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# The relationship between alexithymia and shyness in nursing students with mediating roles of loneliness and social identity

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## Abstract

**Background:** Shyness is a main cause of poor results in the educational environment. The present study aimed at studying relationship between alexithymia (the inability to recognize or describe one's own emotions) and shyness in nursing students, with mediating roles of loneliness and social identity.

**Methods:** This descriptive-correlational study was based on structural equation modeling, specific regression equations, and a statistical population of 658 nursing students at Ahvaz University of Medical Sciences in 2018. A sample of 331 students was selected. To collect the data, Toronto's Alexithymia Scale, Russell, Peplau and Cutrona's Loneliness Scale, Safarinia's Social Identity Questionnaire and Briggs, Cheek and Buss' Shyness Scale were used.

**Results:** The findings from regression analysis showed that there was a direct effect between alexithymia and shyness and an indirect effect between alexithymia and shyness with mediating factors of loneliness and social identity ( $P < 0.01$ ). In total, alexithymia, feelings of loneliness, and perception of social identity had a predictive power of 0.51% of shyness.

**Conclusion:** The results of this study show the effect of alexithymia and the role of moderating influences on feelings of loneliness and social identity perceptions and shyness among nursing students, which can provide useful practical applications to advisers and trainers in order to improve the psychological state of nursing students.

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## Introduction

In current Iranian society, shyness and low self-esteem are problems which many people, especially teenagers and youth, suffer from,<sup>1</sup> both in terms of etiology and clinical manifestations. Shy people ruminate frequently with their minds running at high levels in social interactions.<sup>2</sup> In general, shyness is an extreme self-awareness, a mental employment of thoughts, emotions, and physical reactions to self,<sup>3</sup> which can elevate weak social discomfort to the height of a deterrent and result in severe social fear.<sup>4</sup>

During longitudinal research, Cheek and Buss<sup>5</sup> found that shyness is a low level of communicating with others; communicating with others is helpful against loneliness.<sup>6</sup> Personality features of shy people can be considered in two categories: Neurotic Shyness and Introverted Shyness.<sup>7</sup> In social engagements, those with Neurotic Shyness lose

insight about themselves and feel uncomfortable and anxious.<sup>8</sup> Those affected by Introverted Shyness are more willing to be alone.<sup>9</sup> Accordingly, one issue discussed in the field of shyness is the feeling of loneliness caused by social stigma and elimination of the sponsor's environment by choosing and continuing such socially risky behaviors.<sup>10</sup> Feelings of loneliness are an individual's perception of deficiency in social relationships,<sup>11</sup> which often appears in response to quantitative or qualitative shortcomings in social relationships.<sup>12</sup>

On the other hand, studies have shown that one of the most common symptoms of shy people is feeling lonely.<sup>13,14</sup> When a person has lower levels of emotional and social support, the person feels alone, which in turn disrupts the management of their emotions.<sup>15</sup> The feeling of loneliness is an individual's conception of inappropriate social

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conditions that are the result of being deprived of the basic human need of intimacy.<sup>16</sup> The feeling of loneliness of a person, according to emotional and social constraints, prevents a proper understanding of the social identity.<sup>17</sup> Generally, loneliness is a response to a lack of a positive satisfying relationship with others.<sup>18</sup> This condition affects individuals' social identity and self-perception.<sup>19</sup> Studies by Lecours et al<sup>20</sup> and Henderson et al<sup>21</sup> found that social interactions, in addition to major effects on development, promote other aspects of life in various dimensions, including emotional issues<sup>22</sup>; shy people experience less emotional expression due to gaps in these interactions.<sup>23</sup> Increased shyness reactions include fear and anxiety and those affected also feel embarrassed as a result, contributing to their stress and lower self-perception.<sup>24</sup>

For the first time alexithymia, or the inability to recognize or describe one's own emotions, has been recognized as a type of shortage in cognitive processing and the regulation of emotional states associated with psychiatric patients. It is often distributed as a normal personality trait among all people.<sup>25</sup> When the alexithymia system is faulty, often people are caught up with emotions that they cannot escape from.<sup>26</sup> Alexithymia is a multifaceted condition that is determined by the difficulty of identifying feelings,<sup>27</sup> differentiation between emotions and physical emotion,<sup>28</sup> difficulty in describing feelings for others and limited emotional perspectives.<sup>29</sup> Sancar and Aktas<sup>30</sup> found a significant relationship between levels of alexithymia and communication skills of nursing students. Research has shown that nursing students suffering from alexithymia have difficulty identifying emotions in social relationships, causing them to adopt avoidance modalities.<sup>31</sup> They generally have a higher tendency to both introspection and shyness.<sup>32</sup>

In this regard, some studies refer to Henderson et al<sup>21</sup> and Weeks et al,<sup>33</sup> who point out that, there can be significant relationships between social identity and self-esteem, social understanding, emotional regulation, and lack of shyness. These are all important for expressing emotions, social interaction and identity formation.<sup>34</sup> The communication structure of individuals can lead to the emergence of a variety of social identities, or social products that have relatively fixed and stable elements.<sup>35</sup>

Awareness of oneself is one of the challenges of life and

through the process of self-discovery people may discover aspects of themselves that they like and that they dislike.<sup>36</sup> Shyness as a dynamic social phenomenon in all societies can have many effects on different aspects of life<sup>37</sup> and some studies have shown that shyness can cause social phobia and social anxiety.<sup>4</sup> Zhong et al<sup>38</sup> found a significant relationship between alexithymia and social support, social interactions and lack of shyness among nurses. Muyan-Yilik et al<sup>39</sup> found that loneliness has a two-way relationship with shyness in students. Zhao et al<sup>40</sup> found a significant relationship between emotional intelligence and loneliness with shyness. Zhao et al<sup>41</sup> found a significant relationship between shyness and loneliness with core self-evaluation and social support serving as mediating factors. Jing et al<sup>42</sup> found a significant relationship between identity status and shyness in students. Regarding these relationships, the present study has a strong research background to support the conceptual model provided.

In general, nursing work is such that nursing students should prepare themselves for high-stress mental and physical conditions, including interaction with patients. If a nurse is shy and embarrassed in social relationships, it will be more difficult to accomplish the required duties and tasks. In addition to being a problem for the nurse, this also reduces job performance. Because nursing students are exposed to psychological risks due to specific pressure factors, such as changes in Community Relations, and since many professions have tasks in this course of study, they are likely to experience more vulnerability. However, it seems that the experience of these symptoms varies considering individual differences in alexithymia formation, social identity, and social interactions. The present study aimed to assess the relationship between alexithymia and shyness in nursing students with an exploration of mediating factors of feelings of loneliness and social identity (Figure 1).

### Materials and Methods

The present study was correlational research with structural equation modeling; in this method, relationships are examined in a model which determines the effects of variables on the variable of interest.<sup>43</sup> The statistical population included 658 nursing students at Ahvaz University of Medical Sciences in 2018. Of these

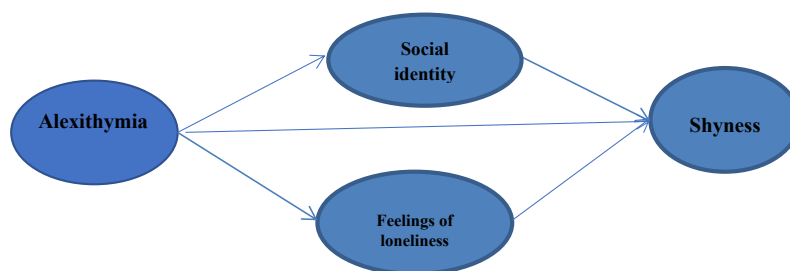


Figure 1. Conceptual model of research.

students, 331 students were selected as the sample using Cochran's formula with a 5% margin of error and 95% confidence,  $P=0.05$ .

$$n = \frac{\frac{z^2 pq}{d^2}}{1 + \frac{1}{N} \left[ \frac{z^2 pq}{d^2} - 1 \right]}$$

The sampling was to available method.

The criteria for inclusion were Nursing students at Ahvaz University of Medical Sciences, male or female, ages 18 to 22 years, undergraduate students, absence of psychiatric disorders along with the diagnosis of a psychiatrist based on DSM-V criteria, and obtaining informed consent to participate in the research. The exclusion criteria were failure to complete the study tools.

After explaining the research goals and the manner of cooperation of the individuals and before the research commenced, all participants were informed and gave their consent. Scales were distributed to students in classrooms at Ahvaz Nursing and Midwifery Faculty.

### Statistical analysis

Data analysis was done using descriptive statistics, including mean and standard deviation (SD) for continuous variables and inferential statistics using Pearson's correlation and structural equation modeling. The analysis was performed using SPSS 18 (IBM, SPSS Statistics for Windows Version 18.0. Armonk, NY: IBM Corp.) and Amos 23 (IBM SPSS Statistics for Windows Version 23.0. Amos™, Armonk, NY: IBM Corp).

### Research tools

#### Toronto Alexithymia Scale

This scale was developed by Bagby et al.<sup>44</sup> It has 20 items. On this scale, Alexithymia Structure is evaluated by three sub-scales: difficulty in recognizing emotions consists of 7 items (14-13-9-7-6-3-1), difficulty in describing emotions consists of 5 items (17-12-11-4-2), and thinking with external orientation consists of 8 items (20-19-18-16-15-10-8-5).

The method of rating the test was based on a Likert scale of 1 to 5 (1 = completely opposes to 5 = fully agrees). Questions 4, 10, 18, and 19 are reverse-scored. The minimum score for this questionnaire is 20 and the maximum is 100. Construct validity and concurrent validity were confirmed by the developers. Cronbach's alpha showed a reliability of 0.88, 0.84, and 0.83 for each subscale, and 0.89 for the entire scale. Afshari,<sup>45</sup> in a sample of 80 students, calculated the reliability of this scale using Cronbach's alpha. For the total scale, Afshari showed 0.75; for difficulty in detecting feelings, 0.72; difficulty in describing feelings, 0.72; and thinking with external orientation was 0.53. In the present study, Cronbach's alpha showed a reliability score for the total scale of 0.76, for difficulty in detecting emotions, 0.73, for difficulty in

describing emotions, 0.77, and for thinking with external orientation, 0.69. In social science research, an alpha of 0.70 is generally regarded as acceptable.

#### Russell, Peplau and Cutrona' Loneliness Scale

This questionnaire was developed by Russell et al<sup>46</sup> and has 20 items. It has a general score based on a Likert scale of 1 to 4 (1, rarely score, 2, sometimes, 3, frequently, and 4, always). Questions 1, 5, 6, 9, 10, 15, 16, 19 and 20 are reverse-coded. The range of scores is between 20 (minimum) and 80 (maximum). Cronbach's alpha was used to assess the reliability of this scale, reported by Russell et al<sup>46</sup> as 0.88; the construct validity and concurrent validity were confirmed. This scale was translated by Davar Panah<sup>47</sup> and after validation, Cronbach's alpha was reported as 0.78. In this study, Cronbach's alpha was 0.66.

#### Safarinia's Social Identity Questionnaire

This questionnaire is based on the theory of Jenkins<sup>34</sup> and was developed by Safarinia et al.<sup>48</sup> This scale includes 20 items with two subscales: items 1-10 represents the individual dimension and items 11-20 represent the collective dimension. The questionnaire scoring is a Likert scale from 1 to 5 where 1 is "totally disagree" and 5 is "totally agree". Safarinia et al<sup>48</sup> attested to the scale's construct validity and concurrent validity, and reported a Cronbach's alpha of 0.77 for the entire scale, for the individual dimension, 0.74 and for the collective dimension, 0.71. In the current, the reliability of Cronbach's alpha for individual dimension was 0.63 and for the collective dimension was 0.67, with an alpha of 0.66 for the entire scale.

#### Briggs, Cheek and Buss' Shyness Scale

The Shyness Scale was developed by Briggs et al<sup>49</sup> and included 14 items with 3 subscales: Lack of determination (1 to 4), distress and social exclusion (5 to 11) and shyness associated with unfamiliar people (12 to 14), which is used to measure shyness. The scoring questionnaire is a 5-point Likert scale where 1, 2, 3, 4, and 5 matched the options "Absolutely Disagree," "Disagree," "have no idea," "Agree," and "totally agree," respectively. The construct validity and concurrent validity were confirmed by the developers. Cronbach's alpha was used to establish reliability: Lack of determination was 0.84, distress and social exclusion was 0.82, shyness associated with unfamiliar people was 0.86, and the entire scale was 0.87. Rajabi and Abbasi<sup>50</sup> confirmed the construct validity and concurrent validity and found a Cronbach's alpha for Lack of determination of 0.80, distress and social exclusion of 0.81, shyness associated with unfamiliar people of 0.82, and 0.86 for the total scale. In this study, lack of determination was 0.79, distress and social exclusion was 0.82, shyness associated with unfamiliar people was 0.80, and the total scale was 0.84.

## Results

Statistical assumptions of the research, such as kurtosis and skewness, and normalization of the data was established and accepted by using the box test and the Kolmogorov-Smirnov test. Verification validity of the variables was confirmed by considering the questions in the measurement model and then a structural model was drawn up.

Table 1 shows the demographic information, includes age and employment status of the nursing students.

Table 2 shows a significant positive relationship between loneliness and shyness. There is also a significant negative relationship between social identity and shyness at a level of 0.01.

In Table 3, it can be seen that the RMSEA value equals 0.042, less than 0.1, which indicates that the mean error of the model is appropriate, and the model is acceptable. The chi-2 value to degree of freedom (2.457) is between the index of 1 and 3 of GFI; CFI and NFI are also roughly equal and larger than 0.9, which indicates that the measurement model of the variables of the study is an appropriate model.

**Table 1.** Demographic information of nursing students

Variable	Subset	No.	%
Age (y)	18-19	149	45.0
	20-21	98	29.6
	22	84	25.4
Employment status	Not employed	244	73.7
	Employed	87	26.3

**Table 2.** Descriptive indexes and Pearson's correlation matrix of subscales of alexithymia, shyness, feelings of loneliness, and social identity

Variable	Mean	SD	1	2	3	4	5	6	7	8
Thinking with external orientation	24.09	4.77	1							
Difficulty in describing emotions	18.14	4.66	.67**	1						
Difficulty in identifying feelings	16.67	5.87	.82**	.75**	1					
Individual Social Identity	30.27	5.56	.30**	-.36**	-.29**	1				
Collective Social identity	28.14	4.87	.30**	-.38**	-.34**	.67**	1			
Distress and social exclusion	14.29	2.86	.41**	.33**	.31**	-.29**	-.34**	1		
Lack of determination	9.24	1.96	.34**	.42**	.37**	-.40**	-.40**	.72**	1	
Shyness range associated with unfamiliar	5.66	1.45	.30**	.34**	.42**	-.32**	-.32**	.62**	.62**	1
Feeling of loneliness	30.78	3.42	.37**	.26**	.34**	-.42**	-.42**	.29**	.34**	.37**

\*\*Significant at  $P < 0.05$ ; \* Significant at  $P < 0.01$

**Table 3.** Goodness of fit index obtained from data analysis and variables

Test title	Description	Acceptable values	Obtained value
$\chi^2/df$	Relative chi-square	3<	2.457
RMSEA	Root mean square error approximation	0.1<	0.042
GFI	Adjusted goodness of fit	0.9>	0.987
NFI	Normal fit index	0.9>	0.969
CFI	Comparison fit index	0.9>	0.957
DF	142		

In Table 4, it can be seen that according to the model, alexithymia, social identity and feelings of loneliness have significant direct effects on shyness.

The results of Table 5 show that two path included alexithymia with mediation of social identity on Shyness and path of alexithymia with mediation of feeling of loneliness on Shyness with respect to the values obtained from the t-statistic is significant at the level of 0.05.

According to Figure 2, in total alexithymia, feeling of loneliness and social identity had a predictive power of 0.51% of the shyness.

## Discussion

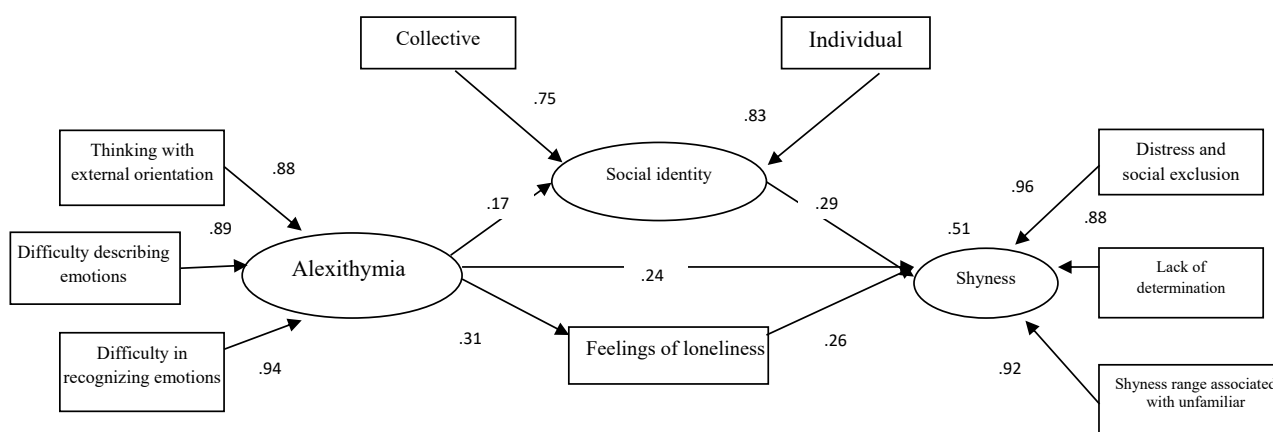
The findings of this study support other findings from previous research. Zhong et al<sup>38</sup> found a significant relationship between alexithymia and social support, social interactions, and shyness among nurses. Henderson et al<sup>14</sup> found that shyness under the influence of social anxiety includes uncontrolled emotions and loneliness. Muyan-Yilik et al<sup>39</sup> found that loneliness has a two-way relationship with shyness in students. Tan et al concluded that loneliness and reduced social support relationships can lead to shyness.<sup>9</sup> Zhao et al<sup>40</sup> found a significant relationship between emotional intelligence and loneliness with shyness. Zhao et al<sup>40</sup> found a significant relationship between shyness and loneliness with mediating factors of core self-evaluation and social support. Jing et al<sup>42</sup> found a significant relationship between identity status and shyness in students. On the other hand, this research's findings support the findings of Cheek and Buss<sup>5</sup>: in terms of social and interpersonal functions, people who

**Table 4.** Direct estimation of the model through maximum Likelihood method

Variable	B (Effect size)	t value	P	Test result
Alexithymia --- Shyness	0.24	4.541	0.001	Accept
Social identity --- Shyness	-0.18	-0.3.604	0.002	Accept
Shyness --- Feelings of loneliness	0.16	2.864	0.009	Accept

**Table 5.** Estimating the indirect effect of exogenous variables on the endogenous variable in the model

Variable	B (Effect size)	t value	P	r <sup>2</sup>
Shyness ← Social identity ← Alexithymia	0.287	4.680	0.001	.176
Shyness ← Feelings of loneliness ← Alexithymia	0.254	4.057	0.003	.147



**Figure 2.** Final tested model with standardized prediction statistics.

are shy are willing to socially confirm and avoid conflicts and if people’s performance is impaired or incomplete, it is likely that disturbed social relationships will affect patient behavior, from filling a complaint to removing self-care behavior.<sup>51</sup>

Persons with a relative inability to understand emotions are likely to have an inability to evaluate and express emotions; this condition can cause a particular disorder in the psychological function of the individual, such as alexithymia, turbulent identity, and loneliness.<sup>51</sup> These can, in turn, directly lead to shyness in the person or even fear of connecting to or communicating with others.<sup>52</sup> Humphreys et al<sup>53</sup> found that emotional collapse predicts interpersonal problems and social interactions. Because people who have this feature imagine others see their situation as embarrassing, this exacerbates their loneliness; additionally, shy people have tended to have lower self-esteem.<sup>54</sup>

Therefore, shyness is thought to be a strong predictor with a positive and significant relationship with loneliness, since social identity refers to the relationship between the individual and others within the community.<sup>3</sup> It can also be difficult to establish interpersonal relationships, which can cause shyness. Reducing emotional expression is

basically a kind of loss of, or badly regulated, emotion.<sup>55</sup> Similarly, damage to the processing capacity of emotions, or emotional deficits, may be a risk factor for a variety of mental interpersonal problems including turbulent identity, shyness and loneliness.<sup>56</sup>

**Limitations**

In this research, the sample group was selected only from undergraduate nursing students of Ahvaz University of Medical Sciences in 2018. Thus the results could only be generalized within this geographical range. Additionally, a self-report method was used along with a non-clinical sample group, and questionnaires were used to measure variables of research. One of the biggest problems with the data collection is the control of the impact of social utility.

**Conclusion**

The results of this study show alexithymia along with loneliness and social identity can have an effect on shyness among nursing students. This information can be useful for practical applications in undergraduate training among nursing students’ advisers and trainers in order to help assess and address their psychological state, feelings of loneliness, social identity, and shyness.

### Ethical approval

This project has received ethics approval from Ahvaz Branch University (ethics number: IR.IAU.AK.REC.1397.014). The research team first verbally explained the study aims and then distributed the questionnaire. Students who agreed to complete the anonymous questionnaire received a project code, and the final list remained secure with the main investigators for follow up.

### Competing interests

The authors declare that there is no conflict of interest.

### Authors' contributions

AS designed the study, analyzed data and contributed to drafting the manuscript. PJ collected the data and performed study supervision.

### Acknowledgements

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