

# Effects of Progressive Relaxation Technique on Zoom Fatigue: An Experimental Study

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*Abstract— With the surge in virtual meetings due to the COVID-19 pandemic, "Zoom fatigue" has become a prevalent issue, characterized by mental exhaustion and decreased productivity resulting from prolonged video conferencing. This study aims to investigate the effects of the progressive relaxation technique on Zoom fatigue. The primary objective is to assess whether progressive relaxation can effectively reduce the symptoms of Zoom fatigue. An experimental study was conducted over a duration of six months with a sample size of 60 participants, selected through convenient sampling. Participants were divided into an experimental group and a control group. The experimental group practiced progressive relaxation techniques over a four-week intervention period, while the control group did not receive any intervention. Inclusion criteria for participants included [specify criteria, e.g., age range, frequency of Zoom usage, absence of pre-existing severe mental health conditions, etc.]. Quantitative data were collected using pre- and post-intervention surveys measuring fatigue levels, stress, and overall well-being. The results indicate that participants in the experimental group experienced a significant reduction in Zoom fatigue compared to the control group. Additionally, improvements in concentration and emotional resilience were observed among those practicing the progressive relaxation technique. This study suggests that progressive relaxation is an effective method for mitigating Zoom fatigue, offering a practical solution for individuals experiencing burnout from frequent virtual meetings. The findings have significant implications for both professional and educational settings, promoting mental health and productivity in an increasingly digital world.*

*Index Terms- Zoom Exhaustion and Fatigue, Progressive Relation Technique*

## I. INTRODUCTION

Definition - Zoom fatigue describes the tiredness, worry, or burnout associated with overusing virtual platforms of communication.

In March 2020, the World Health Organization declared COVID-19 a pandemic, leading to the declaration of a public health emergency. Public health measures, such as social distancing, quarantine, and closing places of social contact (e.g., schools and businesses) were adopted by governments around the world to slow down the spread of the virus. As a consequence, regular activities individuals usually performed outside of their home had to be conducted at home. For example, dramatic increase in the percentage of the US workforce that worked entirely from home, rising from 8.2% in February 2020 to 35.2% in May 2020. With individuals sheltered at home and trying to remotely conduct their daily activities, video conferencing has become a crucial tool for education, healthcare, and business. A prime example is the rapid rise in the use of Zoom, a video conferencing app. a growing concern about exhaustion, with the term "Zoom Fatigue" catching on quickly in the popular media. To our knowledge, there is little empirical research examining the effects of this uptick in Zoom usage. Early research (Hinds, 1999) demonstrated that video conferencing increased cognitive load, compared to voice calls. Four possible explanations for nonverbal causes of Zoom Fatigue: extraordinary amount of eye gaze at a close distance, limited physical mobility, constant viewing of self-video, and increased cognitive load for senders and receivers.

One significant reason is the close-up eye contact, which stimulates the sympathetic nervous system, causing an adrenal rush. Constantly seeing oneself during video chats adds to the fatigue, as it creates a mirror image effect, making individuals overly self-aware and conscious of their movements in real-time. Additionally, video chats severely limit usual mobility, as common activities like preparing for work, commuting, and attending meetings are

drastically reduced. This reduction in physical movement, combined with the increased cognitive load required during video interactions, exacerbates the feeling of fatigue.

Several concepts explain the underlying causes of this increased load. For instance, heightened self-awareness and misleading nonverbal cues due to time lags in facial expressions and gestures lead to delayed responses and frustration. The disconnect between the body and mind, where physical positions do not match mental demands, along with inappropriate sitting postures, further strain the body. Prolonged stimulation of the sympathetic nervous system also contributes to the symptoms of Zoom fatigue.

These symptoms include forgetfulness, difficulty concentrating, reduced motivation to work, and challenges in maintaining personal relationships. Individuals may also experience frustration and irritability with co-workers, muscle tension, pain, and insomnia. Collectively, these factors highlight the multifaceted nature of Zoom fatigue and its significant impact on both mental and physical health.

- Objective

To study the effects of progressive relaxation techniques on zoom fatigue.

- Aim

Effects of progressive relaxation techniques on zoom fatigue.

## II. MATERIALS & METHODS

Ethical clearance for this study will be obtained from the institution, and informed consent will be secured from all participants. Each participant will complete a self-made questionnaire that includes questions about their name, age, and history of exposure to digital tools. Initial measures of fatigue and stress will be taken using the Zoom Exhaustion and Fatigue Scale and NPRS for pain. Participants will then receive training in the progressive relaxation technique. They will perform the progressive muscle relaxation technique on alternate working days, lasting 20 minutes per session, totaling three days per week. The intervention will begin on the first working day of the week and will continue for a period of four weeks. The

interpretation of the study will be done based on pre and post scores on zoom exhaustion and fatigue scale.

### Relaxation (Progressive Muscle Relaxation)

- Step 1

Choose a quiet place in your home, a comfortable chair or a sofa. Close your eyes if you feel distracted.

- Step 2

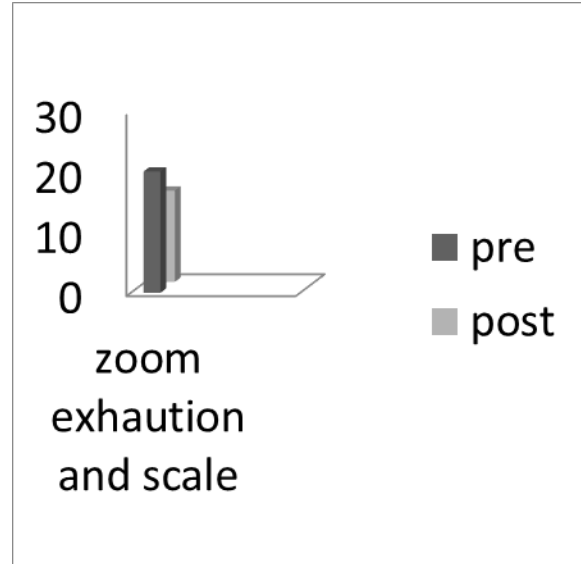
Take a deep breathe through your nose feeling your abdomen rise as you fill your body with air. Then slowly exhale through your mouth. Repeat it two or three times.

- Step 3

The below table provide step by step procedure for each muscle starting with forehead. If you have any difficulty in relaxing a particular muscle group, just skip to the next group of muscles. It is not important to expect all muscle groups have to achieve the same level of deep relaxation

MUSCLE GROUP	PROCEDURE
Forehead	<ol style="list-style-type: none"> <li>1. Squeeze the muscle in your forehead by lifting the eyebrows as high as you can, push your eyebrows up, putting tension in the forehead and scalp areas.</li> <li>2. Hold it for few seconds</li> <li>3. Then slowly relax, letting your eyebrows drop and notice the release of tension in the forehead</li> <li>4. Feel the relaxation for few seconds (10 seconds).</li> </ol>
Eyes and Nose	<ol style="list-style-type: none"> <li>1. Close your eyes very tightly, narrow them hard so you can feel the tension around your eyes. At the same time, wrinkle your nose; Notice the tension around the eyes, nose, and upper cheeks.</li> <li>2. Hold it for few seconds.</li> <li>3. Now, slowly relax, release the tension around your eyes and nose.</li> <li>4. Keep your eyes closed and focus on the relaxed feelings around your eyes and nose for few seconds.</li> </ol>
Jaw and neck	<ol style="list-style-type: none"> <li>1. Tense the jaw by biting the teeth together, feel the tension in jaw.</li> <li>2. Bring your head down and press the chin down towards the chest. Notice the tightness of your muscles around the mouth, jaw and front part of the neck.</li> <li>3. Hold it for few seconds.</li> <li>4. Now, relax, release the tension.</li> </ol>
Shoulders and back	<ol style="list-style-type: none"> <li>1. Move forward in the chair and bring the elbows up and back so that you can feel your shoulder blades being pushed together. At the same time, the chest is being pulled out. Notice the tension in the shoulders and upper back.</li> <li>2. Hold it for few seconds.</li> <li>3. Now, relax, release the tension by sitting back in the chair, placing your arms in your lap and allowing the shoulders to fall back into their normal position.</li> </ol>
Right arm	<ol style="list-style-type: none"> <li>1. Stretch your right arm straight out, make a tight fist, and tighten the whole arm from hand to shoulder. Notice tension in biceps, forearm, elbow, wrist, and fingers.</li> <li>2. Hold it for few seconds.</li> <li>3. Then relax, release the tension bending the arm at the elbow and resting it on your lap.</li> </ol>

Left arm	<ol style="list-style-type: none"> <li>1. Stretch your left arm straight out, make a tight fist, and tighten the whole arm from hand to shoulder. Notice tension in biceps, forearm, elbow, wrist, and fingers.</li> <li>2. Hold it for few seconds.</li> <li>3. Then relax, release the tension bending the arm at the elbow and resting it on your lap.</li> </ol>
Chest	<ol style="list-style-type: none"> <li>1. Tighten the chest by taking a deep breath and then hold it. Feel the tension in the chest as you fill the lungs with air.</li> <li>2. Hold it for few seconds.</li> <li>3. Now relax and slowly breathe out.</li> </ol>
Stomach	<ol style="list-style-type: none"> <li>1. Tighten the stomach by pulling in the stomach. Notice the tension in your stomach and how hard it feels.</li> <li>2. Now relax, release the tightness in your stomach.</li> </ol>
Right leg	<ol style="list-style-type: none"> <li>1. Lift your right leg off the floor so that your leg is fully stretched outward, bend your toes inward toward you, and tighten your whole leg as much as possible. Notice the tension in your foot, calf, knees, and thighs.</li> <li>2. Hold it for few seconds.</li> <li>3. Now relax, slowly release by lowering your leg back to the floor and bending your knee slightly so that your foot is on the floor.</li> </ol>
Left leg	<ol style="list-style-type: none"> <li>1. Lift your left leg off the floor so that your leg is fully stretched outward, bend your toes inward toward you, and tighten your whole leg as much as possible. Notice the tension in your foot, calf, knees, and thighs.</li> <li>2. Hold it for few seconds.</li> <li>3. Now relax, slowly release by lowering your leg back to the floor and bending your knee slightly so that your foot is on the floor.</li> </ol>



• Step 4

After doing all the steps, relax your whole body. Keep your eyes closed and let yourself be in the relaxed position for a while. After few seconds take your own time and slowly open your eyes. Now, feel the renewed energy and feel refreshed.

Tips for maximum benefit (Bourne, 2000)

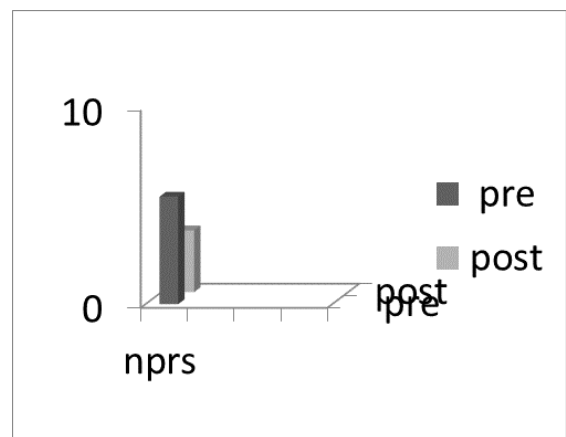
- Practice PMR always on an empty stomach and wear loose-fitting garments.
- Remove shoes, watches, and glasses and keep eyes closed.
- It is important to allow a few seconds of silence before you go to the next muscle group. Do not hurry to finish.
- During each phase of release, one should learn to repeat the word “relax.” Sincerity, commitment and regularity will bring effective results.
- Do not control or evaluate any thoughts, just allow it to pass or let go.
- It is a must to practice twice a day for 15 minutes preferably at a regular time.
- Beginners should repeat each muscle group exercise twice before proceeding to the next set of muscles

III. STATISTICAL ANALYSIS

Comparisons between pre and post treatment values of zoom exhaustion and fatigue scale shows a significant difference

	Zoom exhaustion and fatigue scale (pre)	Zoom exhaustion and fatigue scale (post)
Mean	20.10	15.12
Standard deviation	4.05	2.79
T value	17.6881	
P value	<0.0001	

Comparison between pre and post nprs values for headaches during work hours shows a significant difference



	NPRS for headache s during work hours (pre)	NPRS for headache s during work hours (post)
Mean	5.45	3.13
Standard deviation	1.87	1.24
T value	14.2943	
P value	<0.0001	

#### IV. RESULT

- The comparison of NPRS values Pre and Post progressive relaxation technique P value was <0.001 which considered extremely significant. The pre-treatment mean was 5.45 with SD of 1.87 while post-treatment mean was 3.13 with SD of 1.24. The t value was 14.2943.
- The comparison of zoom exhaustion and fatigue scale values Pre and Post progressive relaxation technique P value was <0.001 which considered extremely significant. The pre-treatment mean was 20.10 with SD of 4.05 while post-treatment mean was 15.12 with SD of 2.79. The t value was 17.6881.

#### V. DISCUSSION

The present study was undertaken to find the effectiveness of progressive relaxation technique in reducing the symptoms of zoom exhaustion and fatigue. (18-35 years)

In this study total 60 participants were included who were asked to perform progressive relaxation method for 4 weeks (3 times per week)

- The subscript for the permeability of vacuum  $\mu_0$ , and other common scientific constants, is zero with subscript formatting, not a lowercase letter “o.”
- In American English, commas, semi-/colons, periods, question and exclamation marks are located within quotation marks only when a complete thought or name is cited, such as a title or

full quotation. When quotation marks are used, instead of a bold or italic typeface, to highlight a word or phrase, punctuation should appear outside of the quotation marks. A parenthetical phrase or statement at the end of a sentence is punctuated outside of the closing parenthesis (like this). (A parenthetical sentence is punctuated within the parentheses.)

- A graph within a graph is an “inset,” not an “insert.” The word *alternately* is preferred to the word “alternately” (unless you really mean something that alternates).
- Do not use the word “essentially” to mean “approximately” or “effectively.”
- In your paper title, if the words “that uses” can accurately replace the word using, capitalize the “u”; if not, keep using lower-cased.

The outcome measures were NPRS scale for pain(headaches) & zoom exhaustion and fatigue scale. The scale was initially introduced by Stanford University. The questionnaire used for this study was a shorter and modified version of the scale. The scoring system was retained from the original scale.

When the pre and post nprs scores of the samples were compared, the treatment protocol showed significant effectiveness.

When the pre and post zoom exhaustion and fatigue scale scores were compared, the treatment protocol again showed significant effectiveness.

Progressive relaxation technique is based on the principle of contract and relax. This manoeuvre stimulates the nervous system in a rhythmic pattern. The rhythmic stimulations block pain pathway thereby relieving pain complaints of an individual.

Progressive relaxation also improves blood circulation as muscles are contracted and relaxed. The improved circulation is observed in previous study to reduce bp, pr and rr.

Progressive relaxation technique also stimulates parasympathetic nervous system reducing the effects of adrenal rush caused by using video conferencing tools

## CONCLUSION

In this study progressive relaxation technique shows significant effect in reducing exhaustion fatigue and headaches among individuals with excessive use of video conferencing tools.

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