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The Effect of Psychoeducational Stress Management Interventions on Students Stress Reduction: Systematic Review

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L'EFFETTO DEGLI INTERVENTI PSICOEDUCATIVI
DI GESTIONE E RIDUZIONE DELLO STRESS
DEGLI STUDENTI: UNA RASSEGNA SISTEMATICA

ABSTRACT

Students can be a vulnerable group for stress. A psycho-educational program is one of the strategies to facilitate students' adjustment and manage stress. This systematic review will integrate the effects of psychoeducational interventions on the level of stress among students. Pubmed, CINAHL, Science Direct Scopus databases were used to find potentially relevant published articles. The title and abstracts are used firstly to screen studies using inclusion and exclusion criteria before going to the next stage of the reviewing of complete articles. A total of eleven articles were selected based on inclusion and exclusion criteria. All articles in this sample were assessed using an instrument to assess overall quality. Study setting, sample size, study interventions, outcome measure/methods of delivery,

and results were assessed and extracted. In all of the studies reviewed, the intervention groups experienced significantly greater reductions in perceived stress and symptoms of anxiety and depression. Our review highlights the importance of stress management programs, and the findings from this systematic review indicated that these programs were generally effective for optimizing the stress process and improving coping capacity with stressors.

Keywords: Psychoeducation; Stress; Stress management; Stress reduction; Students.

1. INTRODUCTION

Stress was defined as a person's psychological response to the demands and challenges which come from something that is faced beyond one's capacity or resources (Colquitt *et al.*, 2011). Stress arises when someone is under pressure at a certain condition because they want to achieve something that is desired by such person within a certain time, stress will be very detrimental and can result in the ability of someone to think right so that actions taken when under stress can be dangerous to oneself, others and the environment (Stevianus, 2019).

Students can be a vulnerable group for stress. Purwati (2010) assessed the level of academic stress on the nursing students and their results revealed that students are very vulnerable to experience stress due to academic demands. The facing of difficulties during the academic period can develop into negative feelings which in turn can cause tension, feelings of anxiety, worry, fear, stress, frustration and can become hopeless and at the end of all these problems lead to loss of motivation to learn (Stevianus, 2019). Students who self-report higher levels of academic-related stress also report lower well-being, measured using psychological, social, cognitive, and physical components (OECD, 2015), as in a systematic review of 13 studies showed that in peoples who are undertaking higher education, self-reported high levels of stress are associated with poorer quality of life and wellbeing (Ribeiro *et al.*, 2017). Also, the ongoing stress relating to education has demonstrated a negative impact on students' learning capacity (OECD, 2015), academic performance (Bernal *et al.*, 2015; Kotter *et al.*, 2017), education, employment attainment, sleep quality, and quantity (Lee *et al.*, 2013; Wallace *et al.*, 2017), physical health by the development of non-communicable diseases, including metabolic syndrome, obesity, and reduced insulin sensitivity, resulting from unhealthy lifestyle habits and stress system dysregulation (Pervanidou & Chrousos, 2012), mental

health by the development of more serious mental health issues such as anxiety and depression (Maes, Wray, & Berk, 2013) and substance use outcomes (Leonard *et al.*, 2015; Boulton & O'Connell, 2017).

A psycho-educational program is one of the strategies to facilitate students' adjustment and manage stress. The psycho-educational stress management services focus on helping people improve stress management, coping and reduction skills, «e.g. mindfulness training health promotion, exercise, cognitive behavioral therapy, relaxation techniques, meditation, personal and interpersonal skills training, Acceptance and Commitment Therapy, psycho-social intervention training, coping skills training, and resilience training» (Holman *et al.*, 2018). A psycho-educational program is formed in a way where individual resources and skills are reinforced so that these students cope with their difficulties better (Casañas *et al.*, 2012). There is some studies demonstrated and found that psycho-educational programs could improve the adjustment levels and psychological health of students; such as one psycho-educational of cognitive behavioral program was done among 385 of undergraduate university students in Malaysia to reduce the academic stress resulted in a better adjustment of participants in the interventional program (Naeeni *et al.*, 2015). Moreover, the cognitive-behavioral oriented counseling program named STAR: Strengths, Transitions, Adjustments, and Resilience efficiently improved psychological adjustment and coping self-efficacy (Smith & Khawaja, 2015). Recently, another cognitive-behavioral-oriented program was reported to be effective in improving mental health and promoting post-migration growth (Pan *et al.*, 2016).

In this study researcher will assess the studies which used psycho-educational stress management programs to manage the university students' stress, to assess the effectiveness of the psycho-educational program in students stress management. This review aims to integrate the effects of psychoeducational interventions on the level of stress among the university students. The following research questions are addressed:

- Are psychoeducational stress-management interventions effective in reducing stress in an interventional group?
- Are there differences in effect sizes concerning (a) the study quality, (b) the level of guidance, (c) the theoretical basis, and (d) the length of the intervention?

2. METHODS

2.1. Search strategy

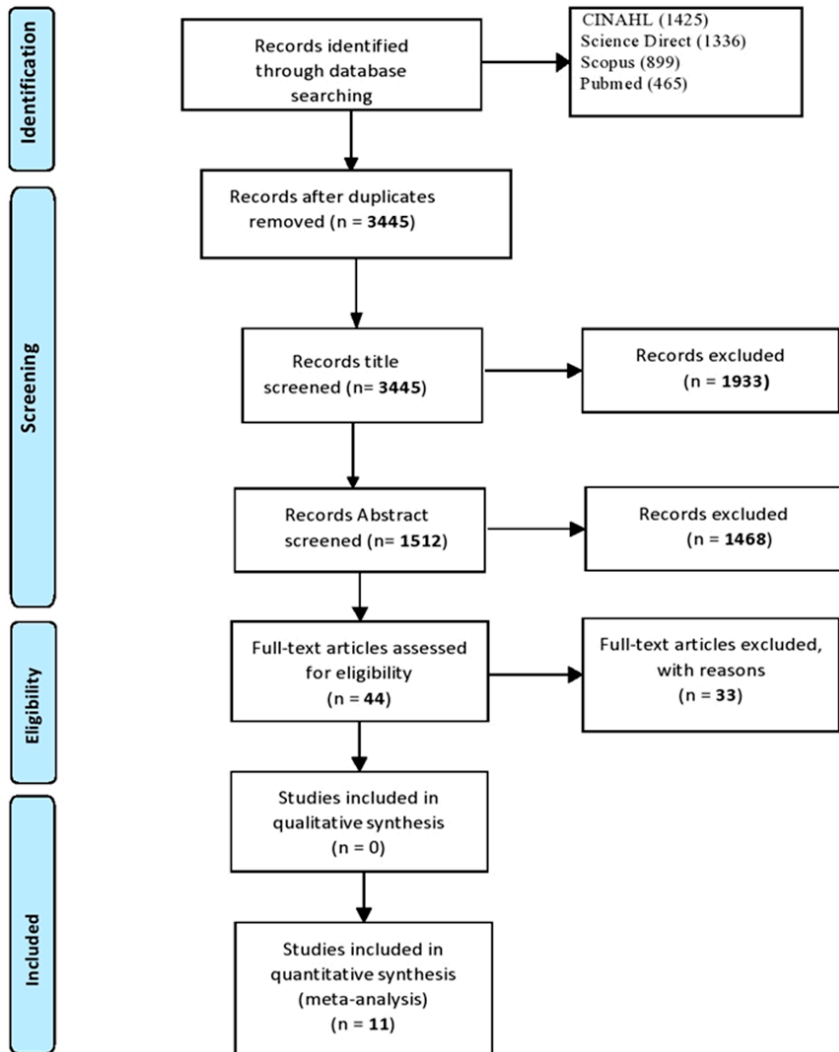


Figure 1. – Study selection flow chart.

(PRISMA) Guidelines and standard protocol were followed for the reporting of this systematic review. Pubmed, CINAHL, Science Direct Scopus databases were used to find potentially relevant published articles. We reviewed the studies using the following keywords by using «and», «or», which add to the builder: stress management, student, psychoeducational intervention and which met the following inclusion criteria: English language, year of publication between 2010 and 2020, online full-text accessible, studies evaluating psychoeducation delivered alone or in combination with other treatment approaches (i.e. psychosocial, behavioral training, or pharmacological interventions). In general, we required the psychoeducation component of an intervention to consist of at least one session and the studies conducted on a university students as study participants exclusion criteria included articles in the style of review articles and case reports and studies lacking online full-text accessibility as in *Figure 1*.

The title and abstracts are used firstly to screen studies using specific including and excluding criteria for what can be eliminated and what must go on to the next stage of the scanning of complete documents. The abstract was scanned by three individuals who review abstracts independently to make sure no paper is accidentally set aside as not relevant with a complete agreement between the three reviewers about the excluded studies; their agreement was reported as an indication of the quality of the screening process. In the next stage, full papers were scanned to determine if indeed they apply to the clinical question and whether they satisfy the criteria.

2.2. Studies selection

Database search results found 4125 studies by using the keywords. Searching filtered based on inclusion criteria. After the duplicated articles (680 articles) were removed, the result of the 3445 article was title screened to fit the including criteria. 1008 studies were excluded as a case report and review articles and 280 studies excluded because of just the title and abstract in English and the whole paper in other languages. The result of the 2157 article went to the next stage of manuscript review. 1400 studies were excluded because these articles did not include students as study participants and 738 articles were excluded as these articles didn't focus on or didn't include a stress management program. 8 articles were excluded because of lacking of online full-text accessibility. Finally; the articles which were satisfying with inclusion criteria, distillation, and review are 11 articles.

2.3. Quality appraisal

All of the articles in this sample were assessed using an instrument to assess overall quality; the Evaluative Tool for Quantitative Research Studies (Long *et al.*, 2002) or the Critical Review Form for Qualitative Research (Letts *et al.*, 2007). Downs and Black (1998) checklist for both randomized and non-randomized studies of health care interventions. Mixed methods studies were assessed using both instruments. These tools were used to ensure the overall quality of studies within the sample, to summarize study findings, and as a method for ensuring inter-rater agreement between the two authors.

2.4. Data extraction and synthesis

Study setting, sample size, study interventions, outcome measures/methods of delivery, and results were assessed and extracted.

3. RESULTS

The purpose of this study was to examine the efficacy of a psychoeducational program on the distress levels of students. *Table 1* assessed and examined the selected studies.

In this review, two studies used the Acceptance and Commitment Therapy – ACT (Räsänen, 2016; Xu *et al.*, 2020). The ACT group focused on helping students to manage stress relevant to studying and gain mental wellbeing. Results of this study showed that the ACT participants had significant immediate and longer-term improvements in psychological wellbeing and reductions in distress. In another study done by Sallen *et al.* (2017), an intervention group received Stress-Resistance Training for Elite Athletes (SRTEA) programs and this intervention was increased stress-related knowledge, general self-efficacy, and stress sensitivity and the study results showed short- and mid-term, small to medium-sized effects of stress reduction. Also, one study done by Jameson in 2014, used hardiness educational intervention for managing stressful circumstances and the results revealed that the hardiness interventions have a statistically significant effect on decreasing perceived stress level.

Table 1.

#	STUDY SETTING (AUTHORS, YEAR)	SAMPLE SIZE	STUDENTS AGE	INTERVENTION	INTERVENTION ROUT (ONLINE / FACE TO FACE)	GROUP OR INDIVIDUAL INTERVENTION	OUTCOME MEASURES/METHOD OF MEASUREMENT	RESULTS
1	Xu <i>et al.</i> , 2020	8 students	17-24	The Acceptance and Commitment Therapy (ACT) intervention consisted of two 2-hour sessions spaced one week apart.	Face to face	Individual intervention	This study evaluated the feasibility, acceptability, and effectiveness of ACT.	This new ACT protocol was associated with immediate and longer-term improvements in psychological well-being and reductions in distress.
2	Millings <i>et al.</i> , 2015	98 students	18-31	Students were allocated to a stress management program alone (n = 34), with sensors (n = 29), or to no intervention (n = 35). Interventions lasted 4 weeks.	Online & Face to face	Group intervention	Outcome measures included measures of anxiety, and depressive symptoms immediately after the interventions and 4 weeks later.	Significant reductions in depressive symptoms were observed among postgraduates but not undergraduates, in the program only group. The program plus sensors group had a broadly similar, but a weaker set of results.
3	Sallen <i>et al.</i> , 2017	245 students	17-33	An intervention group (n = 128) received Stress-Resistance Training for Elite Athletes (SRTEA) programs to improve their resistance to chronic stress.	Face to face	Group intervention	Evaluative criteria were used to assess levels of the success of the intervention in reducing stress with three points of measurement (baseline, immediately after, and follow-up).	The intervention increased stress-related knowledge, general self-efficacy, and stress sensitivity. Chronic stress levels, stress symptoms, and stress reactivity were reduced.

#	STUDY SETTING (AUTHORS, YEAR)	SAMPLE SIZE	STUDENTS AGE	INTERVENTION	INTERVENTION ROUT (ONLINE / FACE TO FACE)	GROUP OR INDIVIDUAL INTERVENTION	OUTCOME MEASURES/METHOD OF MEASUREMENT	RESULTS
4	Jameson, 2014	79 students	18-24	The experimental group (n = 40) received the hardiness educational intervention to manage stressful circumstances. A 5-week course of 1-hour hardiness instruction each week.	Face to face	Group intervention	This study measured the total scores of perceived stresses, with two points of measurement (pre-test and post-test).	Results revealed that the hardiness intervention did not have a statistically significant effect on increasing hardiness scores. But have a statistically significant effect on decreasing perceived stress scores.
5	Chinaveh, 2013	60 students	19-23	The experimental group attended weekly stress management sessions for eight weeks and sixteen 2-hour sessions.	Online	Group intervention	This study measured the effects of Multiple Stress Management Intervention (MSMI) on coping responses, and stress symptoms among students.	The findings indicate that multiple stress management intervention has a positive effect on coping responses, and stress in the experimental group compared to the control group.
6	Räsänen, 2016	68 students	18-30	An interventional group (n = 34) received two face-to-face and a five-week online program of ACT intervention.	Online & Face to face	Group intervention	Primary outcome was measured psychological wellbeing and perceived. Secondary outcome measures were used to measure depressive symptoms.	Results showed that the ACT participants had significant higher gains mental in wellbeing. Self-reported stress and symptoms of depression were significantly reduced.

#	STUDY SETTING (AUTHORS, YEAR)	SAMPLE SIZE	STUDENTS AGE	INTERVENTION	INTERVENTION ROUT (ONLINE / FACE TO FACE)	GROUP OR INDIVIDUAL INTERVENTION	OUTCOME MEASURES/METHOD OF MEASUREMENT	RESULTS
7	Borjalilu <i>et al.</i> , 2019	68 students	18-28	Participants received an intervention for stress management based on mindfulness-based stress reduction two sessions per week for six weeks.	Face to face	Group intervention	Measured the effectiveness of three methods of intervention for stress management in students based on mindfulness-based stress reduction.	There was a significant difference in the mean score reduction of depression, stress, and anxiety, the blended therapy group had the greatest mean score reduction on stress, depression, and anxiety among the three groups.
8	Delany, 2015	60 students	17-21	The physiotherapy students from two universities attended the four psycho-education resilience sessions once per for night for 8 weeks.	Online	Group intervention	This study measured the student's clinical placement stressors and the suggested resilience-based strategies to address them.	Students' descriptions of stressors changed to a focus on how they managed and recognized learning challenges as normal or at least expected elements of the clinical learning environment.
9	Elemo & Türküm, 2019	18 students	19-22	The participants in the experiment group (n = 9) underwent eight weekly sessions with one and a half hours of cognitive-behavioral-oriented psychoeducational program to facilitate transition and adjustment.	Online & Face to face	Group intervention	This study measured the psychological adjustment, coping self-efficacy, and psychological data were collected from the participants at three-time points.	The post-test results indicated significant differences in coping self-efficacy favoring the experiment group. Follow-up results revealed significant three measures favoring the experiment group.

#	STUDY SETTING (AUTHORS, YEAR)	SAMPLE SIZE	STUDENTS AGE	INTERVENTION	INTERVENTION ROUT (ONLINE / FACE TO FACE)	GROUP OR INDIVIDUAL INTERVENTION	OUTCOME MEASURES/METHOD OF MEASUREMENT	RESULTS
10	McCarthy <i>et al.</i> , 2017	197 students	18-26	The psycho-educational intervention coping with stressful events to provide students with knowledge and understanding of stress and associated coping mechanisms. For four months and involved fourteen contact hours.	Online	Group intervention	The coping behaviors of the have measured four dimensions of coping (problem-focused, emotion-focused, social support, and avoidant coping). Data was collected post-delivery of the intervention.	Results demonstrated improved coping skills by students. There were statistically significant differences post-intervention for example, lower post-intervention for restraint and mental.
11	Hintz <i>et al.</i> , 2015	292 students	17-31	Participants were students in psychology courses who received a link to complete four modules: 97 were randomly assigned to the PCI group, 98 to the PCI plus feedback group, and 97 to the stress information-only group. Within 2-3 days for each module.	Online & Face to face	Group intervention	Present control was assessed by using 3 assessment scales: PCOSES, DASS, and PSS. All measures were completed online immediately after the intervention, and 3 weeks following intervention completion.	These results show that present control can be increased using a brief online intervention, with medium to large effects. The intervention groups also experienced significantly greater reductions in perceived stress and symptoms of anxiety, depression, and stress than the stress-information-only comparison group.

Moreover, Delany in his study (2015) assessed the participants who had psycho-education resilience sessions and this educational program assisted the participated students to recognize the learning challenges as a normal part of studying life. While two studies were done by Elemoand and Türküm in 2019 and Mc Carthy *et al.* in 2017 used a cognitive-behavioral-oriented psychoeducational program to facilitate students coping and adaptation to stressful events, the result of these studies indicated a significant improvement in coping, psychological adaptation, and distress reduction favoring the experiment group. Borjalilu *et al.* in the study (2019) used interventions for stress management based on mindfulness, and the students were divided into three groups; the first group was treated by the Aramgar application only, the second group by both the face-to-face therapy and Aramgar application, and the third group by the face-to-face therapy only and the blended therapy group had the greatest mean score reduction on stress, depression, and anxiety among the three groups. Regarding Millings *et al.* study (2015), students who were stressed were allocated to a stress management program alone, with sensors or to no intervention, significant reductions in depressive symptoms were observed among postgraduates in the program only group. In Hintz *et al.* study (2015), the selected students attended online stress management sessions about the specific topics related to students' stressors and these results showed that the intervention groups experienced significantly greater reductions in perceived stress and symptoms of anxiety, depression, and stress. In the last study of Chinaveh (2013), the experimental group was selected and invited to attend a weekly face to face stress management sessions. The findings indicated that multiple stress management intervention has a positive effect on coping responses and stress management on the experimental group compared to the control group.

4. DISCUSSIONS

This study aimed to identify the effect of stress management programs on stress reduction among students. To this end, we undertook a systematic review of the literature. We found eleven studies that met the inclusion criteria. These included nine Randomized Controlled Trials (RCTs) and two Non-Randomized Trials (NRTs). The quality of the studies varied little. Study strengths included similarities in group differences, good rates of follow-up, and the use of valid and reliable outcome measures. The eleven articles selected have shown a significant stress reduction using the sug-

gested stress management programs with medium to high-sized effects and associated with immediate and longer-term improvements in distress reductions. *Tables 1* illustrate the range of effect sizes reported of stress management interventions on stress reduction. In almost all programs, the intervention groups experienced significantly greater reductions in perceived stress and symptoms of anxiety, depression, and stress and the participants found them useful.

The number of studies discussing the effectiveness of stress management programs for students is limited, compared with studies discussing the causes of stress and the factors influencing the level of stress (Shiralkar *et al.*, 2013). There were other studies discussing stress management programs, but these do not focus on students specifically. Online stress management programs are effective if participants enjoy these, and are more easily accessible and more cost-effective than traditional programs (Kawai *et al.*, 2010; Morledge *et al.*, 2013). Also, cognitive-behavioral stress management programs are effective in reducing dysfunctional thoughts and decreasing stress (Leung *et al.*, 2010; Moeini *et al.*, 2011). These general observations regarding stress management programs could be used to design programs specifically for students.

Different types of programs addressing stress management in students have been reported, but differ in their duration, content, and effectiveness. These programs are either single or multiple sessions and contain some relaxation techniques or only information about stress. The shortest stress management program was a two-hour session for one week, while the longest consisted of fourteen 1-hour sessions for four months. The stress management programs reported either helped to reduce the number of stressors or enhance stress coping skills, using relaxation techniques and exercises such as deep breathing and yoga. Stress management programs focused on stress prevention attempted to decrease the impact of stressors through stress awareness lectures.

The reported stress management programs did not follow one concept, and most of the studies used either one measure or a combination of measures. For instance, some studies suggested improvement of the new Acceptance and Commitment Therapy (ACT) protocol to reduce stress among students or used elite athletes (SRTEA) programs and the other studies used mindfulness techniques, cognitive-behavioral therapies, and stress reduction exercise in some sessions. Most of these programs were liked by the students, helped them to manage their stress, and do not follow a gold standard. Hence, we recommend a program with an easy application for students and universities or schools, where students can achieve high outcomes with the least expenditure of time and effort.

The huge impact of stress on students indicates a need for stress management programs in education. Such programs could be introduced in students' curriculum; for example, by recruiting a psychological counselor for students in schools. Based on our review, the following considerations should be incorporated into future research: rigorous study design, including randomized controlled trials; more detailed study of varying durations and frequencies of interventions (e.g. single-session versus multiple-session programs); more objective outcome measures than self-reports; and the effects seen on long-term follow-up. A limitation of this research might be the small number of studies selected for review, and small number of participants in some selected studies. Therefore, future studies are needed to study the effectiveness of stress management programs for students.

5. CONCLUSIONS

Eleven articles were selected in this systematic review based on our inclusion and exclusion criteria. The selected studies sample was from the university students and age of students ranged from 17 to 34 years with mean of 20 years old. The number of the participants in the selected studies ranged from 8 students to 292 students. The most of the selected studies designed as a RCT with psychological interventions delivered to the participated students online or face to face in group or individual rout.

This review highlights the importance of stress management programs, and the findings from this systematic review seem to indicate that these programs were generally effective for optimizing the stress process and improving coping capacity with stressors. Although multimodal interventions may help to reduce both cognitive and somatic symptoms, it is also possible that these programs serve the purpose of optimizing various components of the stress process in succession (e.g. appraisals, affect, coping). For example, a multi-modal program may be effective in enabling a performer to appraise competitive stressors in a challenging way, which acts as a condition for more adaptive emotional responses, and facilitative coping.

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RIASSUNTO

Gli studenti possono rappresentare un gruppo vulnerabile allo stress. Un programma psico-educativo può costituire una delle strategie utili a facilitare l'adattamento degli stu-

denti nel gestire lo stress. Questa rassegna sistematica riporta in sintesi gli effetti degli interventi psicoeducativi sul livello di stress tra gli studenti. I database Pubmed, CINAHL e Science Direct Scopus sono stati consultati per trovare articoli rilevanti pubblicati su questo tema. Il titolo e gli abstract vengono utilizzati in primo luogo per selezionare gli studi utilizzando criteri di inclusione ed esclusione prima di passare alla fase successiva dell'analisi degli articoli completi. Un totale di undici articoli sono stati quindi selezionati in base a criteri di inclusione ed esclusione. Tutti gli articoli di questo campione sono stati valutati utilizzando uno strumento per rilevarne la qualità complessiva. Sono state rilevate informazioni relative all'impostazione dello studio condotto, la dimensione del campione, gli interventi attuati nello studio, la misura dell'esito/metodi di consegna e i risultati raggiunti. In tutti gli studi esaminati, i gruppi di intervento hanno sperimentato riduzioni significativamente maggiori dello stress percepito e dei sintomi di ansia e depressione. In sintesi, viene evidenziata l'importanza dei programmi di gestione dello stress e questa rassegna sistematica ha evidenziato come questi programmi siano generalmente efficaci per ottimizzare il processo di stress e migliorare la capacità di far fronte ai fattori di stress.

Parole chiave: Gestione dello stress; Psicoeducazione; Riduzione dello stress; Stress; Studenti.

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