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Evaluation of Locus-of-Hope Scale Psychometric Properties in Iranian Students

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Abstract: Hope is one of the positive psychological constructs that has been considered in many studies. The aim of this study was to investigate the factor structure, validity and reliability of the Locus-of-Hope Scale in the Iranian students. The research method was descriptive-correlational. The statistical population of this study was all students of Islamic Azad University, Roodehen, Iran. The sample size was 307 people who were selected by cluster random sampling. The Locus-of-Hope Scale was used to collect data. The reliability of the questionnaire was assessed by Cronbach's alpha and the reliability coefficients for the subscales of the questionnaire were obtained between .71 and .87. Confirmatory factor analysis was used to evaluate the validity of the questionnaire. Confirmatory factor analysis revealed a four-factor structure and four subscales (internal, external-family, external-peers, and external-spiritual) were confirmed. Also, all indicators of model fitness were obtained at an appropriate level. As a result, based on the findings of the present study, the Locus-of-Hope Scale can be used for research and treatment purposes related to the hope among Iranian students..

Keywords: Locus-of-Hope Scale, Psychometric properties, Validity, Reliability, Students.

Introduction

The university studying years are the most important stages of students' life, because during this time, a person can prepare himself for life after graduation. If people see a university degree as just a degree to find a good job, it will not have a dramatic impact on people's lives, but if people have the mentality that a good life has a variety of needs that at the top of these needs is mastering a set of skills; a college course will become the most influential stage of a person's life (Wolfradt, Hempel, & Miles, 2003). Mental health is one of the most important needs of today's human being that to meet it is necessary to know one accurately, be able to understand others and establish effective relationships with them, identify negative emotions and daily stresses and control them, take out and solve the problems effectively and make the right decisions. Mastery of life skills is required to meet the above basic needs. Life skills are the preventive-promotional mental health projects proposed by the World Health Organization (Prince et al., 2007). Today, due to cultural and social changes, many people do not have the necessary ability to face life problems. As a result, they become vulnerable in the face of life's problems. The life skills refer to a large group of psychosocial and interpersonal skills that can help people make informed decisions, communicate effectively, have coping skills, and manage themselves personally in order to develop and have a healthy and productive life (Thirunavurakasu, Thirunavukarasu, & Bhugra, 2013).

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Hope is one of the positive psychological constructs that is closely related to mental health (Griggs, 2017; Venning, Kettler, Zajac, Wilson, & Eliott, 2011). Hopeful adults have a distinctive psychological profile, they experience as many failures in their lives as others, but they have developed the belief that they can adapt to challenges and cope with problems (Joanna, 2005). They engage in a continual positive inner dialogue, such as "I can handle it, I will not give up," and so on. These people experience negative emotions with less intensity when they encounter obstacles in achieving valuable goals. Maybe it's because when they encounter obstacles, they create alternative paths to achieve their goals or flexibly choose more achievable goals. People who have less hope react when faced with obstacles with a sequence of negative emotions including anger, despair, and numbness (Archer, Jiang, Thurston, & Floyd, 2019).

Hope includes a set of conditions that include: having valuable personal goals and the ability to produce strategies to achieve those goals (Zahed Babelan, Ghasempour, & Hasanzade, 2017). People with high levels of hope tend to break down important issues into small, clear, and manageable ones when confronted with problems in adulthood (Berendes et al., 2010). Disappointment puts a person in an inactive state where he cannot assess and decide on different situations. Disappointment leaves a person defenseless and trapped in the face of stressors (Martinez, Zeelenberg, & Rijsman, 2011). Over time, the person loses all hope and is replaced by deep depression. His way of thinking has an inflexible state of all or nothing that prevents him from solving the problem. As a result, frustration weakens a person's problem-solving skills. It also causes the person to constantly evaluate their experiences in a negative and inaccurate way and to consider worrying consequences for their problems (Khaledian, Hasanpour, & Ghadermarzi, 2012).

C Rick Snyder (1995) defined hope as a cognitive construct on which the components of agency and path can be extracted. Hence, hopeful thinking always includes three components of goal, agency thinking and path thinking. Goals are objectives that create hope. According to the broad definition of goal in the framework of hope theory, goal is anything that one desires to achieve, do, experience and create (C Richard Snyder et al., 2002). The goal can be quite large, taking months or even years to achieve, and can be so small that it can only be achieved in a short time. In terms of probability of achievement, goals are in a continuum from easy to difficult goals. In the theory of hope, the goal is the consequence of a cognitive-behavioral sequence (Cheavens, Heiy, Feldman, Benitez, & Rand, 2019; C Richard Snyder et al., 2002).

In other words, hope is to have a goal-oriented behavior that, before being acted upon, one must engage in two types of cognition: path thinking and agency thinking. Path thinking reflects an individual's perceived ability to produce cognitive pathways toward the goal (Charles Richard Snyder, 1994). Thus, people who engage in path thinking actively devise paths or plans to achieve the goal. Because some of these schemes may not be successful in practice, pyramid schemes produce a large number of outlines or paths in order to achieve the goal and overcome obstacles. Of course, such paths will not necessarily be achieved without the other cognitive component of hope, agency thinking. Agent thinking encompasses the cognitions that individuals have of their ability to initiate and

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continue moving in selected paths toward the goal (C Richard Snyder et al., 2002). Accordingly, agent thinking causes a person to be motivated enough to start moving in the designed paths and to maintain this movement.

Although agent thinking and path thinking are two separate components of the hope model, they are not functionally separable. In fact, these two components have been formulated to interact with each other, and a change in one component will affect the other (C Rick Snyder, 1995). As a result, it is important to understand that hope is a rotational cognitive process that consists of two types of thinking, agency and path.

Another point about hope is its hierarchical nature. Hope is not only a goal-oriented cognitive process, but also an organized hierarchical system of beliefs about one's ability to engage in such a cognitive process. These beliefs are organized into three specific levels of abstraction: the general level or attribute of hope, domain-specific hope, and goal-specific hope (C Rick Snyder, 1995).

The overall assessment of individuals of their ability to build sufficient pathways and generate the thinking of the agent needed to achieve the goals is known as general hope or hope as an attribute. Hope as an attribute is not expecting success in achieving a specific goal. Instead, it is a kind of evaluation of the individual's ability to achieve the goal in general. Hence, general hope does not fully reflect one's true ability to generate ideas of agency and path. Accordingly, general hope reflects an individual's perception of the paths and factors that can be produced if desired (C Richard Snyder et al., 2002). The Children and Adults Hope Scale is designed to measure this level of hope (C Rick Snyder et al., 1996).

A person may be has a general hope, but at the same time have a low level of hope in one or more areas of life. In such cases, the individual's overall assessment of his or her ability to generate path ideas and agency can be high, while his or her more specific assessment of his or her ability in a particular area of life may be quite low. As a result, it is necessary to introduce the second level of hope, which is a more objective level of the belief system related to hope. This second level of hope depends on a particular area. Of course, it should be noted that people who have a high level of overall hope are also hopeful in most areas of life. But there is usually a gap between these two levels of hope for students. For example, students who have high levels of hope about their lives in general may have low levels of hope in a particular field of study. The third level of hope in the hierarchical system of hope-related beliefs is the more objective level, which is called purpose-dependent hope. Even when a person's level of general and domain-specific hope is quite high, it is still possible for a person to show low levels of hope about a particular goal. For example, a high school student may have high levels of general hope and academic achievement, but find themselves frustrated in generating path ideas and being able to get an A grade in math .

According to various studies, the structure of hope is an important variable that is closely related to students' mental health (Esmaeili, Sohrabi, Mehryar, & Khayyer, 2019; Ghorbani, Sadatmand, Sepehrian Azar, Asadnia, & Feyzipour, 2013; Rezaei, Bayani, & Shariatnia, 2015; Samavi, 2022). One of the important challenges in this field is measuring the structure of hope in student populations.

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Various scales have been introduced to measure hope, of which the Snyder Hope Scale is the most widely used (Gana, Daigre, & Ledrich, 2013; Valle, Huebner, & Suldo, 2004). However, the Snyder scale of hope focuses more on measurement of hope in general and ignores measurement of hope in specific areas. One of the questionnaires that measures hope in different areas is the Locus-of-Hope Scale, which has recently been designed and introduced based on Snyder's theory of hope (Bernardo & Estrellado, 2014). Due to the need for a suitable tool to measure hope in student populations, in the present study, the psychometric indices of this questionnaire in a sample of Iranian students have been studied. The purpose of this study was to evaluate the validity and reliability of this scale for research and treatment purposes in Iranian students.

Material and Methods

The present study is a descriptive correlational research. The statistical sample consisted of 307 students of Islamic Azad University of Roodehen, Iran who were selected by cluster random sampling. After leaving the distorted questionnaires, 271 questionnaires were analyzed. Participants ranged in age from 23 to 55 years. 170 (62.7%) were male and 101 (37.3%) were female. Prior to data collection, all participants completed an informed consent form.

The Locus-of-Hope Scale (Bernardo & Estrellado, 2014) was used to collect data. This questionnaire was translated into Persian for the first time in the present study. The translated version was reviewed by two English language experts and approved in accordance with the original version. Also, before the main implementation, the questionnaires were administered to a group of participants to check the face validity, clarity and transparency of the language and the ability to understand the instructions. This questionnaire was developed by Bernardo and Estrellado (2014) based on Snyder's theory of hope. The 20-item scale had four locus-of-hope subscales (internal, external-family, external-peers, and external-spiritual) each with four items (another four were filler items). Participants had to show the extent of their agreement using a scale from 1 (strongly disagree) to 5 (strongly agree). In Bernardo and Estrellado (2014), confirmatory factor analysis indicated an adequate fit between the hypothesized four-factor structure and the data, but the internal locus-of-hope scale was found to have low internal consistency. The designers of this questionnaire also reported its reliability by Cronbach's alpha method ranged .48 to .78. In the present study, confirmatory factor analysis was used to determine the validity of this scale and Cronbach's alpha method was used to assess its reliability.

Results

Table 1 presents the descriptive indicators of the total score of the questionnaire and the subscales and correlation coefficients between the variables. In order to investigate the factor structure of the questionnaire, confirmatory factor analysis was performed on the items of the questionnaire using AMOS software version 22. The results related to the model fit indices are reported in Table 2. Before performing the confirmatory factor analysis, the necessary assumptions for performing this analysis were examined and confirmed.

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Table 1. Summary of descriptive statistics

Variables	Mean	SD	1	2	3	4
(1) Internal locus-of-hope	3.54	.34	-			
(2) External-family locus-of-hope	3.56	.31	.31**	-		
(3) External-peers locus-of-hope	2.98	.28	.43**	.36**	-	
(4) External-spiritual locus-of-hope	3.76	.43	.54**	.51**	.46**	-
(5) Total locus-of-hope	3.61	.38	.46**	.44**	.49**	.54**

*** *p* < .05 ** *p* < .01**

Table 2. Fit indexes of confirmatory factor analysis

Index	Value	Accepted value	Result
$X^{2/df}$	2.05	< 3	Confirmed
RMR	.052	< .08	Confirmed
GFI	.98	> .90	Confirmed
NFI	.95	> .90	Confirmed
CFI	.98	> .90	Confirmed
RMSEA	.073	< .08	Confirmed

Table 2 shows that the confirmatory factor analysis of the questionnaire has appropriate fit indexes. RMSEA value is equal to .073 and is acceptable since this value is less than 0.08. Also, the ratio of chi-square to the degree of freedom is less than 3 and the amount of GFI, CFI, NFI indices is more than 0.9 and the value of RMR is less than 0.08, which shows that the data have a good fit. Figure 1 shows the factor loadings of items on the four factors of the questionnaire. All path coefficients are statistically significant (p <.01). Overall, these results indicate that the factor structure has been confirmed and this scale has good validity. Cronbach's alpha method was used to evaluate the reliability of the questionnaire. The results of calculating the reliability coefficient for each of the subscales as well as the total scale are presented in Table 3. According to Table 3, the locus-of-hope scale has acceptable reliability.

Table 2. Reliability coefficients of locus-of-hope scale and its subscales

Scale	Reliability (α)
Internal locus-of-hope	.92
External-family locus-of-hope	.89
External-peers locus-of-hope	.93
External-spiritual locus-of-hope	.95
Total locus-of-hope	.94

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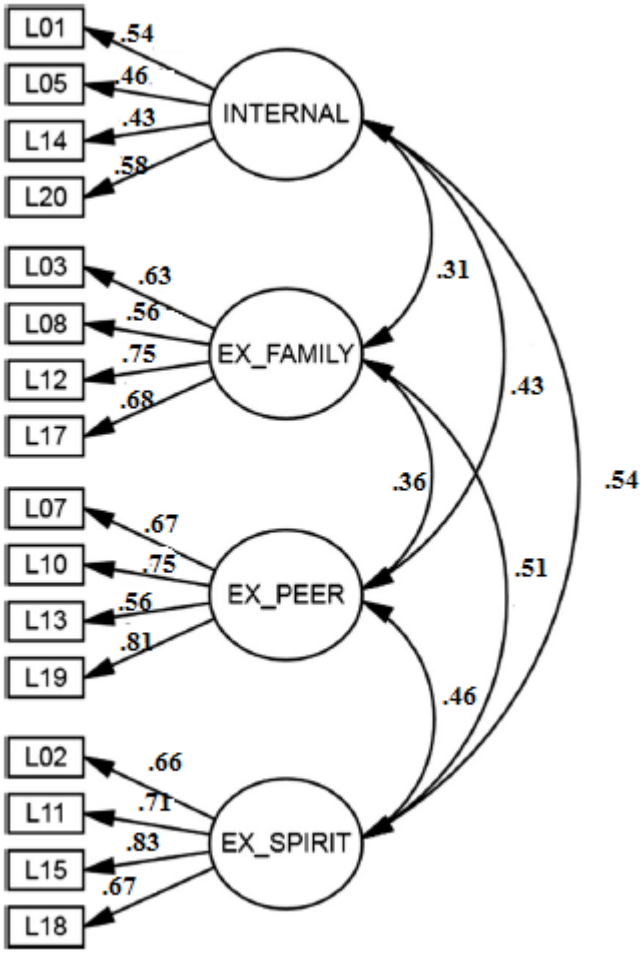

Fig. 1 Summary of confirmatory factor analysis of four-factor model of locus-of hope

Discussion

This study aimed to evaluate the validity and reliability of locus-of-hope scale for research and intervention purposes in Iranian students. Findings showed that locus-of-hope scale has good validity and reliability for use in Iranian culture and in Iranian students. Findings similar to previous studies have shown satisfactory reliability and validity for this scale.

For example, Bernardo and Estrellado (2014) confirmed the factor structure of this scale by confirmatory factor analysis and obtained relatively satisfactory reliability coefficients for the subscales of this questionnaire. Bernardo and Mendoza (2021) also indicated the viability of the State Locus-of-Hope scale for assessing temporal hope-related thoughts. Joanna (2005) describes hope as an expectation of more than zero in achieving a goal. Most people think of hope as an emotional phenomenon. Whereas, hope is recognized as a goal-oriented cognitive process. According to (Bernardo & Mendoza, 2021), the Locus-of-Hope Scale was established as a cultural version that measures internal and external aspects of agency related to goal-pursuit that are typical in collectivist cultures. Therefore, considering the cultural differences and different experiences that Iranian learners experience, this scale seems to be a suitable questionnaire for research and intervention purposes.

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Research using hope theory has revealed that individual differences in hope for attributes explain changes in how people achieve their goals. But the theory of hope seems to assume that achieving the goal of a pursuit is purely individual. Bernardo (2010), in his study, developed the theory of hope to include the dimension of the source of hope with internal and external factors in planning to pursue goals. External factors may be family, peers, or supernatural beings. The dimensions of the source of hope were defined and confirmed in two studies with Filipino University students (Bernardo, 2010). In study 1 used confirmatory factor analysis to test hypothetical models of the source of hope and study 2 used confirmatory factor analysis to further validate the model, then used regression analysis to show that the internal and external dimensions of the source of hope are related to individualism and collectivism at the individual level, respectively (Bernardo, 2010). Furturmore, Du and King (2013) examine how places of inner and outer hope can predict different indicators of psychological adjustment. They also examined how individual differences in self-construction can predict the source of hope. The results among Chinese university students exhibited that independent self-interpretation was positively related to the source of internal hope, while interdependent self-interpretation was positively related to the source of external hope. The inner source and the outer source of hope for family and friends were positively correlated, but spiritual hope was not positively correlated.

In general, it can be said that according to the obtained psychometric properties, reliability and validity of this tool, its shortness and ease of implementation provide easy conditions for researchers. However, conducting research on a sample of students in Roodehen and the self-report of the questionnaire are limitations that should be considered in generalizing the findings.

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