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The effect of selected relaxation training with physical activity on mental well-being

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ABSTRACT

This aim of this study was to investigate the effects of relaxation exercises with selected physical activity on girl's mental health. In this regard, 60 female students (18 to 30 years) participated in this study. They were divided into 4 similar groups. Categories include: relaxation groups (n=15), the Physical activity group (n=15), Relaxation with physical activity group (n=15) and control group (n=15). Experimental groups did exercise for 6 weeks and 2 times a week. But the control group did their routine activities. Mental health of participants before and after the exercise intervention was assessed by General Health Questionnaire (GHQ - 12). The obtained data was analyzed by multivariate of variance (MANOVA) and Bonferroni test. The statistical data show that the effects of relaxation training (P<0/0001), effects of selected Physical activity (P<0/0001), effects of Combined exercises (P<0/0001). This study showed that relaxation training and selected Physical activity and combined exercises cause to be improving to general health student girls. Although not differences were observed between the three groups, but this study emphasizes the relaxation of role in general health. The employing different methods of relaxation are as an effective and practical aims. So, it is suggested that effect of other relaxation methods with physical activity and also interactivities influences of combination training types would be used.

Keywords: Relaxation, selected Physical activity, Relaxation with physical activity exercises, General Health Questionnaire (GHQ - 12)

INTRODUCTION

The case for exercise and physical health is now widely accepted by medical authorities across the world [1]. Sedentary living doubles the risk of morbidity and mortality from coronary heart disease and stroke [2, 3] which is comparable with the risk associated with hypertension and hyperlipidemia and not far behind that of smoking. In addition, low activity levels are thought to be a major cause of obesity [4] and contributor to the rising incidence of diabetes and some cancers. The incidence of inactivity is also high in many developed countries where technology is slowly removing exercise from lifestyles and is estimated at around 40% of the middle aged and elderly in the UK [5]. The public health burden of inactivity is therefore problematic and expensive [6] and activity promotion could provide a cost-effective strategy for improvement [7].

While physical activity can indirectly improve subjective well-being and life quality by keeping disease and premature death at bay, there has recently been an increasing interest in its direct role in the prevention and treatment of mental health problems. Mental illness and disorders are widespread and possibly on the increase. The 1995 Health Survey for England [8], for example, showed that 20% of women and 14% of men have at some time suffered mental health problems. Up to 20% of children will suffer mild and 7–10% moderate to severe mental health problems that hinder normal development [9] and there is evidence of a worsening trend, particularly in socially disadvantaged populations [10]. Depression is the most widespread disorder affecting 5–10% of the populations of most developed countries [11] with 20% of those presenting in primary care in Britain having recognizable degrees of symptomology [12].

Mental illness is socially debilitating and associated with suicide ideation and attempts, drug and alcohol abuse and homelessness. For every serious case, however, there are also many more individuals who suffer a general malaise of low mental well-being characterized by emotional distress, low self-esteem, and poor body image, sense of hopelessness, chronic stress and anxiety. This is often not clinically diagnosed and so its incidence is difficult to accurately assess but it has major implications for other problems such as heavy drinking, smoking, absenteeism from work, family breakdown, physical violence and abuse, and quality of life. Physical activity can be viewed from four different perspectives regarding its direct contribution to solving mental health problems:

1. Treatment of mental illness and disorders;
2. Prevention of mental illness and disorders;
3. Improvement of mental and physical well-being of those with mental illness;
4. Improvement of mental well-being of the general population.

Relaxation exercises are an effective tool of sport psychology that help reduce tension among peoples, thus giving them the ability to deal with psychological pressures and improve their muscle tone [13]. As a result, the psychological fitness of the person is enhanced.

Many studies support a good efficacy of relaxation trainings in reducing anxiety. For example, in a study by Kanji, White and Ernst [14], fifty-nine patients were randomly assigned to receive regular autogenic training or no such therapy as an adjunct to standard care for 5 months. State Anxiety showed a significant intergroup difference both at 2 and 5 months. This finding was corroborated by secondary outcome measures, for example quality of life, and by qualitative information about patients' experiences, suggesting that autogenic training may have a role in reducing anxiety of patients undergoing coronary angioplasty.

Moreover, in a general review on therapeutic use of relaxation response in stress-related diseases, Esch et al. [15] declare that relaxation techniques appear to be highly recommendable.

Many studies have been conducted that have shown a positive clinical outcome of the relaxation techniques in connection with anxiety [16, 17]. A review conducted by Kanji and Ernst [18], considering 8 studies, suggests that autogenic training seems to reduce stress and anxiety, but few conclusion can be drawn from those studies. Carlson and Hoyle [19] wrote a quantitative review focused on progressive relaxation training [20], indicating a good potential of progressive relaxation in the treatment of various diseases (i.e. migraine, hypertension, chemotherapy side effects...) but without specific consideration about anxiety.

Depression

Mild depression is characterized by a period of frequent episodes of unhappiness. It is relatively common and often not diagnosed. However, clinical depression is determined against diagnostic criteria through questionnaires such as the Beck Depression Inventory [21] or interviews such as DSM-III [22] or Research Diagnostic Criteria [23]. There is evidence from four prospective epidemiological studies that those who become or remain active or fit are less likely to suffer clinical depression. Odds ratio over a period of 9 years for those who remained low in activity was 1.22 and for those became inactive was 1.61 against a baseline of high activity on both occasions [24]. Paffenbarger, Lee, and Leung [25] recorded a dose response relationship for men over a 23–27 year period, with those engaged in high activity (>2500 kcals/week) at 28% reduced risk, and moderate activity (1000–2499 kcals/week) at 17% risk for becoming depressed compared to those low in activity. Farmer et al [26] found twice the risk of clinical depression in women low in exercise over an 8-year period.

Caution needs to be applied to such studies where both variables provide plausible causal explanations of the relationship between them, however the existence of a dose response for exercise on depression reduction over time is convincing.

Two recent reviews have focused on the effect of exercise on clinical depression. Mutrie [27] summarized 10 key randomized controlled studies. Craft and Landers [28] conducted a meta-analysis on all available studies where an exercise therapy for clinical depression had been used and produced a large mean effect size of -0.72. Mutrie concluded:

- Physical activity is associated with decreased risk of developing clinical depression.
- Experimental studies show that aerobic and resistance exercise is effective in treating depression.
- The effect is of the same magnitude as psychotherapeutic interventions.

This is strong evidence that exercise can help prevent and treat this common cause of mental illness and threat to mental well-being.

Anxiety and stress reactivity

Several narrative and meta-analytic reviews have been conducted in this area such as Calfas and Taylor [29] with adolescents, McDonald and Hodgdon [30], Petruzzello et al [31] and Taylor [32]. Research has taken three approaches. First, the effect of a single bout of exercise on state anxiety (acute or right now feelings) has been addressed. This literature has indicated moderate effects for reductions in anxiety post exercise with most studies testing the effects of aerobic forms of exercise such as running. Second, the effects of engaging in several weeks of an exercise program on both state and trait anxiety (predisposition to react nervously) have been investigated. Similarly, exercise has been shown to provide moderate reductions in state and trait anxiety. Third, the effect of single exercise sessions and exercise programs has been tested on the psychosocial and psycho-physiological reactivity to a subsequent psychological stressor such as a complex mental task or public speaking. This literature has provided equivocal results with only half the studies showing a benefit from exercise training or improved fitness although this may be as much due to the difficulties associated with measurement as lack of effect.

Sleep quality

Insomnia affects approximately a third of the adult population and is associated with poor work performance and psychological dysfunction [33]. The interest in the effect of exercise has grown with the acceptance that sleeping pills have undesirable side effects including increased risk of mortality and dependence. Epidemiological evidence demonstrates that daylight exercise is the behavior most closely related to sleep quality. Youngstedt [34] recently produced a meta-analysis of 38 studies on the effects of a single bout of exercise on subsequent sleep of good sleepers.

The effect of exercise programs on the sleep quality of poor sleepers was assessed in two well designed randomized controlled studies and exercise has been shown to have a moderate positive effect although as yet it is not clear if exposure to bright light through exercise is a contributing mechanism. This appears to be a fruitful area of research but current evidence would suggest that exercise in bright light, with emphasis on duration rather than intensity, regardless of fitness level will improve sleep, regardless of usual sleep quality.

Therefore, the purpose of the present study was to employ a holistic approach by investigating the effects of the effect of selected relaxation training with physical activity on mental well-being

MATERIALS AND METHODS

The sample has been selected randomly by the purposive method containing 60 female students of Islamic Azad University of Sari Brunch with age between 18 and 30 years. Older people were not selected as they could have learnt through experience to relax. The Subjects were randomized into four similar groups, the relaxation group (n=15), the physical activity group (n=15), Combination group (combined relaxation and physical activity) (n=15) and control group (n=15). Experimental groups did exercise for 6 weeks and 2 times a week for 6 weeks. But the control group did their routine activities. Mental health of participants before and after the exercise intervention was assessed by General Health Questionnaire (GHQ - 12). Current mental health was assessed from the GHQ-12, which is a measure of psychological distress devised for population studies. The questionnaire enquires about general level

of happiness, experience of depressive and anxiety symptoms, and sleep disturbance over the last 6 weeks. Interpretation of the answers is based on a 4-point response scale scored using a bimodal method (symptom present: not at all = 0, same as usual = 0, more than usual = 1 and much more than usual = 1). The GHQ-12 is a highly validated instrument and has been strongly associated with various psychological disorders such as depression and anxiety [35]. A score of >4 were used to define psychological distress according to studies validating the GHQ- 12 against standardized psychiatric interviews [36].

Statistical Method

In addition to descriptive statistics, a 4(group) × 2 (testing session) × 4 (health-related variables) MANOVA was used to compute the data. Significance was set at $p < 0.05$, and data were reported as mean ± standard deviation. All analyses were performed using SPSS version 16.

RESULTS

The Table1 showed the relationship between the pretest and posttest scores on physical symptoms. Correlation of the physical activity group, relaxation group and Relaxation with physical activity training between pretest and posttest was statistically significant and for the control group did not significant.

Table1. Effect of relaxation training and physical activity on physical symptoms

Groups	Pre-test	Post-test	Sig
Physical activity	1.80±0.68	0.47±0.52	0.0001
Relaxation training	1.87±0.74	0.80±0.56	0.003
Relaxation with physical activity training	1.87±0.52	0.47±0.52	0.001
Control	1.47±0.83	1.33±0.90	1.00

The Table2 showed the relationship between the pretest and posttest scores on sleep anxiety. Correlation of the physical activity group, relaxation group and Relaxation with physical activity training between pretest and posttest was statistically significant and for the control group did not significant.

Table2. Effect of relaxation training and physical activity on sleep anxiety

Groups	Pre-test	Post-test	Sig
Physical activity	1.93±0.70	0.67±0.49	0.0001
Relaxation training	1.53±0.64	0.33±0.49	0.0001
Combined physical and relaxation training	1.67±0.62	0.53±0.52	0.0001
Control	1.53±0.74	1.40±0.83	1.00

The Table3 and 4 showed the relationship between the pretest and posttest scores on social performance and depression. Correlation of the physical activity group, relaxation group and Relaxation with physical activity training between pretest and posttest was statistically significant and for the control group did not significant.

Table3. Effect of relaxation training and physical activity on social performance

Groups	Pre-test	Post-test	Sig
Physical activity	1.40±0.51	0.40±0.51	0.001
Relaxation training	1.87±0.64	0.60±0.51	0.0001
Combined physical and relaxation training	1.60±0.63	0.53±0.52	0.0001
Control	1.40±0.91	1.13±0.83	1.00

Table4. Effect of relaxation training and physical activity on depression

Groups	Pre-test	Post-test	Sig
Physical activity	1.67±0.72	0.53±0.52	0.001
Relaxation training	1.47±0.74	0.47±0.52	0.004
Combined physical and relaxation training	1.67±0.72	0.47±0.52	0.0001
Control	1.47±0.83	1.33±0.90	1.00

DISCUSSION

The main findings from this study demonstrate strong associations between physical activity and reduced odds of psychological distress. The mental health benefits were observed at a minimum physical activity level of at least 30 min/week of any type of activity. Our findings relating to the effect of selected relaxation training with physical activity and mental health are largely consistent with reports from previous population studies [37, 38, and 39]. It is difficult to make direct comparisons with our data because of the differences in measures of mental health and assessment of physical activity. For example, in the Harvard Alumni Study, men who expended 1000–2499 or >2500 kcal/week were 17% and 28% less likely to develop clinically diagnosed depression compared with men who expended, 1000 kcal/week [38]. Australian women who performed 2–3 sessions per week or daily moderate intensity activity had approximately 20% and 40% reductions, respectively, in the risk of subclinical depressive symptoms after 5 years of follow-up [37].

The mental health benefits of physical activity appear to be independent of potential confounding factors such as longstanding illness, obesity and smoking, although inclusion of these covariates reduced the strength of the association. Thus, the protective effects of physical activity may, in part, operate through these risk factors. Indeed, physical activity is associated with a reduced risk of chronic diseases such as CVD, diabetes, hypertension and some cancers [40]. Exercise is also thought to improve a number of biological risk factors such as dyslipidemia, glucose intolerance, inflammation and vascular dysfunction, which have been related to mental health disorders such as depression and dementia [41] Given that heightened responsiveness to daily stressors is a risk factor for psychological morbidity [42], physical activity may also improve mental health by reducing biological stress reactivity [43].

This is the first study to our knowledge that has specifically considered the importance of different activity types in relation to mental health. Stamatakis et al [44] recently reported that, in contrast to leisure time activities, domestic activity was not associated with improvements in CVD risk factors which may partly explain why domestic activity contributed less to mental health benefits in the present analyses. Indeed, previous work has also shown a graded dose-response relationship between cardiorespiratory fitness and depressive symptoms, [39] suggesting that participation in vigorous sports activities that produce greater fitness improvements is most beneficial for mental health. It is, however, possible that the additional benefits gained from participating in sports may have a psychological component, such as fostering social support networks and developing mastery and better coping abilities.

Four areas are being investigated. Improvements in perceptions of competence and self-efficacy or confidence about the body and its capabilities may be increased through regular exercise and this may generalize to global self-esteem and other elements of well-being. This may be particularly important for older people or individuals recovering from illnesses and injury [45].

Body image is more closely related to self-esteem than any other single element of self, particularly for females [46, 47, and 48]. It is often so central that it influences daily habits, patterns of food choice, choice in clothes, confidence in public, and for many carries frequent emotional signals that can influence mood. Physical activity offers a means of improving body image through fat loss and improved muscle fitness. However, there is a complex of constructs involved including body satisfaction and acceptance and some studies indicate (often with females high in obsessiveness and neuroticism) that exercise raises body awareness and expectations and are counterproductive to satisfaction and self-esteem [47].

One of the potentially fruitful areas of research is the contribution of mastery and self-determination to self-esteem and mental well-being. Exercise can provide a medium for slowly taking command over health behavior and body appearance that may trigger a general sense of autonomy. The important effect may not so much be perceived change but the empowerment that achieving the change provides [46].

Finally there has been less of a focus on the social benefits of exercise than is warranted. Social affiliation and significance are related to self-esteem [48] and social apathy is an established corollary of depression. The social interaction that activity can provide through sport participation and joining exercise groups may provide social support for improving self-esteem and life satisfaction. In older people, activity may increase mobility and independence and promote social interaction [49].

In summary, the mechanisms underpinning improved well-being and alleviation of distressing mental illness have been difficult to isolate and establish. It is likely that multiple mechanisms are effective in any one situation. The dominance of any one mechanism will be determined by exercise characteristics such as intensity and duration, characteristics of the individual and environmental factors surrounding the exercise. Currently the evidence suggests that factors associated with the process of exercise rather than the physiological adaptations resulting from regular exercise training are primarily responsible for improvements in short and long-term well-being.

This study showed that relaxation training and selected Physical activity training and Relaxation with physical activity training cause to be improving to general health student girls. Although not differences were observed between the three groups, but this study emphasizes the relaxation of role in general health. The employing different methods of relaxation are as an effective and practical aims. So, it is suggested that effect of other relaxation methods with physical activity and also interactivities influences of combination training types would be used.

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