



Anxiety and general health of spinal-cord-injury (Sci) patients

Anxiety

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Abstract

Aim: The aim of this study was to compare the effectiveness of group physiotherapy and individual physiotherapy in reducing anxiety and increasing general health in patients with Spinal-Cord-Injury (SCI). **Material and Method:** This study is an experimental study conducted on 40 SCI patients. We assigned patients randomly to two groups: group physiotherapy (n=20) and individual physiotherapy (n=20), then conducted group physiotherapy for one group and individual physiotherapy for the other. Pre- and post-physiotherapy tests were conducted for both groups. We used Zung Self-Rating Anxiety Scale (SAS) and General Health Questionnaire as a measurement tool, and to extract the results, we used multivariate analysis of variance. **Results:** Comparison of the means of the two groups at the end of the study showed that group physiotherapy is significantly better in reducing anxiety in SCI patients ($P < 0.01$). However, individual physiotherapy has increased anxiety in these patients. In contrast, individual physiotherapy has been more effective than group physiotherapy in increasing general health of SCI patients. **Discussion:** Group physiotherapy, compared with individual physiotherapy, reduces the anxiety of patients but individual physiotherapy is more effective in increasing general health compared with group physiotherapy.

Keywords

Anxiety; General Health; Group Physiotherapy; Individual Physiotherapy; Spinal Cord Injury

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Introduction

According to the UN Assembly resolution in December 1993, SCI is a type of disability [1]. A disabled person with SCI refers to a person whose spinal cord is injured from the area below the medulla oblongata to the end of cauda equina, protected by the spine. Moreover, its injuries vary from incomplete damage to complete cessation or crash resulting in a motor, sensory, and/or autonomic effects in one or more limbs and/or the whole body [2].

If the damage happens in a thoracic vertebra and lower, the person suffers paralysis of the lower limbs (paraplegia). If it happens in the cervical spinal cord, it leads to paralysis in all four limbs (tetraplegia or quadriplegia). In fact, as the injury area is closer to the brain, the SCI severity increases [3].

Road accidents, occupational accidents, natural disasters, and social conflicts such as war are among the factors that can lead to transient or permanent disability [4]. The average global prevalence of SCI is 20-50 per one million people. However, in Iran, according to the report by Center for Research on SCI, the number of SCI patients is 1400-2800 cases in a year. As mentioned, SCI can occur for many different reasons. Whatever the reason is, it will leave deep and wide impacts on physical and mental health and lifestyle [6].

These patients have many physical, emotional, and self-esteem restrictions along with restrictions on the ability to perform daily activities. These restrictions greatly affect the quality of life of patients and their families [7]. Stresses created after SCI can make the person isolate and withdraw from the community and activities, and cause a lot of mental and mood disorders, including depression. Depression is a state associated with lower self-esteem, feelings of inadequacy, incompetence, poor perceptions of oneself, and anxiety. It is an agonizing feeling associated with a current situation or an expectation of risk with a unknown origin [8].

Among the main problems that patients with SCI suffer are anxiety and reduction of general health, which may be caused by social isolation. People with physical disabilities have less social contact and are more susceptible for social isolation than ordinary people [9]. This social isolation might be because compatibility with SCI, compared with physical condition, needs more effort in psychological terms. This is especially because disability in patients with SCI occurs suddenly, and these patients need more time for adaptation to the conditions created [10]. Special conditions in patients with SCI have a great impact on psychological state and familial and social relationships of these individuals, and this physical disability affects socio-psychological adjustment and mental health of the person [11]. However, individual features before the injuries are effective in psychological complications and different people react in different ways to these psychological pressures. Some people are better than others in dealing with these stimulants and stresses, whereas much more are quite prone to stresses and have no resistance because of personality aspects [12]. There is a significant relationship between socio-psychological adjustment and negative emotional responses, such as depression, anxiety and stress management techniques, and there is also a significant relationship between intensity of disability and lower levels of adjustment [13].

In comparison to non-disabled people, research suggests that people with disabilities are socially isolated, depressed, and have fewer intimate relationships [14]. In 30% of patients with SCI, the experience of depression and anxiety continues two years after the injury [15]. Psychological effects of SCI reach their maximum value in the first five years after the injury [16]. In connection with treatment, although patients with SCI cannot be completely cured, they should receive psychological support and rehabilitation services [1]. Rehabilitation services offered to people with SCI include different fields. Physiotherapy, speech therapy, occupational therapy, orthopedics, psychology, and nursing are some of these services. One of the most important services of rehabilitation is physiotherapy. Since physiotherapists perform physiotherapy mostly individually, the disabled individuals have no communications with other disabled people, so they are in an isolation state and lack social connection. This social isolation and withdrawal, in return, may increase anxiety and destroy general health [9].

Group physiotherapy may have some effects on social interactions of people with disabilities. Group physiotherapy provides a kind of social support. Social support is considered as a factor preventing stress against losses from internal and external pressure factors [17]. Studies show that people with more social protection have more resistance in the face of stressful events and show fewer signs of anxiety and confusion [18], so that the person gets away from social isolation and communicates with other people with SCI through group participation. One may reduce anxiety and promote general health by group physiotherapy. This partnership may affect the effectiveness of physiotherapy. This study specifically looks for an answer to the following question: What effects does group physiotherapy have on anxiety and general health of patients with SCI compared with individual physiotherapy?

Material and Method

This study was performed as an experimental therapeutic intervention study. The population of this study is patients with SCI covered by Kahrizak Charity Foundation (KCF) of Tehran. We selected 40 patients using random sampling and randomly assigned 20 patients to the experimental group and 20 patients to the control group. The experimental group was the one receiving group physiotherapy, and the control group received routine individual physiotherapy. Moreover, through the interviews, we ensured that the participants received no other training at the same time. According to research design (pretest and posttest with the control group), after random placement of samples in the experimental and control groups, both groups completed Zung SAS and general health questionnaire (GHQ). Zung SAS is a 20-question scale. Diagnostic criteria of the questionnaire are 15 physical signs for anxiety and five emotional signs. While scoring, considering the type of question, if it is positive, "never" receives 1 and "always" receives 4, but if the question is negative, "always" or "almost always" receives 1 and "never" receives 4. The validity of this scale was 0.71 using the correlation of Hamilton Anxiety Scale. The reliability of this scale showed a coefficient equal to 84% using consistency coefficient.

Goldberg and Hiller have presented GHQ with 28 questions. Scoring the questionnaire is as follows: "never" gets 0, "at usual level" receives 1, "more than usual" gets 2, and "much more than usual" gets 3. The validity of the questionnaire is 0.55 using concurrent validity. Reliability is 0.90 according to Cronbach's alpha. After the pre-test, the experimental group underwent ten sessions of group physiotherapy, and the control group underwent ten sessions of individual physiotherapy. After the intervention, both groups completed the questionnaire again.

Informed consent was obtained from patients while explaining how to complete the questionnaire, no personal data were collected to adhere to ethical considerations. We used multivariate analysis of variance (MANOVA) for data analysis.

Results

Contents in Table 1 show indices of dispersion among the variables studied.

Table 1. Descriptive statistics

Variable	n	Mean	Standard deviation	Variance
Pre-test of GHQ	40	72.07	14.6	2.3
Post-test of GHQ	40	78.2	14.4	2.2
Pre-test of anxiety	40	48.8	8	1.2
Post-test of anxiety	40	53.1	9.4	1.4

Table 2 (M Box test) is for homogeneity of covariance matrices. Contents of Table 2 show that the correlation of the variables in the studied groups is homogeneous because F calculated is not significant at $P < 0.05$.

Table 2. M Box test

F	Degrees of freedom 1	Degrees of freedom 2	Sig.
1/2	3	25	0.09

Bartlett Test is used to study the presumption of canonical correlation between variables. Contents of Table 3 show that the precondition of canonical correlation of variables is established because Chi-square value calculated is significant at $P < 0.01$.

Table 3. Bartlett Test

Sig.	Degrees of freedom	Chi-square
0.01	2	19.4

As the presumptions of MANOVA are realized, we use MANOVA to show the effects of different treatment methods. Contents of Table 4 show that all MANOVA tests are significant. In other words, therapeutic methods used (group and individual physiotherapy) have different effects on anxiety and general health in patients with SCI. In other words, there is a difference between treatment methods used in this research in reducing anxiety and increasing general health in patients with SCI. Thus, we compare the means of groups to determine this difference.

Contents of Table 5 show that group physiotherapy is more effective in reducing anxiety in patients compared to individual therapy. This is because the mean of pre-test of anxiety is 48.8 and this value has dropped after group physiotherapy, but individual physiotherapy increases the anxiety.

Table 4. MANOVA

	Value	F	Assumed degree of freedom	Error	Sig.	Test power
Pylayy effect	0.72	47.1	2	35	0.01	1
Wilks Lambda test	0.27	47.1	2	35	0.01	1
Hotelling's T	2.6	47.1	2	35	0.01	1
The highest root	2.6	47.1	2	35	0.01	1

Thus, group physiotherapy is recommended to reduce anxiety. Moreover, individual physiotherapy is more effective than group physiotherapy in improving the general health of SCI patient. This is because the mean of pre-test of general health has been 72.07 increasing to 84.8 after individual physiotherapy, which proves to be more effective than group physiotherapy.

Table 5. Table of means

Dependent variable	Intervention	Mean	Sig.
Anxiety	Group physiotherapy	46.8	0.05
	Individual Physiotherapy	59.4	0.01
General health	Group physiotherapy	71.7	0.05
	Individual Physiotherapy	84.8	0.01

Discussion

The results showed that group physiotherapy is more effective in reducing anxiety than individual physiotherapy. It seems that group physiotherapy has reduced feelings of loneliness and isolation. This feeling of loneliness is understood as real or mental. In mental loneliness, the person thinks that no one understands him and he does not receive enough emotions. This feeling of loneliness may even cause frustration and lead the person towards depression [19]. These findings are consistent with the results of Nosek MA et al. They have shown that SCI patients' lack of social capital and good social relations has led to an exacerbation of their mental problems [20]. Moreover, these patients try to create a sense of loss and then interpret it for themselves concerning how and why this incident occurred to me [21].

Furthermore, the results of this study are in line with the results of Frank. R. G et al. They concluded that social support has the role of neutralizing the stressors of SCI. Patients with SCI have a low quality of life compared with healthy individuals. However, it is not the case for those who have good and broad social relations [22]. As B.j Kemp et al. showed in their study, having social relations and family relations as well as membership in an association of SCI is a predictor of quality of life for these patients more than the other factors [23]. Another result of this study indicates that although group physiotherapy, compared with individual physiotherapy, has reduced the anxiety of these individuals, it is individual physiotherapy that improves general health. These findings according to the above results represents the fact that group physiotherapy reduces problems related to social relations, and it does not seem to be more effective in problems associated with physical health, compared with individual physiotherapy.

Conclusion

The findings suggest that group physiotherapy reduces anxiety more than individual physiotherapy. Thus, we recommend that efforts should be made to create opportunities to strengthen social relations (group physiotherapy) in these patients to reduce anxiety, enhance the quality of life, and reduce depression and negative emotions such as despair and loneliness. As these patients' distance from society, they will feel isolated, which in turn will exacerbate the problems of these people in the form of a vicious cycle. Thus, group situations such as group physiotherapy have a special status. However, to reduce problems related to physical health such as bedsores or general health, individual therapy is more effective.

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