ORIGINAL ARTICLE

The Effect of Online Training Courses of Life Skills on Resilience, Locus of Control, General Health, and Academic Performance of Medical Sciences Students

Background: Learning life skills can improve students' performance. This study aimed to investigate the effect of online life skills training courses on resilience, locus of control, general health, and academic performance at Yazd University of Medical Sciences.

Method: This intervention study was performed on 70 third and higher-semester students. For the experimental group, a life-skill training program was performed in five sessions during five weeks. Data collection tools included Connor and Davidson resilience questionnaires, Rutter locus of control, and Goldberg general health and average grade points of the student in the previous and new semester, completed before and one month after the training program. The data were analyzed using SPSS.v22 descriptive statistics and independent and paired t-tests.

Results: Before the study, the mean resilience scores of the intervention and control groups were 57.17±2.40 and 58.70±3.58, respectively. After the study, the mean resilience scores of the intervention and control groups were 73.13±2.27 and 59.50±3.50, respectively. Also, the mean scores of the locus of control before and after the study in the intervention and control groups were 10.22 ± 2.04, 11.59 ± 1.32, and 9.02 ± 3.50, 8.95 ± 2.32, respectively. Statistical analysis showed that there was a significant difference between the two groups in terms of all mentioned variables (P<0.0001) after the study.

Conclusion: Resilience, locus of control, general health, and student academic performance improved after participating in online training courses on life skills.

Keywords: Training; Resilience; Locus of control; General health; Academic performance

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تأثير الدورات التدريبية عبر الإنترنت للمهارات الحياتية على المرونة ومركز التحكم والصحة العامة والأداء الأكاديمي لطلبة العلوم الطبية

الخلفية: تعلم المهارات الحياتية يمكن أن يحسن أداء الطلاب. هدفت هذه الدراسة إلى معرفة تأثير الدورات التدريبية على المهارات الحياتية عبر الإنترنت على المرونة ومركز التحكم والصحة العامة والأداء الأكاديمي في جامعة يزد للعلوم الطبية.

الطريقة: تم إجراء هذه الدراسة التدخلية على ٧٠ طالبًا في الفصل الدراسي الثالث والأعلى. بالنسبة للمجموعة التجريبية، تم تنفيذ برنامج تدريبي على المهارات الحياتية في خمس جلسات خلال خمسة أسابيع. تضمنت أدوات جمع البيانات استبيانات كونور وديفيدسون للمرونة، ومركز التحكم روتر، والصحة العامة لغولدبرغ ومتوسط درجات الطالب في الفصل الدراسي السابق والجديد، المكتملة قبل البرنامج التدريبي وبعده بشهر واحد. تم تحليل البيانات باستخدام الإحصائيات الوصفية SPSS.v22 واختبارات t المستقلة والمقترنة.

النتائج: قبل الدراسة، كان متوسط درجات المرونة لمجموعات التدخل والسيطرة ٥٧,١٧ ± ٢,٤٠ و ٥٨,٧٠ ± ٣,٥٨ على التوالي. بعد الدراسة، كان متوسط درجات المرونة لمجموعتي التدخل والسيطرة ٧٣,١٣ ± ٢,٢٧ و٥٩,٥٠ ± ٣,٥٠ على التوالي. أيضًا، كان متوسط درجات موضع التحكم قبل وبعد الدراسة في مجموعات التدخل والسيطرة ١٠,٢٢ ± ٢,٠٤، ١١,٥٩ ± ١,٣٢، و٩,٠٢ ± ٣,٥٠، ٨,٩٥ ± ٢,٣٢، على التوالي. وأظهر التحليل الإحصائي وجود فرق كبير بين المجموعتين من حيث جميع المتغيرات المذكورة (P<0.0001) بعد الدراسة.

الاستنتاج: تحسنت المرونة ومركز السيطرة والصحة العامة والأداء الأكاديمي للطلاب بعد المشاركة في الدورات التدريبية عبر الإنترنت حول المهارات الحياتية.

الكلمات المفتاحية: التدريب؛ صمود؛ وحده التحكم؛ الصحة العامة؛ أداء أكاديمي

تأثیر دوره‌های آموزشی آنلاین مهارت‌های زندگی بر تاب‌آوری، منبع کنترل، سلامت عمومی و عملکرد تحصیلی دانشجویان علوم پزشکی

زمینه و هدف: یادگیری مهارت های زندگی می تواند منجر به بهبود عملکرد دانشجویان شود. این مطالعه با هدف بررسی تأثیر دوره‌های آموزشی آنلاین در مهارت‌های زندگی بر تاب‌آوری، منبع کنترل، سلامت عمومی و عملکرد تحصیلی دانشجویان دانشگاه علوم پزشکی یزد انجام شد.

روش: این مطالعه مداخله ای بر روی ۷۰ دانشجوی ترم سوم و بالاتر انجام شد. برای گروه مداخله، برنامه آموزش مهارت های زندگی در پنج جلسه طی پنج هفته اجرا شد. ابزار گردآوری داده‌ها شامل پرسشنامه‌های تاب‌آوری کانر و دیویدسون، منبع کنترل راتر و سلامت عمومی گلدبرگ و میانگین نمرات دانشجو در ترم قبل و جدید بود که قبل و یک ماه بعد از برنامه آموزشی تکمیل شد. داده ها با استفاده از نرم افزار SPSS.v22 و آمار توصیفی و آزمون تی مستقل و زوجی مورد تجزیه و تحلیل قرار گرفت.

یافته ها: قبل از مطالعه، میانگین نمرات تاب آوری گروه مداخله و کنترل به ترتیب ۵۷/۲±۱۷/۴۰ و ۵۸/۷۰±۳/۵۸ بود. پس از مطالعه، میانگین نمرات تاب آوری گروه مداخله و کنترل به ترتیب ۷۳/۱۳±۲/۲۷ و ۵۹/۵۰±۳/۵۰ بود. همچنین میانگین نمرات منبع کنترل قبل و بعد از مطالعه در گروه مداخله و کنترل به ترتیب ۲/۰۴ ± ۱۰/۲۲، ۱/۳۲ ± ۱۱/۵۹ و ۳/۵۰ ± ۹/۰۲، ۲/۳۲ ± ۸/۹۵ بود. تجزیه و تحلیل آماری نشان داد که پس از مطالعه بین دو گروه از نظر تمامی متغیرهای ذکر شده تفاوت معناداری وجود دارد (P<۰/۰۰۰۱).

نتیجه گیری : تاب‌آوری، منبع کنترل، سلامت عمومی و عملکرد تحصیلی دانشجویان پس از شرکت در دوره‌های آموزشی آنلاین مهارت‌های زندگی بهبود یافت.

واژه های کلیدی: آموزش، تاب آوری، منبع کنترل، سلامت عمومی، عملکرد تحصیلی

لائف سکلز کے آن لائن ٹریننگ کورسز کا اثر لچک، کنٹرول کے مقام، جنرل ہیلتھ، اور میڈیکل سائنسز کے طلباء کی تعلیمی کارکردگی پر

پس منظر: زندگی کی مہارتیں سیکھنا طلباء کی کارکردگی کو بہتر بنا سکتا ہے۔ اس مطالعے کا مقصد یزد یونیورسٹی آف میڈیکل سائنسز میں لچک، کنٹرول کے مقام، عام صحت، اور تعلیمی کارکردگی پر آن لائن لائف سکلز ٹریننگ کورسز کے اثرات کی چھان بین کرنا ہے۔

طریقہ: مداخلت کا یہ مطالعہ تیسرے اور اعلیٰ سمسٹر کے ۷۰ طلباء پر کیا گیا۔ تجرباتی گروپ کے لیے، ایک لائف اسکل ٹریننگ پروگرام پانچ ہفتوں کے دوران پانچ سیشنوں میں انجام دیا گیا۔ ڈیٹا اکٹھا کرنے کے ٹولز میں کونر اور ڈیوڈسن لچکدار سوالنامے، کنٹرول کے روٹر لوکس، اور گولڈ برگ کی عمومی صحت اور پچھلے اور نئے سمسٹر میں طالب علم کے اوسط گریڈ پوائنٹس شامل تھے، جو تربیتی پروگرام سے پہلے اور ایک ماہ بعد مکمل کیے گئے تھے۔ اعداد و شمار کا تجزیہ SPSS.v22 وضاحتی اعدادوشمار اور آزاد اور جوڑا بنائے گئے ٹی ٹیسٹ کا استعمال کرتے ہوئے کیا گیا۔

نتائج: مطالعہ سے پہلے، مداخلت کے درمیانی لچک کے اسکور اور کنٹرول گروپس بالترتیب ۵۷٫۱۷ ± ۲٫۴۰ اور ۵۸٫۷۰ ± ۳٫۵۸ تھے۔ مطالعہ کے بعد، مداخلت اور کنٹرول گروپس کے اوسط لچک کے اسکور بالترتیب ۷۳٫۱۳ ± ۲٫۲۷ اور ۵۹٫۵۰ ± ۳٫۵۰ تھے۔ اس کے علاوہ، کنٹرول کے لوکس اور اس کے بعد کے اوسط سکور۔ مداخلت اور کنٹرول گروپس میں مطالعہ بالترتیب ۱۰٫۲۲ ± ۲٫۰۴، ۱۱٫۵۹ ± ۱٫۳۲، اور ۹٫۰۲ ± ۳٫۵۰، ۸٫۹۵ ± ۲٫۳۲ تھے، شماریاتی تجزیے سے معلوم ہوا کہ دونوں گروہوں کے درمیان ایک اہم فرق تھا (تمام مذکور (00000>مطالعہ کے بعد۔

نتیجہ: زندگی کی مہارتوں پر آن لائن تربیتی کورسز میں حصہ لینے کے بعد لچک، کنٹرول کا مقام، عمومی صحت، اور طالب علم کی تعلیمی کارکردگی میں بہتری۔

کلیدی الفاظ: تربیت؛ لچک؛ کنٹرول کا مقام؛ عمومی صحت؛ تعلیمی کارکردگی

INTRODUCTION

Life skills refer to the capacity to consistently exhibit positive behavior in various aspects of life (1). These skills include self-awareness, effective communication, decision-making, intrapersonal and interpersonal skills, problem-solving, creative and critical thinking, emotional adaptation, coping with stress, and empathy (2). Student life skills are used to increase decision-making, communication, management, learning, and team-working powers. Students' lack of life skills exposes them to social and personal harm (3).

Resilience improves a person's ability to tolerate and adapt to problems (4). It is the process of approving and effectively coping and successfully adapting to stressful life experiences and job situations (5). Promoting resilience will increase positive emotions, self-confidence, and effective coping strategies, as well as it reduces stress and depression (6).

The concept of locus of control is one of the crucial predictors of resilience, especially academic resilience (7). Locus of control is a key predictor of academic resilience. Those with an external locus of control see events as out of their control and attribute outcomes to chance or others. In contrast, those with an internal locus of control believe they can influence outcomes through their actions (8). It is said that people with internal locus of control have more satisfaction with their lives than those with external (9). Thus, It is a vital personality structure associated with many components of health (10).

Health is a social goal that improves the quality of life and meets basic needs (11). While a significant portion of an individual's life is spent in various situations (such as home, workplace, or school), many life events significantly impact both physical and even mental health (12). Also, for students, especially medical students, due to exposure to stressors and the need for adaptation, it is imperative to have mental health to achieve more success in their education and profession (13).

The student's academic performance is associated with self-efficacy, motivation, anxiety reduction, and ability to plan and perform studies-related activities (14). Students with better academic performance have a more remarkable ability to control their success and failure because they trust in their capabilities (15). It has been observed that life skills training plays an essential role in increasing resilience (16) and enables students to solve problems and become empowered (17). Today, the critical goal of education in universities is to improve students' abilities (18). Online education is becoming one of the most essential educational environments (19). This method provides practical education and ongoing solutions to expand teamwork knowledge among health service students (20).

This study explored the effects of online life skills training on students' health, academic performance, resilience, and locus of control.

METHODS

This study was randomized interventionally and performed among Yazd University of Medical Sciences students in the third and higher semesters. The students were excluded if they attended only one class session and provided an incomplete questionnaire. The sample size of 28 subjects for each group was calculated based on the study of Seyed Fatemi et al. (21) and the following formula. S1: 4.78, S2: 4.79, X1: 23.89, X2: 27.57, α: 5%, β: 20%

$$n_1 = n_2 = \frac{(S_1^{\,2} + S_2^{\,2})(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta})^2}{(\overline{X}_1 - \overline{X}_2)^2}$$

With a 20% probability of losing 35 subjects, 70 students were purposefully selected. Then, they were randomly assigned to experimental and control groups using random allocation software. Given the determined sample size, the unequal distribution of students in different faculty disciplines, and the heterogeneity of academic performance in other fields, students were selected using stratified, simple random sampling.

A WhatsApp group was created for the study. Study objectives were explained and confidentiality and consent were obtained. The intervention group received 5 weeks of life skills training and daily messages via WhatsApp.The sent messages were in the form of written text, written photos, educational video clips related to the desired subject, and non-verbal music sent to the students during the day. A general list of titles was provided to the audience at the beginning and before each piece of content was presented. Also, at the beginning of each week, the list of educational materials for that week was sent to them. The titles were adjusted based on the content of the messages and sent to the audience during the five-week training period. (Table 1) The educational materials have been prepared based on the life skills training guidebook for teachers by order of the Mental Health Center of the Deputy of Health and Treatment of the Martyr and Veterans Affairs Foundation (22). Finally, training was provided by the research group. Questioning and answering were performed two days a week about the submitted materials. The audience asked their questions, and the answers were placed in the channel by a doctor of psychology. The last day of each week (Fridays) was dedicated to summarizing the contents of the whole week. There was no intervention in the control group. During this time, the members of the control and experimental groups had no contact with each other.

The questionnaires were provided to students electronically and completed by students before and one month after the training sessions in two groups.

Data collection tools in this study were demographic information form (including age, gender, major, passing similar life skills training course), Connor and Davidson resilience tool; Rutter locus of control tool; Goldberg general health tool; and grade point average of the previous semester and the new semester.

The Conner and Davidson Resilience Scale (2003) (23) comprised questions with a scoring range from 0 to 4. Consequently, the total resilience score spanned from 0 to 100, with higher scores indicating greater resilience. Notably, the internal consistency of this tool, as measured by Cronbach's alpha, stood at $\alpha = 0.89$ (23).

The General Health Questionnaire (GHQ-28) (1997) (24)

examined the state of general health over the past month and included 28 questions and four subscales with seven questions. These sub-scales had physical symptoms, anxiety, sleep disorders, social dysfunction, and depressive symptoms. The four-choice questions were scored from 0 to 3, leading to a total individual score of 0 to 84. The higher score represented lower general health. Overall, this questionnaire was rated as follows: feeling complete or excellent (a score of 0 to 22), good (23 to 40), moderate (41 to 60), and poor (> 61) (25). The internal consistency of this tool, as measured by Cronbach's alpha, stood at $\alpha = 0.90$-0.95 (25,26).

The Rutter locus of control tool (1966) had 29 questions, each consisting of phrases (A and B) that the subject had to select and mark according to their beliefs. 23 questions about this tool measured people's expectations about the locus of control. In the other six questions, the test's purpose was presented indirectly. Questions 28, 24, 19, 14, 8, and 1 diverted the subject's mind from the main issue and purpose of the test. These neutral questions obscured the structure and dimension measured for the subject. In the 23 questions assigned for scoring, Option A was given a score of 1, and Option B received 0. Issues with a score of 9 or higher were considered to have an external source of control, and individuals with a score of less than nine had an internal source of control. Cronbach's alpha coefficient for the whole test has been reported to be 0.85 (27 , 28).

Questionnaires were completed before and one month after the training program. Also, the total grade point average (GPA) of the previous semester and the new semester of the student were used to evaluate students' academic performance.

This study was conducted with the permission of the ethics committee in the research of Shahid Sadoughi University of Medical Sciences with the ethics ID: IR.SSU.REC.1398.105. Also, after explaining the research objectives and the confidentiality of the information, written informed consent was obtained from the students participating in the study.

Data analysis was performed using SPSS software version 22. Descriptive statistics included frequency, mean, and standard deviation. The inferential statistics included an independent t-test, paired t-test, and Chi-square ($\chi 2$) with a 95% confidence interval.

RESULTS

Seventy students from Yazd University of Medical Sciences participated in the study, with 35 students in each group. However, three participants from both the control and experimental groups were excluded due to incomplete questionnaires. Therefore, data analysis was conducted on 32 students' responses from each group. Based on the research findings, the mean age group of the studied units in the experimental and control groups was 20.41 ± 1.42 and 20.3 ± 1.26 years, respectively. Table 2 presents additional information regarding the studied units. The two groups did not differ significantly in demographic characteristics as per the results of the Chi-square and independent t-test.

Based on the findings of the study, the mean scores of resilience, locus of control, general health, and academic performance score in control and experimental groups were not statistically significant before the intervention. However, after the intervention, this difference was reported as significant in the experimental group ($P<0.0001$).

The mean resilience scores in the control group before and after intervention were not statistically significant ($p = 0.95$). However, resilience scores in the experimental group before and after the intervention were statistically significant ($P< 0.0001$).

The mean scores of the locus of control in the control group before and after the intervention were not statistically significant ($P = 0.470$). However, the mean scores of the locus of control in the experimental group before and after the intervention were statistically significant ($P< 0.0001$).

Also, the mean general health scores in the control group before and after the intervention were not statistically significant ($P = 0.711$). However, in the experimental group, these scores were statistically significant before and after the intervention ($P<0.0001$). In addition, the mean academic performance scores in the control group before and after the intervention were not statistically significant ($P= 0.169$). However, in the experimental group, these scores were statistically significant before and after the intervention ($P< 0.0001$) (Table 3).

Table 1. Online training classes program in the studied units in the experimental group

Session Number	Title	Education contents
First	Self-awareness skill	Self-awareness, Self-esteem, Realistic self-image, Self-confidence, Clarifying values, and Life satisfaction are Essential.
Second	Communication skills	Effective communication: Verbal and non-verbal; Self-expression; Respect for opinions; Understanding relationships; Interpersonal skills; Empathy.
Third	Emotion management	Understand mental health, Emotions, stress, Cope with frustrations and Control anger.
Fourth	Problem-solving skills	Mastering problem-solving skills for personal and collective issues to improve coping abilities with life's challenges.
Fifth	Decision-making skills	To make correct decisions, learn different decision-making patterns, apply them to everyday life, and take responsibility for your decisions..

Table 2. Demographic characteristics of the studied units

Groups		The experimental (N=32)	Control (N=32)	P -Value
Gender	Male	14(43.75)	13(40.63)	0.355
	Female	18(56.25)	19(59.37)	
Major	Nursing	9(28.12)	8(25)	0.365
	Anesthesia	6(18.75)	5(15.63)	
	Laboratory Sciences	6(18.75)	7(21.87)	
	Medical Emergency	6(18.75)	5(15.63)	
	Operating Room	5(15.63)	7(21.87)	
Residence type	Dorm	17(53.13)	16(50)	0.232
	Non-dormitory	15(46.87)	16(50)	
Passing a life skills training course	Yes	2(6.25)	1(3.12)	0.781
	No	30(93.75)	31(96.87)	

Table 3. Comparison of mean scores of resilience, locus of control, general health, and academic performance in the studied units

		Experimental	Control	***p*
Resilience (0-100) Mean±SD	Before	57.17±2.40	58.70±3.58	0.6
	After	73.13±2.27	59.50±3.50	<0.0001
	**p*	<0.0001	0.95	
locus of control (0-28) Mean±SD	Before	10.22±2.04	9.02±3.50	0.713
	After	11.95±1.32	8.95±2.32	<0.0001
	**p*	<0.0001	0.470	
General Health (0-84) Mean±SD	Before	42.75±3.77	32.29±3.17	0.93
	After	23.88±4.34	33.55±5.18	<0.0001
	**p*	<0.0001	0.711	
Educational performance (0-20) Mean±SD	Before	16.80±2.24	16.20±2.02	0.73
	After	17.02 ±2.66	16.22±2.22	<0.0001
	**p*	<0.0001	0.169	

SD: Standard Deviation. *p*= p-value, *Paired *t*-test. **Independent *t*-test.

DISCUSSION

According to the present results, the resilience, locus of control, general health, and academic performance scores after the intervention in the experimental group increased significantly. Online life skills training is effective in promoting expected functions in people.

Life skills training promotes resilience in medical students, helping them cope with stress and recover from adversity. Some students with multiple risk factors lack the life skills and resilience to handle a crisis. They use problem-solving skills to overcome weaknesses by relying on self-confidence and focusing on their strengths. In this respect, Trigueros et al. (2019) showed that positive emotions positively affect resilience and self-motivation (29). Sagone & Indiana (2017) identified a positive relationship between life skills with resilience and perceived self-efficacy. Therefore, promoting psychological well-being and increasing bio-psychological social skills can be a protective factor (30). Poursalman & Asgharnejad Farid (2020) found that life skills training increases student resilience, with stable results during follow-up (31). Thus, based on the present study and other studies, life skills training can be used to increase resilience.

Life skills training improved health in the post-test compared to the control group. In explaining these findings, life skills training prepares and empowers people to face living conditions and learn what and how to do it. In addition, these programs can provide mental, social, and physical health for people. Also, life skills training helps to facilitate adaptation and prevent the effects of stress. Self-awareness helps people recognize strengths and limitations, and accept reality. The results of other studies are in line with the present results. For instance, Anvar (2019) showed that life skills training significantly increases students' general health (32). Mahnoosh et al. (2013) reported that communication skills training in nurses increases general health by 73% and

decreases depression, anxiety, and social and physical dysfunction by 75%, 72%, 72%, and 34%, respectively (33).

Life skills training improved medical students' locus of control, and their ability to control and interact with their environment. It is also a system of beliefs based on which the person evaluates his successes and failures. People with a locus of internal control believe that reinforcers depend on their behaviors and attributions. In contrast, people with an external locus of control believe that reinforcers rely on the luck and destiny of other people. Therefore, holding a life skills workshop improves the internal locus of control, which makes people more efficient, more persistent, and more cognitively active and flexible in dealing with the tasks ahead. In line with the results of the present study, Sarkar et al. (2017) stated that empowerment is based on life skills along with the promotion of self-determination and locus of control (34). However, Modanloo et al. (2020) showed that self-esteem and locus of control increase after an educational program of life skills for medical and dental students, although the change was not significant (35). They also stated that while life skills training improved the general health of deaf students, it did not affect their locus of control (36). Differences in the findings of the two studies could be due to different implementation methods and differences in the content taught in the two programs. Overall, it can be acknowledged that implementing the life skills workshop has influenced the locus of control.

Based on other findings of the study, life skill training led to the improvement of the academic achievement of medical students. Life skill training has helped medical students to recognize their strengths and weaknesses by developing various skills. In general, a set of life skills aims to help the person move from disability and deficiency to empowerment. Therefore, people with enough knowledge about their abilities can evaluate their situations correctly. As a result, they can better strengthen their motivation for success. Other studies confirm the results of the present study (37-39).

LIMITATIONS

The study faced limitations in teaching life skills due to time, place, and uncontrollable variables. No follow-up program to assess intervention continuity limited study findings. Another limitation of the study was that the study samples were selected from university students. Thus, the generalization of the outcomes for other populations is limited because other parameters influence the study variables. Similar studies should be conducted on people with a larger sample size in several universities. The study only involved typical students, making it hard to apply the findings to those with mental/physical disorders, disciplinary records, and severe academic failure. Further studies are recommended for special needs of students requiring extra attention.

CONCLUSION

Life skills training improves medical students' resilience, health, academic achievement, and locus of control. Life skills training is crucial, especially in the medical profession where individuals face difficult situations and physical/emotional exhaustion. It is necessary to prepare people to deal with these challenges effectively in the new era of increasing complexity. Medical universities should conduct comprehensive life skills training workshops at the start of each academic year for their students.

Ethical considerations

Ethical issues including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc. have been completely observed by the authors. The ethics committee of Shahid Sadoughi University of Medical Sciences approved this study with the ethics ID: IR.SSU.REC.1398.105.

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