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EFFECTIVENESS OF OPTIMISM GROUP TRAINING IN THE REDUCTION OF DEPRESSION AND SOCIAL ANXIETY IN STUDENTS WITH MOBILITY/PHYSICAL DISABILITIES

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ABSTRACT

Background and Objective: there is a high prevalence of psychological problems among students with mobility/physical disabilities; therefore, the goal of the present study was to examine the effectiveness of optimism group training in the reduction of depression and anxiety in this group.

Methods: this was a quasi-experimental study with pretest/posttest design, control group, and a 3-month follow up. The statistical population included all middle and high school students of Tehran's educational centers for boys with mobility/physical disabilities, in the school year 2015-2016. The study sample consisted of 18 students, who were selected using a purposeful sampling method, and randomly divided into experimental and control groups (9 participants in each group). The experimental group received optimism training for 10, 1-hour sessions. The scores on the Social Phobia Inventory (SPIN) and the Beck's Depression Inventory (BDI-II) before and after applying the intervention were compared.

Results: According to the study results, optimism group training had a significant effect on the reduction of depression ($p > .05$). There were also significant effects on two subscales of social anxiety, the physiologic and avoidance subscales, but no significant effect was found on the fear subscale.

Conclusion: it can be concluded that optimism training is effective in reducing depression and social anxiety in students with mobility/physical disabilities; therefore, it can be used in psychological and counseling interventions designed for this group.

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Introduction

Physical handicap or disability could be an outcome of many disorders, imposing a significant pressure on individuals(1). From a rehabilitation viewpoint, disabilities are divided into three categories: psychological, sensory, and physical. Physical disability has four categories: mobility/physical, visceral, sensory, and disabilities common in older adults(2). Among these, mobility-physical disabilities have the highest prevalence rates in the general population(3). Mobility/physical disability is defined as the loss of mobility function, or limited movements or activities resulted from deformity or paralysis of limbs(1). People with Mobility/physical disabilities are considered as the largest minority group in the world, and according to the Welfare Organization of Iran, nearly 7% of Iran population has some form of disabilities(4). People with mobility/physical disabilities experience many psychological and social problems, such as low self-esteem(5), depression(6-8), social isolation(9), social stigma(10), sexual abuse and lack of sexual awareness(6, 11). In addition, other studies on people with mobility/physical disabilities indicate lower mental health, lower satisfaction with sexual relationship(12), lower levels of emotional and relational supports, and lower social participation in this group (13).

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Social anxiety disorder (SAD), also known as social phobia, is one of the most common mental disorders in the society(14), with lifetime and one-year prevalence rates of 12.1% and 7.1%, respectively(15). This disorder involves an excessive fear of being scrutinized, evaluated, or being in the center of attention and the feeling in the person that they are being negatively evaluated by others(16). According to the American Psychological Association (APA)(17), this disorder is characterized by an excessive fear of other's evaluation and judgment in social situations. People with social anxiety disorder show less positive beliefs about their personality traits(18). These people suffer from significant impairments in their daily lives, job roles, and social relationships(19).

Depression is a disorder that affects the thoughts, feelings, and physical health of the depressed person(20). Due to relatively high lifetime prevalence (2-15%) and being accompanied with significant impairments, depression is seen, throughout the world, as an important mental health issue(21). One of the groups at a higher risk of developing depression symptoms are those with mobility/physical disabilities. This group is faced with unique challenges and stressors that increase the risk of depression(22). Research indicates that depression symptoms may be 2 to 10 times higher in those with mobility-physical disabilities or chronic illnesses, and that depression is one of the most common secondary conditions related to disability or chronic illness(20). In addition, based on the kind of disability, prevalence rates of 6-77% have been reported for depression in people with mobility/physical disabilities(23).

Disability may have undeniable psychosocial effects on those with mobility/physical disabilities leading to significant functional limitations(24). In recent years, positive psychology, as an effort to examine human capacities, has led to many research studies on wellbeing and happiness in educational, health, and treatment domains(25, 26). Paying attention to the positive aspects of the lives of people with mobility-physical disabilities may have an important role in their psychological wellbeing and physical health(27). With the advent of positive psychology, Theorists with this approach examined such concepts as spirituality, happiness, hope, and optimism(28).

Optimism is one of the concepts in positive psychology that, in recent years, has been a major focus of many research studies. According to Seligman (2007), positive thinking and optimism are based on how people tend to explain or attribute things, i.e. their "explanatory style." Shatté et al.(29) maintains that adolescents at a higher risk of developing depression and anxiety tend to see unpleasant events as permanent, widespread, and internal, in contrast, optimistic adolescents tend to believe that negative events are temporal, special, and external (30). Many studies have confirmed the role of optimism as a positive psychological variable, and regarded it as a powerful protective factor in the health of individuals and the society(31). Research has also showed the positive effect of optimism on psychological wellbeing and the use of effective coping strategies against illness and life problems(32), its role as a source of physical adaptation leading to the use of emotion-focused strategies and avoidance coping(33), and its effect on the reduction of antisocial behaviors, drug abuse, and depression(34). In addition, optimism has been positively associated with physical and psychological health, lower levels of depression and anxiety, higher life satisfaction, better performance, and lower physical symptoms(35).

Buchanan et al.(36) and Seligman et al.(30) also showed that changing a pessimistic explanatory style to an optimistic one is related to a reduction in children's depression and an increase in their happiness. Therefore, given to the debilitating nature of disabilities and a high prevalence of mental health problems among disabled people, and also considering the shortage of research studies on social anxiety among people with mobility/physical disabilities, the goal of the present study is to examine the effect of optimism group training on the reduction of social anxiety and depression in students with mobility/physical disabilities.

Methods

In the present study, a quasi-experimental design with pretest-posttest, control group, and a 3-month follow up was used. The statistical population included all middle and high school students of Tehran's educational centers for boys with mobility/physical disabilities, in the school year 2015-2016. The study sample included 18 students, who were selected using a purposeful sampling method, and randomly divided into experimental and control groups (9 participants in each group).

The instruments used in the presents study were the Beck's Depression Inventory (BDI-II) and the Social Phobia Inventory (SPIN).

The Beck's Depression Inventory-II (BDI-II): The Beck's Depression Inventory (BDI) was first developed by Beck et al(37). The Beck's Depression Inventory-II (BDI-II) was developed in 1996 for a better compatibility with the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). The BDI-II is a self-report 21-item questionnaire for assessing depression in adults and adolescents. The self-report items are scored from 0 to 3. A score from 0 to 13 indicates minimum or lack of depression, from 14 to 19 slight depression, from 20 to 28 moderate depression, and from 29 to 63 severe depression. Beck et al(1998) showed that the BDI-II, like the BDI, assesses the presence and severity of depression symptoms in patient and normal populations(38) showed that the BDI-II, like the BDI, assesses the presence and severity of depression symptoms in patient and normal populations. They reported Cronbach's alphas of 0.86 and 0.81 in patient and normal populations, respectively. The BDI-II has been validated in Iran, and its validity and reliability estimates have repeatedly been reported to be acceptable(39). In domestic studies that have been conducted on the validity of this questionnaire that has been reported and it have been from 0.70 to 0.90 (40).

The Social Phobia Inventory (SPIN): this is a 17-item scale developed by Connor et al. (2000) for assessing social anxiety or phobia. It has three subscales, including fear consisting of 6 items (1, 3, 5, 10, 14, and 15), avoidance consisting of 7 items (4, 6, 8, 9, 11, 12, and 16), and physiology comprised of 4 items (2, 7, 13, and 17). The items are scored on a Likert-type scale ranging from 0=Not at all to 4=Very much. Total scores range from 0 to 68. Higher scores indicate higher social phobia. A score below 20 indicates the lack of social phobia, from 20 to 30 low social phobia, from 31 to 40 moderate social phobia, from 41 to 50 severe social phobia, and 51 or higher very severe social phobia. Test-retest reliability estimates of .78 to .98 have been reported for the SPIN in patients with social phobia. In addition, a Cronbach's alpha of .96 has reported for the inventory in a normal group. Moreover, Cronbach's alphas of .89, .91, and .90 have been reported for the fear, avoidance, and physiological problem subscales, respectively(41). In Iran, using the one-way analysis of variance (ANOVA), the psychometric properties of the SPIN were analyzed in three groups (patients with social anxiety disorder (SAD), patients with anxiety, and normal subjects); significant differences were found between the mean scores of the three groups That Alpha coefficient for all aspects of the questionnaire was 86%.(42). Cronbach's alpha of .88 for the SPIN, Cronbach's alphas of .81 and .77 for the first and second halves of the inventory, a correlation of .77 between the two halves, and a reliability estimate of .87 using the Spearman–Brown prediction formula(43).

Analysis Method

This study was conducted on the male students with mobility/physical disabilities in Tehran's education centers. Among the education centers of Tehran, Imam Ali middle and high school that had enough students for the purpose of the present study was selected. Then, the Social Phobia Inventory (SPIN) and the Beck's Depression Inventory (BDI-II) were administered to the students of this school. Among the students, those who met the inclusion criteria and scored below 29 and 40 (cutoff points for average and low scores) on the BDI-II and the SPIN, respectively, were selected as the study sample. The inclusion criteria were as follows: 1) No history of admission to psychiatric hospitals (according to counseling records), 2) no history of drug abuse (according to counseling records), 3) an average IQ or higher (based on the result of the Raven's test). The exclusion criteria were as follows: 1) Being absent for more than one session, 2) participation in other psychotherapy sessions at the same time.

In the next step, the selected students were randomly divided into experimental and control groups. Optimism group training was applied to the experimental group in 10, 1-hour sessions, 2 times a week. The control group received the routine education program of schools. The ethical considerations in the present study were as follows: students' voluntary participation in the training sessions, obtaining the informed consent of the participants, making sure that participants completed the questionnaires with complete willingness, confidentiality of names and information, and conducting the sessions in a way not to interfere with the routine work of the school's teachers. It is worth to note that the training sessions were conducted by the permission of the school's authorities and after obtaining the informed consent of students' parents.

The essential principles of optimism used in the training sessions were derived from three Seligman's books, titled *The Optimistic Child*(30), *Learned Optimism*(44), and *Authentic Happiness*(45). It is worth mentioning that this method has been used by Torkaman et al.(46) for depression, anxiety, and stress in cancer patients, and also in the studies by Behrad et al.(47) Ganji and Amirian(48). During 10 sessions, optimism group training was administered to the experimental group. The general content of the 10 sessions were as follows: session 1 - Introduction of automatic thoughts and negative beliefs about oneself, others, life, and the future; session 2 –confrontation with negative thoughts through tracking the source of thoughts; session 3 - Inner speech of participants about their disabilities; session 4 - presenting the ABC model; session 5 - attribution modification and altering pessimistic explanatory styles; session 6 - introduction of different kinds of thinking errors and dysfunctional beliefs; session 7 – training on the techniques to confront with errors in thinking and beliefs; session 8 – training on distraction techniques, gaining evidence for self-interpretation, and finding alternative interpretations; session 9 – training on self-acceptance, self-belief, and focus on personal abilities or considering the limitations in personal abilities; session 10 – summary and conclusion.

48 hours after the end of the training sessions, the study questionnaires were again administered to both groups. Finally, after examining the necessary assumptions, the data from pretest, posttest, and follow-up were analyzed using the Repeated Measures ANOVA. Among the important assumptions of this method are the homogeneity of variances and normality of the data; these assumptions were examined and confirmed using the Levene's test and the Kolmogorov–Smirnov test, respectively. All analyses were conducted using the SPSS software v. 21.

Results

According to the demographic data, the mean ages of participants in the experimental and control groups were 16.77 and 16.33, respectively. In addition, 33.3, 44.4, and 2.22 of the participants in the experimental group were studying in the second year of middle school, third year of middle school, and third year of high school, respectively; and 33.3, 22.2, 33.3, and 11.1 of the participants in the control group were studying the third year of middle school, first year of high school, second year of high school, and third year of high school. It is worth to note that, before applying the intervention, using the Mann–Whitney U test and t-test, participants were statistically compared based on demographic data, social anxiety, and depression; no significant difference was found.

Table1. The mean and standard deviation of pretest, posttest, and follow-up social anxiety scores of both groups.

group		N	Mean	standard deviation
Experimental	Pre test	9	38%	5.00
	Post test	9	21.66	3.64
	Follow up	9	24%	4.76
control	Pre test	9	37%	4.83
	Post test	9	31.77	3.23
	Follow up	9	30.55	3.24

As the table above shows, there was a reduction in the posttest and follow-up social anxiety scores of the experimental group. In other words, comparison between the two groups indicates that the mean of posttest and follow-up social anxiety scores is lower for the experimental group compared to the control group.

Table 2. The mean and standard deviation of pretest, posttest, and follow-up scores of both groups on the social anxiety subscales.

group	Sub-scales		N	Mean	standard deviation
Experimental	Fear	Pre test	9	% 13	3.77
		Post test	9	7.88	2.08
		Follow up	9	8.31	2.73
	Avoidance	Pre test	9	16.1	2.61
		Post test	9	8.54	1.58
		Follow up	9	10.22	2.22
	Physiologic	Pre test	9	8.88	1.26
		Post test	9	5.22	1.30
		Follow up	9	5.42	1.42
control	Fear	Pre test	9	12.35	3.58
		Post test	9	10.51	2.69
		Follow up	9	10.11	1.83
	Avoidance	Pre test	9	15.71	2.27
		Post test	9	13.58	1.58
		Follow up	9	12.13	1.61
	Physiologic	Pre test	9	8.56	1.05
		Post test	9	7.67	1.41
		Follow up	9	8.35	1.36

The mean and standard deviation of pretest, posttest, and follow-up scores of both groups on the three social anxiety subscales (fear, avoidance, and physiology) are presented in Table 2. The results indicate a reduction in the posttest and follow-up scores of the experimental group on the fear, avoidance, and physiology subscales.

Table 3. The mean and standard deviation of pretest, posttest and follow-up depression scores of both groups.

Group		N	Mean	standard deviation
Experimental	Pre test	9	27.88	4.78
	Post test	9	15.22	2.94
	Follow up	9	13.66	2.91
control	Pre test	9	31.77	3.73
	Post test	9	27.77	3.99
	Follow up	9	26.66	3.67

Table 3 shows the mean and standard deviation of pretest, posttest and follow-up depression scores of the students with mobility/physical disabilities. The results indicate a decrease in the posttest and follow-up depression scores of the experimental group, compared to the control group.

In this section, we first examine the assumptions of repeated measures ANOVA. The Levene's test and the Kolmogorov-Smirnov test (K-S test) are respectively used to test the homogeneity of variances and the normality of the data.

Table 4. The results of Levene's test for homogeneity of variances for the social anxiety variable across three measurements.

	F	Df ¹	Df ²	significance level
Pre test	0.30	1	16	%86
Post test	1.36	1	16	%71
Follow up	1.59	1	16	%22

The table above shows the results of Levene's test for homogeneity of variances for the social anxiety variable across three measurements; the variances of the two groups are homogeneous.

Table 5. The results of Levene's test for homogeneity of variances for the depression variable across three measurements.

	F	Df ¹	Df ²	Sig
Pre test	2.58	1	16	%11
Post test	%27	1	16	%60
Follow up	1.79	1	16	%19

The results of Levene's test for homogeneity of variances for the depression variable across three measurements indicates that the variances of the two groups are homogeneous.

Table 6. Repeated measures ANOVA to compare the two groups in the level of depression across three measurements.

Source variance	DF	MM	F	Effect size	p-value	Sig
group	1	1300.463	39.530	0/712	39.530	0/000
error	16	32.898				

Given that the F value is not significant at the 0.1 level, we can conclude that there is a significant difference between the two groups in the mean score of depression. Because the experimental group had significantly lower posttest and follow-up depression scores, and the F value is significant, we can conclude that the intervention had a significant effect in the experimental group. In addition, the effect size is high (0.71), therefore it can be argued that the intervention had a large effect on depression.

Table 7. The results of repeated measures ANOVA to compare social anxiety between the two groups across three measurements.

Source variance	DF	MM	F	Effect size	p-value	Sig
group	1	368/167	12/51	0/43	0/91	0/003
error	16	29/41				

Table 8. The results of repeated measures ANOVA to compare the posttest scores of the experimental and control groups on the fear subscale.

Source variance	DF	MM	F	Effect size	p-value	Sig
group	1	21/40	1/09	0/64	0/16	0/31
error	16	19/57				

As the table above shows, the result of repeated measures ANOVA is not statistically significant, therefore, there is no significant difference between the two groups.

Table 9. The results of repeated measures ANOVA to compare the posttest scores of the experimental and control groups on the avoidance subscale.

Source variance	DF	MM	F	Effect size	p-value	Sig
group	1	64/43	12/52	0/43	0/91	0/03
error	16	5/14				

As you can see in the table above, the result of repeated measures ANOVA is statistically significant ($p < 0.05$), therefore, there is a significant difference between the two groups. It can be argued that participation in group training sessions with an optimism approach has significantly reduced avoidance symptoms in students with mobility/physical disabilities.

Table 10. The results of repeated measures ANOVA to compare the posttest scores of the experimental and control groups on the physiology subscale.

Source variance	DF	MM	F	Effect size	p-value	Sig
group	1	42/66	13/03	0/44	0/92	0/02
error	16	3/27				

As you can see in the table above, the result of repeated measures ANOVA is statistically significant ($p < 0.05$), therefore, there is a significant difference between the two groups, and we can argue that participation in group training sessions with an optimism approach has significantly reduced physiologic symptoms in students with mobility/physical disabilities.

Discussion and conclusion

The aim of the present study was to explore the effectiveness of optimism group training on the reduction of social anxiety and depression in students with mobility/physical disabilities. The study results showed the positive effect of optimism group training in the reduction of social anxiety and depression in students with mobility/physical disabilities. In other words, according to the findings, the optimism group training significantly reduced the posttest and follow-up scores of the experimental group compared to controls. Although few studies have examined the effect of optimism training on the reduction of social anxiety and depression in students with mobility/physical disabilities, the majority of previous findings are in line with the results of the present study. For example, the study results are consistent with the findings of Frothingham(49) who showed that optimism training led to an increase in optimism, a reduction in depression, improvement of social contacts, a better general health, enhancement of the immune system, and better prognosis of serious medical disorders. Consistent with the study results, previous findings have shown the role of optimism in self-report self-integration and distress reduction(50), improvement of the immune system(51), reduction in depression, anxiety, and stress and quality of life improvement(52, 53) and reduction in anxiety and depression(54).

The study results are consistent with the findings of Littman-Ovadia et al. (55) who showed that optimism group training led to a reduction in pessimism, negative affect, and emotional fatigue. In line with the results of the present study, Seligman(30) also showed that, as a protective shield, optimism protected children and adults against depression and anxiety. Kronström et al. (56) also found Optimism is a strong predictor for the prevention of occupational disability associated with depression.

The positive effect of optimism on depression can be explained by the notion that optimism affects thoughts, feelings, and behaviors(57) , the three variables that constitute the cognitive triangle of depression(38). According to the cognitive techniques used in the optimism training, it can be argued that optimism reduces depression as a condition which results from feelings and thoughts. Optimism and positive expectations influence a person’s cognitive abilities, including perceptions, evaluations, and beliefs(35) . Therefore, optimism training can be used as an effective method to resolve conditions related to cognition such as depression. In addition, when people try to cope with depression, having positive expectations about the future despite an uncontrollable external environment (optimism), helps them to successfully overcome depression, and these positive expectations may lead to an increase in the positive affect, and empower the person in the face of situational and stressful problems; therefore, optimism has a structure that could be enhanced by increasing positive thoughts(57).

Regarding the social anxiety subscales, optimism training had a significant effect on avoidance and physiology, but no significant effect was found on fear. According to the findings of He et al.(58) indicating lower perceived social support in those with lower levels of optimism, it can be argued that optimistic individuals have more social contacts and a stronger presence in the society. In social situations, individuals usually make some presumptions about themselves and the surrounding environment, but those with social anxiety usually form pessimistic presumptions resulting in avoidance from new situations and events. Therefore, anxiety is a mental mechanism related to the way individuals think(30), which can be altered by increasing the level of optimism and a change in the explanatory style. From a cognitive perspective, people with social anxiety tend to avoid social events, interpersonal relationships, and social behaviors(59). It can be argued that, by facilitating the use of cognitive techniques to change the thinking patterns a person have about events and relationships, optimism can help those with social anxiety to revise their thoughts and explanations about events and behaviors, therefore, reduce their social anxiety.

The study results indicated the positive effect of optimism training on the physical symptoms of the experimental group. Therefore, we can argue that optimism training leads to an improvement in physiological and physical symptoms. An explanation for this finding is that optimism or expecting positive outcomes is related to better physical health and successful coping with health challenges. Many studies have shown optimism to be a correlate of physical health(60). One of the ways optimism affects physical health is through influencing the immune system. Optimistic individuals deal with pressure and stress more efficiently, experience significantly lower levels of negative mood, and may have more organized behaviors, all of which may

lead to a better immune system(51, 61) . Given that optimism is a mental attitude related to physical and mental health, influencing the way people adjust to the social life or cope with life challenges(62), it can be used as a method to reduce avoidance and anxiety in social situations. In addition, consistent with the finding of the present study regarding the effect of optimism on avoidance, research has shown that optimism leads to lower levels of avoidance(63), and affects the social integration which has a protective role in physical and mental health(31).

No significant effect of optimism training was found on fear; this finding can be explained by the fact that fear may be accompanied by frightening memories from previous experiences causing negative beliefs and stereotypes in the person, and this effect from the past can influence fear symptoms in the present(64). In addition, fear can be considered as an unconscious mechanism affecting the person's behavior and performance(65). It can be argued that it is a difficult task requiring numerous training sessions to change unconscious fears related to the past events and experiences using an optimism training approach based on altering the dysfunctional thoughts and pessimistic explanatory style in the person; this could be a reason why the effect of optimism training on fear was not significant in the present study. Moreover, fear could be regarded as an obstacle to physiological and mental performance, therefore, leading to social fears that result from deep psychological problems(65), but, it seems long-term psychotherapy, such as psychoanalysis is the better way to reduce this kind of fear.

Another explanation for the positive effect of optimism on the reduction of social anxiety and depression is that optimism training is a cognitive method with a positive approach that affects thinking patterns and explanatory styles that influence a person's reaction toward themselves, others, and the future, and that internalizing or externalizing the events or considering them as permanent or transitory can result in depression and psychological problems; during optimism training, these dysfunctional thinking patterns and explanatory styles are modified, and the person is helped to reduce their pessimism, something which leads to reduced depression(44) and also reduced social anxiety which is, in part, similar to depression in cognitive content(14).

According to Seligman, emphasizing on the strengths is a better way for prevention; therefore, optimism can be used as a positive method and a health-oriented approach to prevent psychological problems. In addition, optimism and optimistic attributions have an obvious role in protecting mental health in the face of unpleasant events, therefore, providing a proper training method effective in the prevention of psychological problems such as depression and anxiety could be a large step toward protecting the mental health of the public and providing cost-benefit treatments for the patients.

Some of the most important limitations of the present study were as follows: a convenience and purposeful sampling method, a quasi-experimental design, self-report questionnaires, and a small number of participants. Future studies are suggested to examine the effects of optimism among girls and in different age groups, using more reliable experimental designs, including experimental methods.

Given to the positive effect of optimism on social anxiety and depression, we can conclude that optimism training has an important role in protecting and improving the mental health of students with mobility/physical disabilities. It is suggested that optimism together with other psychological variables such as psychological wellbeing, happiness, and self-esteem be examined in longitudinal studies among students with mobility/physical disabilities. Considering the possible gender differences in optimism, future studies are suggested to focus on this difference, and try to develop optimism training methods suitable for different genders. The findings of the present study may be used in psychology and counseling clinics for prevention purposes or providing interventions aimed at reducing mental health problems, such as depression, anxiety, loneliness, etc.

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