

## **The effectiveness of mental rehabilitation based on hope intervention on increasing hope of students with physical-motor disabilities**

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### **ABSTRACT**

Focusing on the positive aspects of life in people with physical disabilities can play an important role in the physical, psychological health and well-being of these people. The main purpose of this study was to investigate the effectiveness of a mental rehabilitation program based on hope interventions on increasing hope in students with physical-motor disabilities. This study was performed with quasi-experimental method and a pretest and posttest with control group. Statistical population consisted of high school students with physical-motor disabilities in Tehran during the 2013-2014 academic years. Fifty two male and female students were selected through purposive sampling and were assigned randomly to an experimental group and a control groups. Hope interventions training were given to the experimental group during eight 1.5-hour sessions. The scores of the hope questionnaires before and after intervention were compared. The results of covariance analysis showed that hope intervention had a significant positive effect on increasing hope in the experimental group ( $p < .001$ ). In addition, hope intervention had a significant positive effect on increasing the pathway and agency thinking subscales in both male and female students ( $p < .001$ ). Hope intervention increases the hope scores. So, the approach taken in this study can be considered as an appropriate method for psychological-education interventions, counseling and in providing treatment to students with physical-motor disabilities.

**KEY WORDS:** Hope intervention, hope, physical-motor disabilities

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### **1. INTRODUCTION**

A person with physical-motor disabilities, means his or her mobility in upper and lower limbs or spine is limited due to permanent impairment caused by brain damage or mental retardation, illness, injury or deformity in the nervous system or muscles [1]. Physical disability in people is a part of the wide range of disabilities, referred to as a set of disabilities that cause an individual not be able to use his or her limbs or part of it, effectively for at least six months [2]. The number of people with disabilities has been increasing with each passing year. It is estimated that around the world, about 1 billion people are having disabilities and almost 200 million of them are experiencing serious problems [3].

The impact of disability on an individual's psychosocial situation is undeniable because disability adds problems or limitations in terms of functionality. Disability has adverse psychological effects on individuals with disabilities [4]. Several studies have examined the mental and emotional effects of physical disabilities on the students; collectively these studies show that physical disabilities can cause low self-esteem [5], psychological distress [6], poor mental health [7], and depression [8]. People with physical disabilities receive negative messages from peers and assume themselves as less valuable and important than the others. Thus, disability not only limits performance but also affects a person's self-image negatively [9]. The level of frustration due to limitation in performing daily living activities or functional limitations in people with disabilities significantly increased resulting in lack of energy, decrease in physical activities or creating other health problems [10].

Focusing on the positive aspects of the lives of people with physical disabilities can play an important role in the physical health and psychological well-being of these people [8]. With the advent of positive psychology, theorists and researchers have investigated the structure, such as self-control, spirituality, optimism, joy, and hope [11]. One of the most important structures of hope that Snyder [12] has mentioned as the main goal of treatment is

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considered as psychological treatments. The hope of a positive incentive state which is based on an interactive sense was derived from the agency (energy and necessary motivation to achieve the goals) and pathway (planned to achieve the goals) [13]. Several studies have shown the importance of hope, which has a significant positive correlation with mental and physical variables such as quality of life [14], optimism [15], life satisfaction [16]; it also has a significant negative relationship with variables such as suicide [17], depression [18] and anxiety [19]. In recent years, interventions in the field of positive psychology that is highly regarded and used effectively on the mental health variables is Snyder's hope theory. Hope theory consists of three basic components, namely goals, agency, and pathways [13]. Success in achieving the goals of positive emotions and negative emotions can make it fail. Hopeful people in contrast to the hopeless people have more agencies and pathways to pursue their goals. Thus, in case of obstacles, they can maintain their motivation and use alternative pathways [20]. Many studies have confirmed the importance of interventions in hope, both in clinical and in the general population. However, very little research has been conducted on the impact of this program on the hope of physically-motor disabled students. Dorset [21] in a study on disabled people with spinal cord injury showed that 73% of people have identified hope as an essential agent to help them deal with their injuries. Ho et al. [22] also in an intervention program based on hope in people with cancer concluded that significantly general hope and the two subscales of hope, agency and pathway, were increased while anxiety and depression were reduced in cancer patients. In a study, Berg et al. [23] found that hope intervention increases hope among women and increases pain tolerance in all participants. Another study by Sajadi et al. [24] showed a significant effect of the hope therapy on depression and a significant effect on hope, the agency and the pathway of high school female students. Other interventions in hope was done by [25], who came to the conclusion that in mothers of children with cancer, hope therapy increases hope and reduces depression. Bijari et al. [26] found in a study that hope significantly increases life expectancy and reduces the rate of depression in women with breast cancer.

The need for this research comes from the fact that from one angle, hope has a very important role in health promotion and prevention, diagnosis and treatment of physical and mental illness. Meanwhile, better physical health is also associated with higher levels of hope, which leads to more psychological adjustment [13]. On the other hand a high percentage of physical-motor disabled people experience a lot of psychological problems, including depression, low self-esteem and psychological distress, and that having hope can reduce a lot of their problems and can help them solve the obstacles ahead. Furthermore, there is a lack of research in this area, as well as a lack of direct application of Snyder's hope theory on students with disabilities, especially on those who are physical-motor; and finally, limited research has been done on the society. Most studies have measured general hope, while in this study in addition to the total score of hope, two important components of agency and pathway are examined. Therefore, this study aims to evaluate the effectiveness of hope-based intervention on increasing hope of physical-motor disabled students.

## 2. METHOD

This study employed a quasi-experimental plan with pretest, posttest and performed with the control group. The study population included all male and female high school physical motor disabled students in schools in Tehran in the 2014-2015 academic years. Through purposive sampling, 26 subjects consisting of boys were selected and assigned to a control group and an experimental group (13 per group). Meanwhile, another 26 subjects consisting girls were selected and assigned to a control group and an experimental group, making a total of 52 subjects selected for the study.

Snyder's Hope scale is for 15 year old people and older, and evaluates the individuals' hope as a relatively stable personality trait. It consists of 12 questions with Likert scale of 4 degrees of response scores, namely 1 = definitely wrong, to 4 = definitely correct. It also includes four subscales questions about agency, four subscales questions of pathways, and four subscales and four questions are misleading. In the study, Snyder et al. [27] found Cronbach's alpha for the overall hope approximately 0.74 to 0.88, 0.63 to 0.86 for the pathway subscales and for the agency subscales they obtained a score of approximately 0.70 to 0.84. They also found their test-retest reliability over a period of more than ten weeks was 82%. This scale is valid for the Iranian population [28].

This study was conducted on the physically-motor disabled girls and boys from exceptional education centers in Tehran, namely the Haj Babaei School, a center for boys to represent boys, and the Tavankhahan high school, a center for girls to represent girls. The Snyder's Hope questionnaire was conducted on students in the selected schools. Students who obtained hope score of less than 20 on Snyder's hope scale and met the following entry criteria were selected. Inclusion criteria were as follows:

1. Students must have an IQ in the range of 90-110 (according to the records in the school).
2. Students have of records and diagnosis of psychiatric diseases and disorders history of hospitalization in psychiatric hospitals,

3. The subjects are willing to participate in research (through interviews).

Meanwhile, the exclusion criteria included: (1) absence of more than one session; and (2) the simultaneous presence in other mental health programs.

In the next stage, randomly selected individuals were assigned into an experimental group and a control group. The intervention was conducted on the experimental group in 8 sessions, while the control group received no intervention. The students were assured of the following points: voluntary participation as members in the group counseling sessions, the members complete the questionnaires willingly, information obtained are treated with full confidentiality, the names of individuals in the research will not be revealed, and appropriate planning will be done for the implementation of counseling sessions. Finally, the sessions were conducted with the permission of the authorities of high schools and parents' informed consent.

Interventions have been designed based on the work of MC Dermott and Snyder which included 8, 1.5-hour sessions in four parts [29]. In the first 20 minutes, the focus was on the previous week's homework, followed with solving problems and ambiguities concerning the duties. The next 20 minutes were focused on the three domains training of goals, agency and pathway, followed by 40 minutes of discussion on using the skills and techniques to strengthen these skills in everyday life. In the final 10 minutes the focus was on providing the next week's homework. The Hope questionnaires were administered before and after the intervention. The content of the sessions are briefly described as follows.

In the first session, the structure of the meetings, the objectives of the training program based on the Snyder's theory of hope was explained. In the second session, hope theory concepts, including goal setting, agency thinking or will, pathway thinking or planning and identifying barriers were briefly described. In the third session, the discussion focused the goals of hope theory according to the individuals' life stories. In the fourth session, the focus was on work to increase the power of positive thinking by repeating the use of positive words based on the people's life story. The fifth session discussed the introduction of planning, thinking and addressing the list of identified routes for reaching the goals. In the sixth session, several important purposes were discussed, such as familiarity with the ways of overcoming obstacles and challenges, identifying automatic thoughts to change dysfunctional attitudes and beliefs, training to deal with obstacles to the use of creativity by creating alternative pathways. The seventh session deliberated on the objectives such as strategies to create or enhance pathway thinking using a gradual schematization and strategies designed to strengthen the will of fantasy techniques, mental visualization, pattern making/benchmarking and positive self-negotiation. Finally, the eighth session discussed about slipping and repeating sliding when dealing with obstacles, use of hopeful thinking in everyday life and the conclusion of the intervention sessions.

### 3. RESULTS

Table 1: Mean and standard deviation of the experimental groups and the control groups in the pretest and posttest on the variables of hope and its subscales (agency and pathway) by gender differentiation

Gender group	Number	hope		pathway		Agency	
		Pre test	Post test	Pre test	Post test	pre test	Post test
		Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Male experimental Control Total	13	19.07 (2.56)	24.76 (3.24)	9.92 (1.60)	12.07 (2.32)	9.15 (1.86)	12.69 (1.79)
	13	18.53 (2.53)	19.23 (3.67)	9.53 (1.66)	9 (2.76)	9 (1.87)	10.23 (2.74)
	26	18.80 (2.51)	22 (4.41)	9.73 (1.61)	10.53 (2.95)	9.07 (1.83)	11.46 (2.59)
Female experimental Control Total	13	17.53 (2.56)	21 (2.85)	8.07 (2.17)	10.84 (1.77)	9.46 (1.80)	10.15 (2.07)
	13	16.84 (3.05)	17.46 (2.47)	8.84 (2.07)	9.23 (1.87)	8 (1.87)	8.23 (1.48)
	26	17.19 (2.78)	19.23 (3.17)	8.46 (2.12)	10.03 (1.96)	8.73 (1.95)	9.19 (2.02)
Total experimental Control Total	26	18.30 (2.63)	22.88 (3.55)	9 (2.09)	11.46 (2.12)	9.30 (1.80)	11.42 (2.30)
	26	17.69 (2.88)	18.34 (3.19)	9.19 (1.87)	9.11 (2.32)	8.50 (1.90)	9.23 (2.38)
	52	18 (2.75)	20.61 (4.05)	9.09 (1.97)	10.28 (2.49)	8.90 (1.88)	10.32 (2.57)

Table 1. shows the means and standard deviations of experimental and control groups in boys and girls in the pretest and posttest for the variables hope, agency and pathway. Comparing the posttest means of the two groups revealed that the mean of experimental group posttest was higher than that of the control group. Furthermore, with regard to means for boys and girls, the results showed that in the posttest, the mean for males is higher than the mean for females.

Levene's test showed that the homogeneity of variance between the two groups is established ( $p = 0.474$ ). To investigate the normality of the hope variable the Kolmogorov-Smirnov test was used. Table 2 shows that the normality of this variable was confirmed.

Table 2: Kolmogorov-Smirnov test to check the normality of hope variable distribution

Group		Pretest total score
Experimental	number	26
	Test criteria	1.218
	The amount of possibility	0.103
Control	number	26
	Test criteria	0.500
	The amount of possibility	0.964

Table 3: ANCOVA to compare posttest scores of hope, agency and pathway of subjects in the experimental and control groups

Source of variance	Freedom degree			Squares mean			Test criteria			Possibility amount		
	Hope	agency	pathway	Hope	agency	pathway	Hope	agency	pathway	Hope	agency	pathway
Pretest variable	1	1	1	8.665	11.149	436.3	1.768	2.718	0.351	0.190	0.106	0.556
Gender	1	1	1	0.559	71.613	80.582	0.114	17.460	8.240	0.737	0.001	0.006
Group	1	1	1	73.975	71.263	256.950	15.097	17.375	26.275	0.001	0.001	0.001
Error	48	48	48	4.900	4.101	9.779						
Total	52	52	52									

Analysis of covariance was used to assess the effectiveness of the intervention. As shown in Table 3, the intervention or group effect removes and neutralizes the effect of the pretest variable which was statistically significant ( $p < 0.001$ ). Therefore, it can be concluded that training in hope intervention caused differences in the group. At the same time, hope and agency mean scores of the two groups of boys and girls were significantly different from each other ( $p < .006$ ). However, the difference was not significant for the subscale pathway. In other words, pathway thinking in both genders equally increased ( $p = .737$ ). The hope determining coefficient score obtained was 0.441.

#### 4. DISCUSSION

This study aimed to evaluate the effectiveness of a mental rehabilitation program based on hope interventions on increasing hopes of students with physical-motor disabilities. The results of the analysis of the collected data showed that the Snyder's hope intervention training, has increased the hope of male and female students.

According to data obtained from the posttest scores in the experimental and control group based on Snyder's hope questionnaire, after the elimination of the pretest effect there was a significant difference. In other words, the mean of the experimental group was higher than the mean of control group in both groups of girls and boys. Therefore, our findings confirm that hope intervention increases the hope of male and female students with physical-motor disabilities. The results of this study is consistent with that of Dorsett [21], which showed that Hope training for people with disabilities can play a crucial role in increasing adaptability and in dealing with problems of disability. With respect to research by Berg *et al.* [23], their results showed that training based on hope interventions can increase overall hope and increase pain tolerance in these people. Our results are also consistent with those of Shekarabi Ahari *et al.* [25] and Bijar *et al.* [26]. Their research also showed that hope intervention can increase overall hope. In their study, they also found that the hope level for the boys increased more than that of the girls in the experimental group. The result of this study is also consistent with that of Venning *et al.* study [30] and that of Ballard *et al.* [31] who argued that hope of boys increased more than those of girls. However, our result was not consistent with that of Hendricks-Ferguson [32] and Hinds *et al.* [33] which showed girls' hope was higher than that of the boys. Other studies have also shown that significant gender difference was not observed between the group of boys and girls in hope [34, 35]. Therefore, in relation to the difference between girls and boys in hope, the mixed results in this regard show the presence of variables that could affect hope such as age, socioeconomic status, geographic location, measures of mental health, psychological differences and cultural factors. For example, female physical-motor disabled students may culturally be more vulnerable than boys because they face more restrictions on employment and advancement opportunities and experience lower mental health. These variables could affect

their hope. Therefore, it seems necessary that future research should examine gender differences in hope, and taking into consideration all these factors.

In relation to hope subscales, the results of hope intervention on both hope subscales, that is, agency thinking and pathway thinking in disabled boys and girls in the experimental groups have significantly increased compared with their control groups. Furthermore, the increase for boys has been more than that of the girls in agency thinking variable. However, in the pathway thinking variable the extent of increase was the same. The obtained results were consistent with those of the research of Hoet al. [22] and Sajadi et al. [24]. These studies have shown that in addition to the increase in general hope, both the scale pathway and agency thinking have also increased. To explain this, Snyder believes that hope is composed of two basic components, namely the agency thinking and pathway thinking, which essentially means he believed that the goals can be achieved through these two sources. In other words, someone who reports a high level of hope over time should have a strong desire to have both dimensions of hope, that is, agency thinking and pathway thinking, and not only one of them [36]. One of the strengths of the Snyder's hope theory is that anyone with any background, can improve the skills to achieve the two basic components of pathway and agency of the hope theory, and with the proper training, people can restore their hope attitude toward life [22].

In explaining the obtained results, it can be noted that hope intervention offers something personally significant consolidation in the guidelines. Storytelling in Snyder's hope theory helps clients to identify goals that are characterized by their low hopes and high hopes. With this technique, the therapist and the client may include statements that make their hope down and replace them with better hope and positive thinking [37]. In this context, setting goals in hope intervention should be visible, measurable, realistic and provocative; and the therapist should be able to provide a boost to the environment, and provide the opportunity to the client to reach the goal [38]. For example, to increase and strengthen the will power and to maintain motivation can create positive self-talk in clients include such as "I know I can do it" or "I can easily afford it." Hence, strengthening the pathway power can create multiple paths to reach the goal, in the event that one of the goals failed to be achieved. Thus, the client would not feel in despair and can follow alternative paths to reach the goal. Hence, according to Snyder [13], where people can actively pursue their goals, they can improve their psychological well-being. In this way, understanding hope theory has a special and positive contribution by reducing the frustration and despair of people in society.

## **5. CONCLUSION**

The results showed that the hope intervention training increases hope and the both its subscales. The results also showed that the increase in hope is higher for boys. This is because of the important role hope has in health promotion and prevention. Diagnosis and treatment of diseases in the body and can be very effective supportive role on stressful life events, Therefore, using the hope theory and positive psychology perspectives used by psychologists and school counselors can help prevent problems in students with physical-motor disabilities. However, this study has some limitations which are discussed as follows. First, some of the students had major problems in writing (because of weakness in the limb and hand) the questionnaire was completed by the researcher and this could have had an adverse effect on the answers to some of the questionnaires. Then, the intervention was not been provided by the same researcher because of some cultural problems among the girls and the boys. Another limitation is that one of the causes of lack of access to resources is the lack of scientific and research studies on physical-motor disabilities in the country. This has made it difficult to compare the results of this study with those of other studies. Finally, this study has not done a follow up studies on the groups being studied.

## **RECOMMENDATIONS**

It is recommended that future studies use a longitudinal study to examine the impact of hope intervention on the other variables such as optimism, achievement motivation, self-esteem and decreased depression and anxiety in individuals with physical-motor disability.

## **ACKNOWLEDGEMENTS**

Finally sincere cooperation physical-motor disabled in the intervention program, as well managers of Haj Babaei (Mr. Nazmi) and Tavankhahan (Ms. Soheila Reza) schools are appreciated.

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