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Effect of JPMR on State-Trait Anxiety among young female adult during COVID-19 pandemic lockdown

Vani Sudheer

Masters in Applied Psychology, Department of Psychology (Aided), PSG College of Arts & Science, Coimbatore.

Dr. K P Naachimuthu

Assistant Professor, Department of Psychology (Aided), PSG College of Arts & Science, Coimbatore-641014

Abstract---The worldwide pandemic situation that is caused by coronavirus disease 2019 (COVID-19) has led the population to a state of confinement, which has created a rise in state trait anxiety among people around us. COVID-19 affected our psychological state similarly as our physical health. The research design used in this study is quasi experimental research design and the questionnaire used was State Trait Anxiety Inventory (STAI Form Y-1 & Y-2 Charles D. Spielberger, 1983). Study includes 30 young female adult and out of that 15 subjects were taken into account as experimental group and were given the JPMR as the intervention plan for one month. The objective of our study is to find the effectiveness of JPMR on state trait anxiety. After the intervention data was analysed using paired t-test and correlation. Although result proved that for state anxiety obtained P value is 0.000 which is significant at 0.01 level ($t = 7.08$, $p = 0.000$) indicating that JPMR therapy was effective in reducing the state anxiety for the experimental group. No significant difference found in trait anxiety in both experimental and control group. The overwhelming evidence supports that there is a significant reductions in symptoms and the behaviour of state anxiety shows how beneficial this method JPMR can be.

Keywords---COVID-19, State Trait Anxiety, JPMR.

Introduction

State anxiety is defined as a transient response to stress that consists of subjective feelings of tension, apprehension, nervousness, worry, and arousal of the autonomic nervous system. Trait anxiety refers to relatively stable individual

differences in anxiety proneness within the intensity of their state anxiety and its reactions.

Young adults during COVID-19 could experience state or trait anxiety or both. Jacobson Muscle Relaxation Technique consists of tensing and relaxing muscles by forming basic connection between the body and mind in order to prepare themselves to face situation and this will make them to require appropriate decision, handle stress, frustration, anger and emotion in their life situation.

Material and Methods

Participants

The study consisted of 30 female participants of young adulthood. The subjects were selected on the basis of inclusion criteria. Among 30, 15 were selected as samples for the experimental group and other 15 were in the control group. Population include female young adult student (18-25 years old).

Inclusion Criteria

- Female young adult student who is 2020 pass out
- Those having problem regarding finding job and those who find it difficult to join new course
- Those who are facing trouble in handling emotion and have problems in taking decision during this COVID19 only
- Those who does not practice any other relaxation technique or yoga or meditation.
- Those students who scored high on STAI.

Exclusion Criteria

- Male young adult student
- Excluded those who are currently doing their studies
- Those who have scored moderate and low on STAI
- Those who practice relaxation therapy , yoga and meditation

The study utilized quantitative study approach. The study was conducted in two phases. Pre assessment was done for state trait Anxiety, and progressive muscle relaxation was given to the participants in first phase. Post-test was done for state trait Anxiety in the second phase. In analysing of nature of the problem and to accomplish the objectives of the study pre-test post-test design was used to evaluate the effectiveness of Jacobson Progressive Muscular Relaxation Therapy on level of state trait anxiety.

Thus quasi-experimental research is a research that is similar to experimental research but is not true experimental research. In a pretest-posttest design, the dependent variable is measured once before the treatment is implemented and once after it is implemented before and after intervention. In this study state trait anxiety is the dependent variable is measured using STAI both in the experimental and the control group and the JPMR is given as the treatment for only experimental group for one month duration and once after it is implemented

again the state and trait anxiety is assessed using STAI. JPMR was not given to the control group. Under Quasi Experimental research design ,Non-Equivalent control group design is used this means that except for random assignment of the subject to experimental and control group, the pre-test post-test design control group design, this design is identical to that design.

Statement of the problem

Effect of Jacobson Progressive Muscle Relaxation on State trait anxiety among young female adult during COVID 19

Objective

To assess the effect of JPMR on state trait anxiety among female young adults during COVID19 pandemic period.

Hypothesis

- There is no significant difference in State anxiety before and after the intervention among female young adult.
- There is no significant difference in trait anxiety before and after the intervention among female young adult

Measures

Demographic Data

A demographic data sheet was used in order to collect personal information regarding the participants which assure confidentiality in the personal details collected. The personal details like name (optional), age, gender and annual income are used to get the personal information from each individual.

State Trait Anxiety Inventory

State trait anxiety was measured using the State Trait Anxiety Inventory (Form Y-1 & Y-2) developed by Charles D. Spielberger in 1980. The State-Trait Anxiety Inventory (STAI) has been used widely in research and for clinical practice. It have separate self-report scales for measuring both state anxiety and trait anxiety. The State-Anxiety scale (STAI Form Y-1) consists of twenty statements and the Trait-Anxiety scale (STAI Form Y-2) consists of twenty statements that assess how the people generally feel.

Scoring: Each item in STAI has got a score of 1 to 4. The scoring weights for the anxiety-absent items are reversed, i.e., responses marked 1, 2, 3, or 4 are scored 4, 3, 2, or 1, respectively. The anxiety-absent items has got the reverse scoring weights on the State Anxiety and Trait Anxiety scales are: S-Anxiety: 1, 2, 5, 8, 10, 11, 15, 16, 19, 20 T-Anxiety: 21, 23, 26, 27, 30, 33, 34, 36, 39 To obtain scores for the State Anxiety and Trait Anxiety scales, simply add the scores for the twenty items and taking into account the fact that the scores are reversed for the above items number. Scores for both the State-Anxiety and the Trait -Anxiety scales can be from a minimum score of 20 to a maximum score of 80. The raw score is converted to standard score using the norm table. (STAI Manual).

Interpretation: The standard score from 20-40 is interpreted as low, 41-60 is interpreted as medium and 61-80 is interpreted as high score

Reliability and validity: An internal consistency reliabilities coefficient for the scale is ranged from 0.86 to 0.95; test-retest reliability coefficients have ranged from .65 to .75 over a 2-month interval (Spielberger et al., 1983). Test-retest coefficients for this measure in the present study ranged from 0.69 to 0.89. Considerable evidence that to the construct validity and concurrent validity of the scale (Spielberger, 1989).

Procedure For The Intervention

The purpose of the study was explained to 15 participants in the experimental group. The participant's willingness to participate in the study was ascertained after establishment of rapport. The demographic details were collected. The participants were briefed about the intervention and were provided with clear instruction. The State Trait Anxiety Inventory was administered. Then the scoring was done and the intervention was made. The questionnaire was given to participant through goggle form, making them clear with intention of study.

Procedure for JPMR

Step 1. Sit in a comfortable position. You may close your eyes and be quiet.

Step 2. Have a passive attitude. Focus on yourself by avoiding distraction and on achieving relaxation in specific body muscles. Tune out all other thoughts.

Step 3. Following group of muscle is tensed and relax:

- Fists – Clench both the fists and hold and then relax
- Biceps – Bend both elbows, tense bicep muscles
- Triceps – Straighten the both right and left arms, tense muscles in back of arms hold it a minute and then relax
- Forehead – Wrinkle forehead in an exceedingly frown and hold it and relax.
- Eyes – Close eyes tightly and hold it a minute
- Jaw – Gently clench the jaw
- Tongue – Press the tongue against roof of mouth and hold it then release it
- Lips – Press together and hold
- Neck – Gently press neck to the back and hold. Then bring head forward to chest and hold it then relax
- Shoulders – Shoulders as high as you'll be able to and hold stomach out the maximum amount as possible and hold
- Lower back – Gently arch up the lower back
- Thighs – Tense by lifting legs off the floor and hold it.
- Calves – Press the toes downward and release it and relax .
- Shins and ankles – Bend the feet toward head and hold it and then relax

It is instructed before doing the therapy person must sit straight and in comfortable posture. It should be done in a calm environment and avoid the distraction.

Step 4. Focus on muscles tensed. If any muscle remains tense, tighten it and then relax that specific muscle three or four times.

Step 5. Fix the feeling of relaxation in your mind. Resolve to repeat the process again.

Remember, people respond differently to various activities. Some feels refreshed that is, free from fatigue, and others feel calm and relaxed after an activity like this one.

After exercise:

- a) Relax the whole body completely. Two minute of relaxation
- b) Keep your eyes closed and let themself remain in a relaxed position.
- c) After sometimes open the eyes and enjoy the calmness in the body, feel relaxed and refreshed.
- d) Stretch your body and stand up slowly

Duration

Duration of intervention: 1 month

Duration of therapy: 15 to 20 minutes

Results

Statistical Package for Social Science version 20.0 was used for the analysis of data. The mean difference between pre -test and post test scores for state anxiety in experimental group (65.26 ± 3.30 and 46.33 ± 10.60) shows a mean difference and the obtained P value is 0.000 which is significant at 0.01 level ($t = 7.08$, $p = 0.000$) indicating that JPMR therapy was effective in reducing the state anxiety.). The mean score of state anxiety after practicing JPMR was less than before relaxation therapy (46.33 ± 10.63 compared with 65.26 ± 3.30) So we reject our null hypothesis in favor of the alternative hypothesis that is, there exist a significant difference in state anxiety before and after JPMR intervention. P value for trait anxiety in experimental group is 0.018, so there is no significance. In control group no significant mean difference is found in state anxiety ($P = 0.08$) and trait anxiety ($p = 0.55$).

Table 1 shows the mean difference when compared with state and trait anxiety among experimental and control group

Dimension	Groups	Pre test score		Post test score		Paired t test
		Mean	Standard deviation	Mean	Standard deviation	P value and t value.
STATE ANXIETY	Experimental Group	65.26	3.30	46.33	10.60	$P = 0.000$, $t = 7.08$
	Control Group	68.93	6.28	71.0	4.61	$P = 0.018$ $t = -2.67$
TRAIT ANXIETY	Experimental Group	38.66	10.66	37.93	10.23	$P = 0.32$ $t = 1.02$
	Control Group	48.06	11.37	47.06	10.95	$P = 0.55$ $t = 2.09$

Table 2 shows the correlation value when compared with state and trait anxiety among experimental and control group

GROUP		CORRELATION VALUE
EXPERIMENTAL GROUP	Pretest and post test score of state anxiety	0.23
	Pretest and post test score of trait anxiety	0.26
CONTROL GROUP	Pretest and post test score of state anxiety	0.35
	Pretest and post test score of trait anxiety	0.28

The result shows no significant correlation both in experimental and control group.

Discussion

Anxiety of being ill, social and economic problems and being under quarantine can cause more anxiety and depressive symptoms in individuals during pandemic. However there are currently a small number of studies on the impact of the COVID-19 pandemic on the emotional state and anxiety levels of people, which the whole world is battling against. In addition to physical health, the mental health of society may be highly problematic during pandemic times. The goal of the study was to identify the female young adult subject who have scored high score state trait anxiety and evaluate the effectiveness of Jacobson's Progressive Muscle Relaxation in reducing the state trait anxiety.

Study included 30 participants and out of that 15 subjects were taken into account as experimental group and were given the JPMR as the intervention plan. Participants in experimental group show high score in state anxiety. The qualitative research extends our perception of the psychological process encountered by people. Participants described their sense of anxiousness and chaos at the outbreak of the epidemic, in their introspective report like "During the pandemic period I was stopped working properly during the pandemic time. I have been continuously worrying about what the situation will be in a few more days and when during this time I will be able to experience the usual way and how I should act. I have been much more concerned about the future every day, exhausted and worried about my family, my friends, the whole world. I'm nervous. I'm more frustrated, and I don't feel like speaking to anyone. I'm a student, and I can't focus on my studies or work from home, either. I don't work. I feel as if I am anxious.

Some of the participants explained how their behaviour and feelings were influenced by their worries and fears. They mentioned about the sleep disturbances, restlessness, irritability, anger and difficulties in performing tasks. They felt anxious, depressed, anxious, sad and lonely as well as nervous, uncertain and helpless while facing this situation as per their introspective report. State anxiety is a transient response to stress that consists of subjective feelings of tension, apprehension, nervousness, worry, and arousal of the autonomic

nervous system (Spielberger and Sydeman, 1994). In the unique case of the COVID-19 outbreak, increased exposure to risk increases people's fears about the situation (Garfin,2020).

The entire participant in the experimental group had a significant decrease in state anxiety symptoms, when compared to the control group. JPMR reduced negative and repetitive thinking, and controlled their emotions like anger and gave them a calming effect. A study proved that CBT was superior to nondirective therapy but to not applied relaxation (Borkovec &Costello, 1993); further Borkovec et al.(1987) result proved that there is no significant effect in CBT on depression among treatment completers. JPMR is a primary method that can be easily learned to achieve relaxation. It is an effective intervention in reducing emotional distress (W.C. Chen,2009). Regular practice of PMR can also enhance coping ability in a variety of stressful situations (Molassiotis,2000). Furthermore, several observational studies have found that JPMR can boost self-control feelings (W.C. Chen,2009) (L. Baider1994)

After intervention most of the participants felt relaxed and reduced the negative emotional states and most of them have returned to the normal state of emotion. The participants subjective report revealed that they were able to control their anger . PMR is based on the psycho-biological condition called neuromuscular hypertension as the basis for a number of psychosomatic disorders and negative emotional states (Ghoncheh S, Smith JC, 2004) When the body is in a relaxed state however, there will be little or no muscle tension leading to decreased anxious feelings in the person Jacobson believed that one's body is relaxed; one's mind cannot be in a state of having anxiety.

PMR can also help an individual to become more conscious about the how their physical stress can lead to their emotional state. By calming the body, an individual is able to let go of nervous thoughts and negative feelings. It will certainly help them to relieve negative emotional states and better cope with the everyday problems of daily life if progressive muscle relaxation is practiced and integrated into their daily routine shows a better result. Jacobson was able to prove the connection between excessive muscular tension and different disorders of body and psyche (Jacobson,1989). Past research has shown that the use of Progressive Muscle Relaxation Therapy has strengthened symptoms related to anxiety (Redd et al., 2001; Burish and Tope, 1992). Indian research has shown that PMRT is effective in reducing anxiety (Ranjita and Sarada, 2014). Tension does not exist on its own but is reflexively integrated into the complete organism. The patterns in our muscles differ from moment to moment, partly constituting our thought modus operandi and variously engaging muscles across our body, just as our grossly obvious movements do. It explains my study.

Participants have reported that they had difficulty in thinking like confused state, state of tension and thought disturbances often but after all it was reduced after the intervention. My findings are also too supported by the research findings of Conrad and Roth (2007) .Anxiety-induced skewed cognitions can lead to psychological disorders and complications that can impair one's ability to work in daily life (Goldin ,2010).The cognitive distortion is minimized by practicing JPMR. Anxious habits, such as rumination and imagination, discourage people from

acquiring this mindful and relaxed mentality .Progressive Muscle Relaxation has the potential to decrease anxiety levels and in doing so might lead to clearer thinking and improved communications skills and by reducing the activity of the sympathetic nervous system, side effects of stress and anxiety can be prevented, and physical and mental relaxation can be increased.

Participants have reported that they do face sleep disturbance during this situation and makes them fatigue. But the practice of JPMR there sleep pattern came into normal state. Result showed JPMR were effective in promotion of sleep quality (Atadokht K; et al, 2015). There are supporting studies regarding the reduction of fatigue and sleep disturbances after practicing the JPMR. A study results showed better function of JPMR compared to aerobic exercise in improving the symptoms of anxiety, sleep disorders, and fatigue (Amini E; et al2016). This supports the fact that the participants who have scored high in state trait anxiety and who have reported the sleep disturbances, after practicing JPMR they could improve their sleep quality.

The overall findings pointed out to the presence of mean difference between pre test and post test scores in experimental group (65.26 ± 3.30 and 46.33 ± 10.60) shows a mean difference and the obtained P value is 0.000 which is significant at 0.01 level ($t = 7.08$, $p = 0.000$) indicating that JPMR therapy was effective in reducing the state anxiety. In this study, pretest versus posttest showed a statistically significant steady decline of state anxiety among those female young adult. But on analysing the trait anxiety there is no significant differences because trait anxiety is relatively stable individual differences in anxiety proneness, that is, to differences between people in the tendency to perceive stressful situation as dangerous or threatening and to respond to such situations with elevations in the intensity of their state anxiety (S-Anxiety) reactions. A study supports the effective treatment of anxiety by mindfulness practices because they offer efficient ways of interpreting and coping with potentially unpleasant or harmful circumstances by allowing acceptance instead of judgment (Chen et. al, 2012).

Participant who has scored high in state anxiety and reported sleep disturbances and distorted thought has reduced after practicing JPMR. It was reported by the participants after the intervention. A study has shown that the critical determinant of sleep disorders is the cognitive aspect of worry. But those who scored in trait anxiety can have this problem, but trait anxiety cannot be reduced by using JPMR. The result of shows there is no significance in before and after intervention both in experimental and control group. The study concluded that JPMR is effective for the reducing the state anxiety but not for trait anxiety.

Conclusion

The overwhelming evidence supports that there is a significant reductions in symptoms and the behaviour of state anxiety shows how beneficial this method JPMR can be. Anxiety causes people to see risk in a situation that can be perceived as neutral by most people. It will activate the ANS. Implementing JPMR into one's everyday life helps one become more attentive to, rational in, and accepting of any situation that comes their way. A total sample of 30 young

female adults (18 – 25 age groups) was participated in the study. Convenient sampling was used as the sampling method to select the participants. Among 30, 15 participants were selected for the intervention JPMR based on inclusion and exclusion criteria, and the other 15 participants remained as control group without any intervention. State trait anxiety was measured using State Trait Anxiety Inventory (STAI developed by Spielberger) and it included the participant who scored high in STAI. The participants in the experimental group received JPMR for one month duration. JPMR is a simple and economic therapy that promotes a healthier lifestyle for all that partakes, no matter the severity or course of one's mental health status. During the intervention the subjective report from the participant and the observant.

The main objective of the study is to find out the effectiveness of JPMR on state trait anxiety. The paired t test finding pointed out the presence of mean difference between pre-test and post test scores in experimental group (65.26 ± 3.30 and 46.33 ± 10.60) shows a mean difference and the obtained P value is 0.000 which is significant at 0.01 level ($t = 7.08$, $p = 0.000$) indicating that JPMR therapy was effective in reducing the state anxiety. In correlation there is no significant correlation found between the state anxiety and trait anxiety before and after the intervention in the Experimental group and control group.

Female young adult Students that experienced state anxiety may see that after intervention there is reduction in state anxiety, but no significant mean difference in trait anxiety. While it is expected that the experimental group experienced reductions in both state and trait anxiety scores, it was predicted that the control group would exhibit change. The changes in scores of the trait anxiety in experimental group were not significant than the state anxiety in experimental group when looking at overall, state and trait anxiety. The changes the participants reported in the subjective report was that there is an improvement in concentration, reduced fatigue and nervousness, able to control anger and was able to think properly without any worry. Deep breathing and other relaxation exercises (such as yoga, JPMR). Society needs to look at mental conditions in the future and emphasize how they physically affect us as well.

It is important for researchers to further study the relationship between our mind and our body to better understand alternative methods of treatment. Nervous thoughts can cause physical outcomes such as sweating and high heart rate (Chen et. al, 2012). Through finding a way to calm and relax one's mind, it can simultaneously relieve the body from physical excitement. Participant should have as many options as possible to decrease distress and further research on JPMR on state trait anxiety will strengthen this study.

Limitations

- In this study non randomised way of sampling method, convenient sampling is used due the lockdown period.
- The research design used is Quasi Experimental research design, because of non-randomization, where it ignores the directionality and participants are not randomly assigned.

- Also in regards to the participants, there ideally should have been an equal number of male and female, because in this study it has included female participants, it is a drawback. This would allow the variables of gender instead of a possible confound.
- Another limitation is that there was no way to measure if the participants were actually meditating every day. The observer and I asked the participants daily if they were, but self-report is not always a valid measure of participation.

Implication and Recommendations

Main implication of this study is to reduce state anxiety during this COVID 19 pandemic period. In similar cases, such as COVID 19, this technique can be used to reduce state anxiety. JPMR will help the college student to reduce anxiety, anger, stress, frustration due to not achieving a goal, insomnia, muscle tension, fatigue and it will increase their self-esteem and concentration level, help them for the positive development in academics, boost confidence to handle problem and built them up emotionally. In the educational sector, this research can be further used as a strategy to regulate their emotions and reduce the anxiety and stress of the exam and to calm them. This research can be applied in companies as a way to minimize the burnout of employees. The current study shows that a substantial number of students will perform identical studies and involve both sexes in different academic settings. Interventions such as Progressive muscle relaxation training can be very effective in minimizing negative emotional states in the competing academic life of students of any age group. As part of co-curricular activities, educators may thus integrate this training tool to enhance student motivation, focus, minimize stage fear and fear of public speaking, and feel relaxed when learning.

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