Effect of Mobile Self-regulatory Concepts Training on the Mental Health of Red Crescent Society Relief Workers in Yazd

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Original Article

Abstract

INTRODUCTION: Mental health which is recognized as one of the leading health indicators and a key component of a healthy life can be influenced by multiple factors.

METHODS: The current study aimed to develop a mobile self-regulatory concepts training program and determine its effectiveness on the mental health of Red Crescent Society relief workers in Yazd. This quasi-experimental applied research was conducted based on a control group pretest-posttest design. The statistical population of the study included all 500 Red Crescent aid workers in Yazd in 2019, out of whom 30 cases were selected by convenience sampling method and were randomly assigned to two groups of experimental and control (n=15). The General Health Questionnaire developed by Goldberg (1972) was used for data collection. The experimental group received 11 60-minute sessions of mobile self-regulatory training.

FINDINGS: Based on the results, mobile self-regulatory concepts training was effective in the mental health of Red Crescent Society aid workers in Yazd.

CONCLUSION: As evidenced by the obtained results, mobile self-regulatory training improves physical symptoms, anxiety and insomnia, social dysfunction, and depression

Keywords: Mental Health; Mobile Learning; Red Crescent Society Relief Workers; Self-regulatory.

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Introduction

Mental health which is recognized as a leading health indicator has recently attracted the attention of psychiatrists, psychologists, and other experts in behavioral and social sciences (1). The changes experienced by individuals throughout life can lead to mental health problems and disorders (2). Today, mental disorders have caused many problems in cognitive, emotional, moral, and social development which have seriously affected society (3). The World Health Organization defines mental health as a state of well-being in which people realize their own abilities, can cope with everyday life stressors, can work productively, and are able to make a contribution to their community (4).

Mental health should be distinguished from lack of mental illness (5). Therefore, it signifies a state in which individuals manage to perform their daily activities well, and effectively communicate with family members and their environment without any culturally or socially inappropriate behavior (6). Self-regulatory is another important variable which has earned the attention of psychologists (7). Shonkoff and Phillips defined self-regulatory as an individual's ability to gain control of bodily functions, manage powerful emotions, and maintain focus and attention. They

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believe that the growth of self-regulatory is the basis of early childhood development and is evident in all aspects of behavior (8).

According to Bandura, self-regulatory is associated with health promotion and is of particular importance in health control (9). Self-regulated individuals establish clear goals for themselves and manage their facilities, resources, thoughts, and behaviors to attain those goals (10). In the model proposed by Pintrich and de Groot (11), self-regulatory is a constructive activity and process which enables learners to sets realistic learning goals. Thereafter, they strive to review and adjust their cognition in such a way that goals determine their motivation and behaviors (12). It is noteworthy that self-regulatory can be taught to people in various ways, such as holding workshops.

Workshops are special courses which are usually designed with specific and predetermined goals to develop skills in the trainees. These workshops promote commitment and expertise; moreover, they increase knowledge, scientific and social information, as well as the efficiency of individuals and institutions. Therefore, they are regarded as one of the major factors for the growth and updating of information. In the midst of these developments, mobile learning has expanded and improved learners' ability to communicate and access information via mobile and wireless devices (13).

In fact, mobile learning is defined as a form of e-learning that can be performed at any time and place utilizing a mobile communication device, such as a cell phone or any small mobile device (14). Based on another view, mobile education can be an approach to e-learning which uses mobile devices and wireless communication technologies; nonetheless, it can be regarded as a different and independent experience. However, the limitations and capabilities of wireless devices and mobile communication technologies should be taken into account in this learning. Therefore, it is not easy to directly transfer and apply the known educational requirements and experiences in e-learning to mobile learning (15).

Mobile learning characterized by learner mobility and portability of the related devices allows learners to better engage in learning activities without the imposition of a limited physical place. In addition, communication and cooperation in education are facilitated in this learning approach (16). Multiple studies have been conducted in the field of self-regulatory and physical health. In their study, Rasmussen et al. (2006) demonstrated how self-regulatory patterns can be used to understand people's response to health threats (17). Moreover, several studies have addressed self-regulatory, smoking (18), and chronic pain (19). Nonetheless, it has been evidenced that self-regulatory is associated with some aspects of mental health and mental disorders.

Some studies illustrated that self-regulatory is associated with delayed gratification, empathy, aggression, conscience, violence, and drunkenness. According to some researchers, understanding the mechanisms of self-regulatory in normal people leads to marked improvements in the diagnosis, prevention, and sometimes treatment of developmental problems, such as attention deficit disorder and learning disabilities (20). In the review of literature, Kazemi Majd et al. (2017) in their study entitled "Effect of self-care education based on short message service on self-efficacy and adherence to the medication regimen in adolescents with epilepsy" concluded that the use of mobile phones is a good option for health care provision (21).

Along the same lines, Mansouri and Shahdadi (2017) performed a study entitled "The effect of self-care education program based on "Oram Self-care Model" on self-efficacy of Women with gestational diabetes mellitus. They concluded that the use of self-care training increases the mean scores of all dimensions of self-efficacy among these people (22). In the same context, another study was performed entitled "Assessment of the effect of educational intervention via mobile on self-care behaviors of patients with thalassemia major". The results of the mentioned study indicated the positive effect of educational intervention via mobile on knowledge, attitude, and improvement of the majority of self-care behaviors of patients with thalassemia major.

Therefore, mobile phones are suggested to be used for the conveyance of self-care educational materials to thalassemia major patients, especially when there is limited access to these materials. Moghaddasi and Naderi Haji (2015) achieved similar findings (23). Moreover, in their study (24) entitled "The effect of mobile learning

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applications on students' academic achievement and attitudes toward mobile learning", Demir and Akpinar (2018) concluded that mobile learning promotes students' academic achievement (24). Kannisto, Koivunen, and Valimaki (2014) in a review study entitled "Use of mobile phone text message reminders in health care services" concluded that the use of educational text messages had a positive effect on adherence to medication regimen, disease self-management, and care process (25). Kenny et al. (2009) and Attewell (2005) obtained similar studies (26) (27

The Red Crescent Society of the Islamic Republic of Iran is a non-governmental humanitarian organization in Iran and one of the active members of the International Red Cross and Red Crescent Movement. It carries out humanitarian activities inside Iran and in some cases in other parts of the world. The Red Crescent, in accordance with its international responsibilities (the International Committee of the Red Cross), must assist in rescuing and evacuating the injured and victims of such crises as floods, earthquakes, and wars inside and outside the borders.

Red Crescent aid workers need to learn self-regulatory due to work-related stress at their job and missions. Moreover, they will be more relied on and entrusted with important projects if it is assured that they can control themselves in stressful situations and accept feedback without getting defensive. Self-regulatory also empowers aid workers and is a step toward earning a better reputation in the workplace. The majority of studies on self-regulatory have focused on the relationship between this construct and academic concepts, while less attention has been devoted to mental health as a key element associated with self-regulatory. In addition, researchers have indirectly pointed to the relationship between self-regulatory and mental health. Furthermore, the same few studies have focused on physical indicators for the assessment of mental health.

A more important issue that has been neglected is the comparison between the role of self-regulatory as individual skill and a construct that is of particular importance in collectivist cultures. Therefore, since self-regulatory as one of the major constructs of human personality plays a crucial role in overcoming desires and emotions and performing social and adaptive behaviors, it is recognized as a great ability that directs individuals to behave in accordance with accepted rules and standards. Therefore, due to the dearth of national research on this issue and the key role of Red Crescent aid workers in saving human lives, the current study aimed to assess this hypothesis: Teaching self-regulatory skills through mobile learning method is effective on the mental health of Red Crescent aid workers in Yazd.

Methods

This quasi-experimental applied research was conducted based on a control group pretest-posttest design. The statistical population of the study included all 500 Red Crescent aid workers in Yazd in 2019, out of whom 30 people were selected by convenience sampling method and were randomly assigned to two groups of experimental and control (n=15).

Research tools

General Health Questionnaire-28 (GHQ-28)

The General Health Questionnaire developed by Goldberg in 1972 is one of the most well-known screening tools in mental health research and encompasses the following subscales: physical symptoms, anxiety and insomnia, social dysfunction, and severe depression. The validity and reliability of this questionnaire were evaluated by Gibbons et al. (2004) (28). Taghavi (2001) validated this questionnaire on a sample of 92 students of Shiraz University. The test-retest reliability, composite reliability, and Cronbach's alpha coefficients were obtained at 0.85, 0.75, and 0.93, respectively (13). The workshop was hold using mobile learning, and the participants received training materials via telegram channel and the educational tips were sent in text messages (Table 1).

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Table 1. Contents of training sessions

	Titles	Goals
1st session	Introduction	Introducing the plan and its importance, conducting a pre-test
2nd session	Expressing the importance of participating in self-regulatory training sessions through mobile learning	People' awareness of their strengths and weaknesses, familiarity with the importance of self-regulatory in dealing with disease complications
3rd session	Definitions and theoretical context of self-regulatory	Familiarity with the concept of self-regulatory
4th session	Motivation and ways to create self-regulatory	Ways to motivate
5th session	Setting goals	Familiarity with the methods of goal setting and types of goals
6th session	Continuation of goal setting discussion	Familiarity with the benefits and types of goals in life
7th session	Self-monitoring	Self-monitoring practice
8th session	Self-assessment	Self-assessment practice
9th session	Self-reinforcement	Practicing threat perception, threat coping, and evaluation
1oth session	Self-regulatory processes	Consider your performance, judge yourself
11th session	Characteristics of self-regulated individuals	Meeting self-regulated people and providing post-test

Findings

Descriptive findings of the present study included mean and standard deviation of mental health scores (Table2).

As illustrated in Table 2, in all dimensions of mental health, the mean post-test scores of the experimental group are lower, compared to those obtained in the control group, signifying that the mean score has reduced. The multivariate analysis of covariance (MANCOVA) test was used to assess the hypothesis. Before performing the MANCOVA test, the relevant presuppositions (Box test, Levene's test to check the equality of variances, and Pillai's Trace test) must be observed. In the following, the assumptions of this test will be examined:

Before the analysis of MANCOVA results, the box test was performed to determine whether covariance matrices for the dependent variables are equal or not. The level of significance of the test ($P>0.05$) rejected the violations of homogeneity of variance-covariance matrices assumption. As displayed in Table 4, all variables have equal variance in the control and experimental groups.

Table 5 presents the F-statistic, the degree of freedom of the hypothesis, and error distribution. The significance level value (Sig) is used to interpret the significance of Pillai's Trace test, Wilks Lambda, Hotelling's Trace, and Roy's Largest Root. If the significance level of the test effect is less than a 5% error level, it can be concluded that the effect is significant and exerts an impact on the model. According to the results displayed in the table, the significant value for all

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Table 2. Pre-test and post-test statistics of mental health in experimental and control groups

		Group	Stage	Mean	Standard deviation	Group	Stage	Mean	Standard deviation
Mental health		Control	Pre-test Post-test	24.73 23.73	16.74 21.44	Experimental	Pre-test Post-test	18.73 17.10	13.67 14.18
Dimension	Physical symptoms	Control	Pre-test Post-test	5.800 5.67	4.19 5.70	Experimental	Pre-test Post-test	4.73 5.33	4.33 3.99
	anxiety and insomnia	Control	Pre-test Post-test	6.13 6.07	4.88 5.66	Experimental	Pre-test Post-test	5.43 5	4.33 4.27
	social dysfunction	Control	Pre-test Post-test	8.33 7.53	4.01 5.66	Experimental	Pre-test Post-test	6.27 4.53	4.23 4.15
	severe depression	Control	Pre-test Post-test	4.47 4.37	5.69 6.77	Experimental	Pre-test Post-test	2.33 2.33	3.55 3.33

Table 3. Box test results for equality of covariance matrices

Statistic	F	Df1	Df2	Significance level
14.938	0.801	15	3156.632	0.68

Table 4. Levene's test to check the equality of variances

Variable	Levene's statistic	Df1	Df2	Significance level
Mental health	1.575	1	28	0.220

tests was less than the error level; therefore, they are all effective in the model. As a result, there is a significant difference between the control and experimental groups in terms of at least one of the dependent variables. The MANCOVA test was performed to find the different variables between the two groups, the results of this test are presented in Table 6.

As depicted in Table 5, there is a significant difference between the two groups in terms of mental health dimensions by controlling the effect of the auxiliary variable (pre-test) on the dependent variable. This denotes that the components of mental health are significantly different in the control and experimental groups (alpha level<5%). Based on the results, the post-test scores of physical symptoms, anxiety and insomnia, depression, and social dysfunction significantly decreased in the experimental group, compared to those obtained in the control group. This signifies that mobile self-regulatory training improves the mental health of the Red Crescent aid workers, and the hypothesis is confirmed.

Table 5. Multivariate analysis of covariance for components

Test	Value	F	df for hypotheses	df for error	Significance level	Eta ^{2}
Pillai's Trace test	0.145	65.911	5	19	0.0001	0.945
Wilks Lambda	0.055	65.911	5	19	0.0001	0.945
Hotelling's Trace	17.345	65.911	5	19	0.0001	0.945
Roy's Largest Root	17.345	65.911	5	19	0.0001	0.945

Table 6. Results of one-way multivariate analysis of covariance for mental health components

Components	Source of changes	Total squares	Significance level	Mean squares	F	Sig.	Eta^2
Physical symptoms	Pre-test	246.13	1	246.13	44.6	0.001	0.6
	Group	29.41	1	29.41	5.33	0.03	0.21
	Error	110.38	20	5.6			
Anxiety and insomnia	Pre-test	5.78	1	5.78	1.05	0.32	0.05
	Group	93.69	1	93.69	37.32	0.001	0.65
	Error	50.2	20	2.51			
Depression	Pre-test	4.44	1	4.44	0.8	0.38	0.04
	Group	105.5	1	105.5	48.69	0.001	0.70
	Error	43.33	20	2.17			
Social dysfunction	Pre-test	21.01	1	21.01	3.8	0.06	0.16
	Group	49.92	1	49.92	11.13	0.003	0.36
	Error	89.7	20	4.48			

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Discussion and Conclusion

The present study aimed to design a mobile self-regulatory training program and determine its effectiveness in the mental health of Red Crescent relief workers in Yazd. Based on the results, the post-test scores of physical symptoms, anxiety and insomnia, depression, and social dysfunction significantly decreased in the experimental group, compared to those obtained in the control group. This signifies that teaching self-regulatory through mobile learning improves the mental health of the Red Crescent aid workers, and the hypothesis was confirmed. This finding is in line with the results of the studies conducted by Moqaddasi and Naderi Haji (21) Shirmohammadi and Amini Nasr (30), and Tavakolizadeh et al. (3).

Zimmerman defined self-regulatory as a constant effort to direct thoughts, feelings, and actions toward the attainment of one's goals. Pentrich (32) has provided a comprehensive definition of self-regulated learning as an active, constructive process in which learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behavior. As mentioned earlier, self-regulatory takes place in three stages: before, during, and after the activity. Before the activity, self-regulatory is a state of thinking and planning to perform actions. During the activity, the learners use self-regulatory and self-monitoring, and in the next stage (after the activity), they evaluate and react to the performed activities. In this stage, the learners feel satisfied with their efforts and endeavors.

It is evident that determined self-regulated learners who are highly motivated to perform activities enjoy well-being and happiness, and this sense of happiness and satisfaction gives them impetus to initiate the next activity. In other words, self-regulatory can be involved in all stages of activities, whether the process of performing actions or the product and the result of activities. Mental health as a dynamic state of health symptoms encompasses mental, psychological, and social dimensions. It is of vital importance for improved quality of life since people with mental health problems fall short of fulfilling their duties (33).

Mental health is the knowledge people acquire to live better; moreover, it is a technique enabling people to adapt to their surrounding environment by employing correct psychological and emotional methods and find effective solutions for dealing with their problems (34). Self-regulatory as a complicated set of skills is necessary for adaptation to different situations, foster healthy relationships, and affect overall performance. Therefore, it reduces behavioral disorders, such as antisocial behaviors, isolation, and violent behaviors; moreover, it promotes social competence, peer acceptance, social interaction, emotional skills, and overall mental health of individuals. Consequently, Red Crescent aid workers feel more healthy and less lethargic. Therefore, it can be argued that mobile self-regulatory training is effective in reducing the physical symptoms among Red Crescent relief workers in Yazd.

According to Pintrich and de Groot (35), self-regulatory is a constructive activity and process in which the learners sets learning goals and then try to review and adjust their cognition in such a way that their goals determine motivation and behavior. Although the relationship between self-regulatory and mental health does not seem logical at first glance (36), self-regulatory can be directly and indirectly related to psychological health and well-being. In other words, a range of potential well-being indicators occurs in the self-regulated learning cycle (37).

When aid workers plan to tackle their problems, this training assures them of their success in solving the problems if they try hard enough. Moreover, when faced with a new situation, they are confident that they can meet the potential challenges. Therefore, teaching self-regulatory skills can improve mental health and reduce mental disorders. Consequently, it can be argued that mobile self-regulatory training is effective on anxiety and insomnia among Red Crescent relief workers in Yazd. Furthermore, teaching self-regulatory skills enables aid workers to make the best decision in different situations by setting clear goals for themselves and proper management to attain them. Moreover, they can adopt the most appropriate behavior in dealing with people or conflict-provoking situations. For instance, they recall their positive experiences in dealing with adverse situations and plan to reduce the negative side effects.

Self-regulatory skills enable them to overcome their weaknesses by relying on their strengths. Being mindful of their weaknesses allows them to exert more control over themselves and better understand their emotions. This skill helps aid workers become aware of their needs and meet

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them in appropriate ways. Consequently, they feel less worthless, depressed, and hopeless since they are instilled with a sense of hope and worth. Therefore, it can be stated that mobile self-regulatory training exerts an effect on depression among Red Crescent relief workers in Yazd. Finally, self-regulatory skills help people to know more about themselves, their characteristics, needs, goals, strengths, weaknesses, feelings, values, and identity.

It seems that a higher self-understanding increases the development of independence and paves the ground for better acceptance and effective communication with others. Therefore, these people have great capability to control their negative emotions and behaviors and are less affected by stress, anxiety, and conflicts. In the management of life problems and social responsibilities, self-regulatory training also enables aid workers to effectively deal with their weaknesses and strengths, thereby improving their social functioning.

The present study was conducted on the relief workers of Yazd Red Crescent Society; therefore, generalization must be made very cautiously. It is suggested that the effect of mobile self-regulatory training be assessed on other psychological variables. Moreover, free self-regulatory training classes should be held for the employees of other organizations, especially education.

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Conflict of Interests

The authors have no conflict of interest regarding the publication of the present article

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