<sup>16</sup>. Learners who score high in conscientiousness are responsible, organized, diligent, and pragmatic individuals<sup>17</sup>. While different individuals define responsibility in independent constructs, this construct is also defined in relation to other psychological constructs such as locus of control, personal agency, self-efficacy, and self-regulation. Specifically, individuals with an internal locus of control

feel more accountable for their behaviors. Additionally, responsibility requires individuals to feel that they are actively choosing their thoughts and behaviors, believing they have the ability to change situations, and actively striving to control their thoughts, emotions, and actions to achieve skills or goals. This acceptance of the conscious choices and processes is crucial. It seems that a high level of the personality trait of conscientiousness alone is not an antidote to unethical behaviors like academic dishonesty. Rather, conscientiousness, by increasing responsibility, reduces academic cheating. Research indicates a negative relationship between responsibility and academic burnout<sup>18</sup>, a negative relationship between responsibility and academic dishonesty<sup>16</sup>, and a positive relationship between responsibility and academic engagement<sup>19</sup>.

Preventive interventions have previously focused on reducing risk factors, but recent studies have highlighted the beneficial effects of preventive programs that emphasize enhancing individuals' strengths. This focus on strengths reflects a positive psychology perspective in interventions and therapy<sup>20</sup>. These interventions have been empirically validated and involve designing targeted activities to increase positive emotions and experiences, as well as facilitating actions and thoughts that lead to individual flourishing and growth<sup>21</sup>. Having hope can be considered a preventive factor for individuals<sup>20</sup>. Snyder's theory of hope is based on three central components: goals, pathway thinking, and agency thinking. In numerous interviews, Snyder found that goals create endpoints or mental action chains and serve as the theoretical reference for hope. Essentially, the main element of the hope theory is having a positive expectation of achieving goals that are perceived as attainable<sup>22</sup>. However, optimal goals, from Snyder's perspective, must have two essential characteristics: they must be valuable enough to capture individuals' conscious minds, and the likelihood of achieving these hopeful goals should be moderate<sup>21</sup>. Pathway thinking refers to the perceived ability of individuals to identify and create paths toward goals. It reflects the understanding that individuals consider various potential pathways to reach their established goals<sup>23</sup>. In this context, agency thinking is a motivational component of hope theory, assuring individuals that they are capable of initiating and sustaining necessary efforts to pursue specific pathways. Agency thinking directly reflects individuals' beliefs in their ability to initiate and endure goal-directed behaviors, characterized by internal dialogues like "I can do this" and "I will not give up"<sup>24</sup>. Thus, cognitive hope training is an approach derived from this theory, aimed at helping clients to identify clear goals, create multiple pathways to

achieve them, motivate themselves to pursue these goals, and reframe obstacles as challenges to be overcome. Although hope is not an emotion, it is a motivational-cognitive process where emotions follow cognition and interact with future assessments during the goal pursuit<sup>25</sup>. Therefore, acknowledging that having high levels of hope correlates negatively with indicators of psychological pathology and plays a significant role in moderating stressful life events<sup>24</sup>, this research aims to investigate the effectiveness of the cognitive hope enhancement approach on increasing engagement and academic responsibility among medical science students with a positive attitude toward academic cheating.

## Methods

The present study was of a quasi-experimental type (pre-test and post-test design) with a three-month follow-up period. The statistical population included all students of Dezful University of Medical Sciences, who were studying in three faculties (Nursing and Midwifery, Medicine and Para-medicine). For sample selection, 150 students were accessibly chosen from among three faculties. The attitudes towards academic cheating questionnaire, developed by Fealy, Safarpour, and Rasouli Azar (2014)<sup>26</sup>, was administered to students, and 30 individuals with the highest scores, indicating a positive attitude towards academic dishonesty, were purposefully selected and randomly assigned to experimental and control groups of 15 each. The inclusion criteria for students in the study included: achieving the highest scores on the academic dishonesty attitude questionnaire, not using any medication, not participating in any educational or therapeutic workshops in the last three months. The exclusion criteria included: having more than one absence in the course, failing to complete related assignments, starting to use any medication, participating in any other educational or therapeutic workshops, and lack of willingness to continue cooperation.

## Data Collection

The following tools were used to collect data:

### *-Academic cheating Attitude Questionnaire*

This questionnaire, developed by Fealy, Safarpour, and Rasouli Azar (2014)<sup>26</sup>, was designed to measure attitudes towards academic cheating. It consists of 11 items and utilizes a five-point Likert scale with statements such as "Since other students cheat on exams, I do it too." This questionnaire is unidimensional, with higher scores indicating a positive attitude towards academic dishonesty. The reliability of this questionnaire was reported to be 0.89 using Cronbach's alpha by the

developers. In the present study, the Cronbach's alpha was calculated to be 0.82.

### *- Academic Engagement Questionnaire (AES)*

This 22-item questionnaire was designed by Reeve and Tseng (2011)<sup>27</sup>. It includes four subscales (agentic, behavioral, emotional, and cognitive) and is scored using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Scores range from 22 to 110, with higher scores indicating greater academic engagement. In Ryu and Tsing's (2011) study, the validity of the exploratory factor analysis was reported to be satisfactory, and the reliability coefficients were 0.82 for agentic engagement, 0.94 for behavioral engagement, 0.88 for cognitive engagement, and 0.78 for emotional engagement. In the study by Haji-Alizadeh, Rafiee-pour, and Samavi (2016)<sup>28</sup>, factor analysis confirmed the structure of the questionnaire. Additionally, using Cronbach's alpha, the reliability coefficients were 0.79 for agentic engagement, 0.81 for behavioral engagement, 0.71 for cognitive engagement, 0.74 for emotional engagement, and the overall reliability of the questionnaire was 0.87. In the current study, the overall reliability was found to be 0.79 using Cronbach's alpha.

### *- Academic Responsibility Scale (ARS)*

Developed by Akbi, Capri, and Gündüz (2013)<sup>29</sup>, this scale consists of 25 items across five factors: responsibility related to the educational environment (1 to 6), responsibility related to the practice and training process (7 to 11), responsibility related to professional level (12 to 16), responsibility related to examinations (17 to 21), and responsibility related to research and development (22 to 25). These factors are scored on a four-point Likert scale from completely incorrect (1 point) to completely correct (4 points). The developers reported good validity of the scale through confirmatory factor analysis. The alpha reliability coefficients for the factors ranged from 0.72 to 0.86, with an overall score reliability of 0.86.

## Procedure

To conduct this study attitudes towards academic dishonesty questionnaire, developed by Fealy, Safarpour, and Rasouli Azar (2014)<sup>26</sup>, was administered to students, and 30 individuals with the highest scores, indicating a positive attitude towards academic dishonesty, were purposefully selected and randomly assigned to experimental and control groups of 15 each. Participants were first informed about the research purpose, duration, and benefits of participation. Ethical considerations were observed by explaining the research title and assuring confidentiality of the information, with no names requested. Students selected for the intervention group

(those with a positive attitude towards academic dishonesty) were asked to attend cognitive hope enhancement classes held on specified dates. The research intervention involved cognitive hope enhancement training. The group of students with a positive attitude towards academic dishonesty (experimental group) participated in eight 60-minute sessions under the educational protocol, while the control group received no intervention. Before and after the intervention, both groups completed the academic engagement and responsibility questionnaires. The hope training sessions were based on Snyder's approach and adapted from the book "Therapist's guide to positive psychological interventions" by Magyar-Moe (2009)<sup>30</sup>.

**Table 1.** Cognitive hope training sessions

Session	Content
<b>First session</b>	Structuring Sessions and Introducing Educational Program Goals Based on Hope Theory.
<b>The second</b>	Clarifying students' understanding of how hope develops, its necessity, and its impact on feelings of hopelessness, emptiness, and consequently, lack of engagement and responsibility in education.
<b>The third session</b>	Each student shared their life story. The goal of this session was to help members find hope.
<b>The fourth session</b>	A list of current events and important life dimensions was presented, assessing the importance and satisfaction levels of individuals regarding each specified event.
<b>The fifth session</b>	A list of current events and important life dimensions was presented, assessing the importance and satisfaction levels of individuals regarding each specified event.
<b>The sixth session</b>	Participants were encouraged to choose suitable goals and identify the characteristics of appropriate goals. The aim of this session and the previous two was to enhance hope in students, assisting members in increasing their hope after finding it.
<b>The seventh session</b>	Characteristics of suitable pathways were discussed, and students were asked to select appropriate strategies to achieve their set goals. They were taught to break pathways into smaller steps and identify alternative pathways. The objective of this session was to maintain and sustain hope in students.
<b>The eighth session</b>	Strategies for creating and preserving hope were presented, including encouraging students to engage in positive self-talk and mental imagery to achieve their goals. Ultimately, students were taught to be their own hope therapists, integrating hopeful thinking into their daily lives so they could identify their goals and obstacles, cultivate and maintain the necessary factors for achieving those goals, and recognize the required pathways.

## Data analysis

After the fieldwork, data were analyzed using descriptive statistics, including means and standard deviations, and to test the research hypotheses, a repeated measures multivariate analysis using SPSS 18 software was performed.

## Results

Data from 30 participants, consisting of 15 in the experimental group and 15 in the control group, were analyzed. In terms of demographic distribution, the mean age and standard deviation in the experimental group were  $22.53 \pm 5.29$  years, while in the control group they were  $23.04 \pm 6.12$  years. Among these participants, 21 were male (11 in the experimental group and 10 in the control group) and 9 were female (4 in the experimental group and 5 in the control group). The means and standard deviations of the pre-test and post-test scores for the variables of academic engagement and responsibility for both groups are presented in Table 2.

**Table 2.** Mean and standard deviation of academic engagement and academic responsibility in pre-test, post-test and follow-up test

Variable	Groups	Phase	Mean	SD
Academic engagement	Experimental	Pretest	67.56	5.13
		Posttest	79.64	4.38
		Flow-Up	78.16	4.69
	Control	Pretest	64.28	5.47
		Posttest	63.70	6.08
		Follow-Up	63.84	5.73
Academic responsibility	Experimental	Pretest	49.12	6.06
		Posttest	60.37	5.41
		Follow-Up	58.61	5.69
	Control	Pretest	51.34	6.32
		Posttest	50.94	6.57
		Follow-Up	49.76	6.10

Descriptive statistics indicate that the average scores in the post-test and follow-up for the experimental group in academic engagement increased compared to the pre-test. This increase also applied to the variable of academic responsibility. However, in the control group, there was no significant increase in the scores of the variables

during the post-test and follow-up compared to the pre-test.

For inferential analysis, a repeated measures analysis of variance was employed. Before conducting the statistical analyses, the assumptions of the statistical tests were examined. First, the assumption of normality of the data was assessed using skewness and kurtosis indices. The results showed that the variables fell within the normal range of -2 to +2. Additionally, the Shapiro-Wilk test was conducted, which indicated that the significance level for all research variables in both the experimental and control groups was not significant ( $p > 0.05$ ), confirming the normality of all variables in the pre-test and post-test for both groups. To assess the homogeneity of variances, Levene's test was applied, and the non-significant F-value was observed ( $p > 0.05$ ), validating this assumption. The assumption of the covariance matrix was also tested using Box's M test, where the M value for overall academic engagement was 9.36, with a significance level above 0.01 ( $p = 0.064$ ,  $F = 2.16$ ), and for academic responsibility, the M value was 16.13 ( $p = 0.217$ ,  $F = 1.63$ ), thus supporting the homogeneity of the covariance matrix. Finally, the absence of multivariate outliers was examined using the Mahalanobis distance, and no outliers were identified, confirming the validity of this assumption.

**Table 3.** Results of variance analysis of repeated measurement 2x3

Variable	Source	F	Sig.	Effect size	Test power
Academic engagement	Main effect of group	17.462	0.001	0.456	1.000
	Main effect of three phases	10.185	0.001	0.372	1.000
Academic responsibility	Main effect of group	54.204	0.001	0.592	1.000
	Main effect of three phases	46.067	0.001	0.407	1.000

The results of Table 3 indicate that the main effect of the group for academic engagement ( $\eta = 0.456$ ,  $p < 0.001$ ,  $F = 17.462$ ) and for academic responsibility ( $\eta = 0.592$ ,  $p < 0.001$ ,  $F = 54.204$ ) are significant. This means there is a meaningful difference between the two groups regarding their average academic engagement and responsibility. Additionally, the results show that the main effect of the three phases (pre-test, post-test, and follow-up) for academic engagement ( $\eta = 0.372$ ,  $p < 0.001$ ,  $F = 10.185$ ) and academic responsibility ( $\eta = 0.407$ ,  $p < 0.001$ ,  $F = 46.067$ ) are also significant. In other words, there are significant differences in the scores of academic

engagement and responsibility across the pre-test, post-test, and follow-up phases when considering the experimental and control groups. To further explore the observed differences related to the main effect of time (the three phases), a Bonferroni post hoc test was conducted, and the results are presented in Table 4.

**Table 4.** Bonferroni Test Results for Comparing Academic Engagement and Responsibility Across Pre-Test, Post-Test, and Follow-Up

Variable	I phase	J phase	Mean difference (I-J)	Sig.
Academic engagement	Pre Test	Post Test	5.128	0.001
		Follow-Up	3.912	0.001
Academic responsibility	Post Test	Post Test	6.737	0.001
		Follow-Up	6.022	0.001

As shown in Table 4, academic engagement and responsibility have increased from the pre-test to the post-test and follow-up stages. This indicates that cognitive training aimed at enhancing hope is effective in improving academic engagement and responsibility among students with a positive attitude toward cheating. The difference between the pre-test and post-test stages for academic engagement is significant ( $p < 0.001$ ,  $d = 5.128$ ), as well as the difference between the pre-test and follow-up stage ( $p < 0.001$ ,  $d = 3.912$ ). Similarly, the difference in academic responsibility between the pre-test and post-test stages ( $p < 0.001$ ,  $d = 6.737$ ) and between the pre-test and follow-up stage ( $p < 0.001$ ,  $d = 6.022$ ) is also significant.

### Discussion

The present study aimed to determine the effectiveness of cognitive hope training on academic engagement and responsibility among university students with a positive attitude towards cheating in students of Dezful University of Medical Sciences. The results indicated that cognitive hope training significantly improved students' academic engagement and responsibility. One of the objectives of this research was to investigate the effectiveness of hope training on academic engagement. Students who become cognitively engaged in their tasks—organizing materials and practicing to aid their learning—perform better than those who do not utilize these strategies. The more students engage in academic activities, the better their grades, higher averages, and greater academic progress<sup>31</sup>. The findings of this study were consistent with previous research (Tomás et al<sup>32</sup>, Martin<sup>33</sup>, Dehghani, Esmaeili &

Afshin<sup>34</sup>, Vaziri-Mehr & Salimi<sup>35</sup>, Chehri, Sadeghi & Veiskarami<sup>36</sup>. Tomás and colleagues<sup>32</sup> found in their study of 614 secondary school students that hope and self-efficacy are the best predictors of academic success; additionally, Martin and colleagues<sup>33</sup> identified a positive relationship between academic engagement and academic success. Dehghani and colleagues<sup>34</sup> also demonstrated the impact of hope training on academic engagement. Chehri and colleagues<sup>36</sup> considered hope training effective for students' engagement and academic progress. This suggests that hope can be a prerequisite for academic engagement that leads to academic success<sup>33</sup>. In fact, the greater the academic hope in students, the more they engage in their studies and the less likely they are to resort to cheating or academic dishonesty. Researchers believe that hope is essential for coping with challenges and for mental health, indicating that hope is also a fundamental need for students in the academic realm<sup>35</sup>. According to Snyder, hope is not merely a passive emotion that arises during dark times; rather, it is a cognitive process through which individuals actively strive to achieve their goals. He views hope as a process wherein individuals set their goals, devise strategies to achieve them, and maintain the motivation to implement these strategies<sup>20</sup>. Snyder's research highlights that teachers can instill hope in their students during the learning process, thereby acting as facilitators of hope and encouraging hopeful thinking in daily life. This can be particularly effective among students with a positive attitude towards cheating<sup>21</sup>. Corey and Snyder reported a clear correlation between hope and performance, noting that individuals with greater hope tend to achieve better grades and academic performance<sup>37</sup>. Considering the reasons for academic cheating behavior in students, the lack of self-efficacy and hope can be highlighted as factors that lead them to resort to shortcuts like cheating<sup>6</sup>. Additionally, the absence of clear goals, lack of motivation, and a sense of responsibility towards achieving those goals can also contribute to students' tendency to cheat. According to the findings of the present study, cognitive hope training was effective in enhancing students' sense of responsibility. One of the hypotheses of the cognitive theory of hope is that human behaviors are goal-oriented. Individuals with high hope can break down large goals into smaller ones, enabling them to approach complex objectives. Agentic thinking, a component of hope, is an important motivational factor that propels individuals along the paths they have set to achieve their goals<sup>25</sup>. In fact, agentic thinking represents a kind of confidence in goal-directed success, which instills in individuals a belief that they are influential in their circumstances, thereby generating motivation and

increasing engagement with tasks. In other words, individuals with high hope feel they have control over the personal events in their lives; as a result, they view themselves as active agents capable of self-regulation and behavior management. This sense of control provides a foundation for motivation, well-being, and personal achievements in all areas of life<sup>15</sup>.

Many researchers consider conscientiousness to be a personality trait that describes self-regulation and goal-oriented behavior<sup>38</sup>. In this context, self-regulation, through active efforts to control one's thoughts, feelings, and actions to achieve a skill or goal, helps individuals better accept responsibility for their choices and conscious processes<sup>32</sup>. This lays the groundwork for enhancing students' sense of responsibility. In this regard, strategic thinking and considering multiple pathways also increase the perception of control, serving as a good source of motivation for individuals. The central focus of new motivational theories is on the perception of control, which is effectively provided by hope and its components<sup>23</sup>. In fact, cognitive hope training encourages individuals to continuously think, pursue their goals, and achieve them while viewing their past experiences as preparation for the future. They perform well in various aspects of their lives and perceive themselves as successful overall. This is especially true for individuals who evaluate numerous strategies to escape difficult situations and can think of various ways to reach their goals<sup>39</sup>.

## Conclusion

Undoubtedly, every research study has its limitations, and the present study is no exception. The use of self-report tools related to treatment poses a limitation for interpreting treatment scores in this research. The small number of participants and the use of purposive sampling restrict the generalizability of the treatment results. In this study, it was not possible to control for other influential factors affecting participants, such as familial and financial factors, etc. It is recommended that the effectiveness of this therapeutic approach be compared with other common treatments to better assess their efficacy. It is also suggested that cognitive approaches to enhance hope be used in school counseling centers to increase academic engagement and responsibility, particularly among students who have a positive attitude toward cheating.

## Highlights

### What Is Already Known?

- The phenomenon of academic cheating exists among medical science students, and various reasons have been cited for it.
- Educational and therapeutic interventions are available to reduce the phenomenon of academic cheating in students.

### What Does This Study Add?

- Cognitive hope training increased academic engagement and responsibility in medical students with positive attitudes toward cheating.
- The cognitive hope training can be used to reduce the phenomenon of academic cheating in educational environments.

## Authors' Contributions

S. M. was involved in planning and supervised the work and proof outline A. G, S. M and E. MM drafted the manuscript and designed the figures. S. M was responsible for the substantive review of the article and the project. All authors discussed the results and commented on the manuscript.

## Consent For Publication

The authors declare their consent for publication.

## The extent of AI use

AI is not used.

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## Conflict of Interest

The authors declare no conflicts of interest.

## Ethics approval

Principles of confidentiality, informed consent, and respect for participants' rights were observed in this study. Before completing the questionnaires, oral informed consent was obtained from the participants. The personal information of the participants was kept confidential throughout the study. All data were analyzed and reported without including any information that could reveal the participants' identity.

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