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PROGRESSIVE MUSCLE RELAXATION (PMR) TRAINING TO IMPROVE MENTAL HEALTH OF COVID-19 SURVIVORS AT TANJUNG MEDANG HEALTH CENTER

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Abstract. *Despite being declared cured, some of the patients recovering from COVID-19 experience sequelae that last weeks or months. This situation can increase the risk of mental health, one of which is anxiety disorders. One therapy in overcoming anxiety problems is doing progressive muscle relaxation exercises. Progressive muscle relaxation training is an active technique that involves participants actively contracting muscles to create relaxation by progressively relaxing them. In August of 2022, a series of activities were implemented for individuals who had survived COVID-19 in the North Rupat District of the Bengkalis Regency. Participants included patients who had been previously diagnosed with COVID-19 of various ages and were currently experiencing sequelae of COVID-19 such as anxiety. Participants were given counseling about mental health after COVID-19. After that, the survivors were demonstrated and invited to participate in practicing progressive muscle relaxation (PMR) exercises. The DASS score before activity indicated 20% of the survivors who attended experienced anxiety. After the counseling and training, there was an increase in knowledge regarding the average post-test score of 92 compared to the average pre-test score of 65. This PMR knowledge is expected to be practiced sustainably by the community to improve mental health.*

Keywords: *Anxiety; COVID-19; Mental health; Progressive muscle relaxation training; Survivors*

Abstrak. *Meskipun telah dinyatakan sembuh, beberapa pasien yang sedang dalam proses pemulihan dari COVID-19 mengalami gejala sisa yang berlangsung selama berminggu-minggu atau berbulan-bulan. Kondisi ini dapat meningkatkan risiko gangguan kesehatan mental, salah satunya adalah gangguan kecemasan. Salah satu terapi untuk mengatasi masalah kecemasan adalah dengan melakukan latihan relaksasi otot progresif. Latihan relaksasi otot*

progresif merupakan teknik aktif yang melibatkan peserta untuk secara aktif mengencangkan otot-otot guna menciptakan relaksasi dengan cara melemaskan otot-otot tersebut secara bertahap. Pada bulan Agustus 2022, serangkaian kegiatan dilaksanakan bagi para penyintas COVID-19 di Kecamatan Rupat Utara, Kabupaten Bengkalis. Peserta kegiatan ini terdiri dari pasien yang sebelumnya didiagnosis mengidap COVID-19 dari berbagai kelompok usia dan saat ini mengalami gejala sisa COVID-19 seperti kecemasan. Para peserta diberikan konseling mengenai kesehatan mental pasca-COVID-19. Setelah itu, para penyintas diperagakan dan diajak untuk berpartisipasi dalam latihan relaksasi otot progresif (PMR). Skor DASS sebelum kegiatan menunjukkan bahwa 20% dari para penyintas yang hadir mengalami kecemasan. Setelah konseling dan pelatihan, terjadi peningkatan pengetahuan yang ditunjukkan oleh skor rata-rata pasca-tes sebesar 92 dibandingkan dengan skor rata-rata pra-tes sebesar 65. Pengetahuan mengenai PMR ini diharapkan dapat dipraktikkan secara berkelanjutan oleh masyarakat guna meningkatkan kesehatan mental.

Kata Kunci: *Kecemasan; COVID-19; Kesehatan mental; Latihan relaksasi otot progresif; Para penyintas*

Introduction

Coronavirus diseases 2019 (COVID-19) pandemic caused substantial mortality and morbidity around the world. Among confirmed COVID-19 cases, around 80% had mild to moderate diseases with 5% among those develop severe diseases (Wu and McGoogan, 2020). Even though the patients were declared cured (i.e., negative for SARS-CoV-2), many of them still experience sequelae going for weeks or even months. This sequelae is termed "Long COVID" (Raveendran, Jayadevan and Sashidharan, 2021). Long COVID can affect the recovered patient's quality of life and cause anxiety, depression, and sleep problems (Michelen et al., 2021).

During the COVID-19 pandemic, one of the measures taken to prevent its spread was isolation. However, it has been shown to be associated with mental health problems (Hossain et al., 2020). Data from Canadians suggests that from April to May 2020, 24% of respondents reported moderate to poor mental health problems. This is a threefold increase from previous years. This shows that mental health problems are increasing. The incidence of stress was reported by 28% of all respondents (Government of Canada, 2020). Studies in

adults in the United States found a high incidence of depressive symptoms with more than 25% reporting moderate to severe anxiety symptoms (Fitzpatrick, Harris and Drawve, 2020). A meta-analysis on the prevalence of mental health disorders among COVID-19 survivors found that 20% of survivors experienced post-traumatic stress disorder (PTSD), 22% experienced anxiety, 36% experienced psychological distress, 21% experienced depression, and 35% experienced sleep disturbances (Khraisat et al., 2022). Another study showed that seven months after hospitalisation, 16.2% of survivors showed symptoms of anxiety, 19.7% had symptoms of depression, and 34.5% of survivors had poor sleep quality (Fernández-de-las-Peñas et al., 2021). Overall, the data suggests that the COVID-19 pandemic has impacted psychological well-being. Therefore, it is necessary to make efforts to improve mental health in COVID-19 survivors. Progressive muscle relaxation training can be useful in reducing stress and anxiety. The training is an active relaxation technique that involves participants actively contracting muscles to create tension and progressively relaxing them (Zargarzadeh and Shirazi, 2014). The effects of this technique have been widely demonstrated in various studies. A study conducted by measuring stress levels before and after progressive muscle relaxation training found a significant reduction in stress (Jyothimol & Lobo, 2020). Progressive muscle relaxation training not only shows a reducing effect but also a positive influence on stress, depression and anxiety (Toussaint et al., 2021).

Our study in Riau Province showed COVID-19 survivors in rural areas had lower quality of life (Suyanto et al., 2022). Tanjung Medang Village is one of the villages included in the administrative area of North Rupat Sub-district, Bengkalis Regency, Riau Province. The village borders the Malacca Strait to the east and north, making it one of the outermost villages in Indonesia. The village has one health centre at the centre of the village and no hospital. Being one of the outermost regions in Indonesia, Rupat Utara sub-district has limited access to information and health care. Therefore, to help improving the quality of life, the community service team conducted progressive muscle relaxation training

for COVID-19 survivors in Tanjung Medang Village, North Rupat District, Bengkalis Regency.

Literature Review

The high incidence of confirmed Coronavirus Disease 2019 (COVID-19) cases resulted in a high number of COVID-19 survivors. Survivors can develop sequelae, Long COVID, that negatively impact their quality of life. Several health problems among COVID-19 survivors are anxiety, depression, and sleep problems (Michelen et al., 2021). Vance et al. (2021) showed that seven months after hospital discharge, 16.2% of survivors developed anxiety symptoms, 19.7% had depression symptoms, and 34.5% had poor sleep quality. Among Brazilian COVID-19 survivors who were not admitted to hospitals, in five to eight months after being PCR-confirmed, 36.9% survivors reported anxiety, 44.9% reported depression, and 45.8% reported sleep problems (Titze-de-Almeida et al., 2022). A systematic review also highlighted psychiatric problems among COVID-19 survivors. The pooled prevalence of anxiety was estimated to be 23% (Seighali et al., 2024). In two to four months after hospital discharge, 14.0–47.8% survivors reported anxiety. Among those who were not admitted to hospitals, mild to severe anxiety was reported among 14.0–55.2% survivors in four months after symptoms onset (Vanderlind et al., 2021). Several possible pathophysiologies leading to Long COVID have been proposed. Neuropsychiatric effects are suggested to be mediated by immune dysbalance (Ponnachan et al., 2026). A study showed that the baseline systemic immune-inflammation index related to immune response and systemic inflammation at early disease stage had positive correlation with depression and anxiety scores on one-month and three-month follow-ups (Mazza et al., 2020).

One of the non-pharmacological therapies for anxiety is progressive muscle relaxation (PMR) training. Meta-analysis indicated the training's good efficacy for anxiety reduction (Manzoni et al., 2008). Progressive muscle relaxation training is an independent relaxation technique consisting of a series

of activities that gradually relaxes muscles. The technique utilises both "top-down" and "bottom-up" neuronal processing principles to achieve results (Keptner, Fitzgibbon and O'Sullivan, 2021). In "top-down" processing, participants use areas higher in the nervous system such as the cerebral cortex and cerebellum to contract muscles and gradually relax them. In "bottom-up" processing, holding and relaxing body tension can produce proprioceptive stimulation from peripheral muscles that ascends to the brain via the spinal cord and brainstem. This technique can reduce the secretion of corticotropin-releasing hormone (CRH) and adrenocorticotrophic hormone (ACTH) in hypothalamus. Reduction in those hormones' secretion leads to reduction in sympathetic nervous activities which in turn reduces production of epinephrin dan norepinephrine. On the other hand, acetylcholine hormone will increase as parasympathetic nerve stimulations. Changes in those hormones are suggested to mediate anxiety reduction (Townsend, 2014). A study conducted on hypertension patiens at RSUD A.W. Sjahranie, East Kalimantan showed PMR training can reduce blood pressure and anxiety (Ermayani, Prabawati and Susilo, 2020). This training has also been applied to diabetes mellitus patients at Puskesmas Harapan Raya, Pekanbaru (Ekaputri, 2021). Several studies have shown that PMR training can reduce anxiety and improve sleep quality of COVID-19 patients (Liu et al., 2020; Xiao et al., 2020; Özlü et al., 2021).

Method

This community service activity was conducted in August 2022 at the Village Hall of the North Rupat Subdistrict Office, Tanjung Medang Village, North Rupat Subdistrict, Bengkalis Regency. The activities for this one-day program were divided into the following stages:

a. Initial Assessment: Participants complete the Depression Anxiety Stress Scales-21 (DASS-21) questionnaire and a pre-test knowledge questionnaire.
b. Education and Interactive Lecture: A presentation on stress management, anxiety, and the psychological impacts of post-COVID-19.

c. Progressive Muscle Relaxation (PMR) Training: A video guide on PMR prepared by the team is shown, followed by a group practice session on progressive muscle relaxation. The training was followed by a question & answer session.
d. Final Evaluation (Post-test): Participants complete the post-test knowledge questionnaire again to measure their increased understanding following the education and PMR training.

The success of this community service activity was measured based on participants' initial anxiety levels and the increase in the average knowledge scores of survivors before and after the intervention.

Results and Discussion

The community service activities in Tanjung Medang Village, North Rupat Subdistrict, began with an opening ceremony attended by local community leaders and the implementation team (Figure 1). The presence of local leaders demonstrated institutional support for the importance of addressing mental health issues among COVID-19 survivors in coastal and outlying areas.

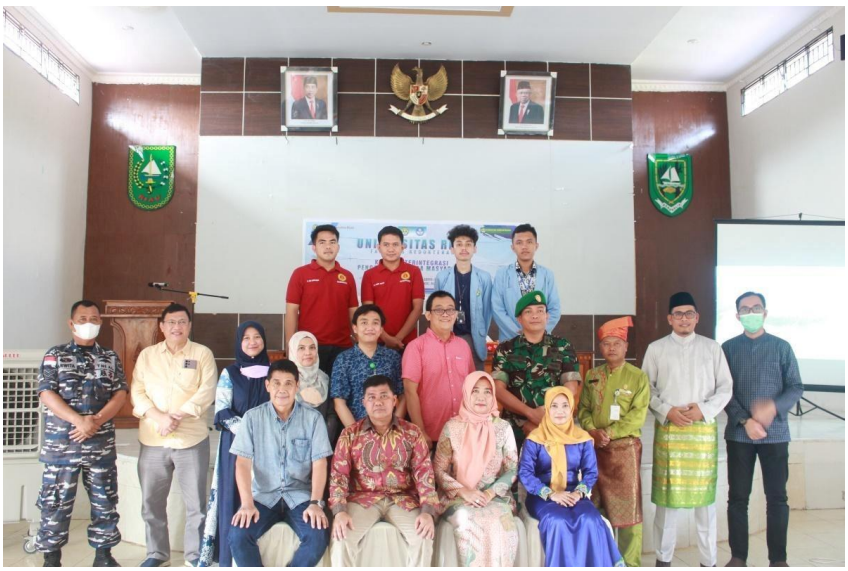


Figure 1. Group photo of the community service team with community leaders at the opening of the community service event

Overview of Initial Anxiety Levels Among Survivors

The results of the pre-intervention (pre-test) anxiety assessment using the Depression Anxiety Stress Scales-21 (DASS-21) indicated that 20% of the COVID-19 survivor attendants experienced anxiety. This finding indicates that the impact of the COVID-19 pandemic extends beyond physical symptoms (long-COVID) to include trauma and psychological distress in the form of persistent anxiety. This is consistent with research in Malaysia on the prevalence of post-COVID-19 conditions, which reported that 43.6% of survivors experienced anxiety and 27.9% experienced depression, particularly among patients with a history of hospitalization (Karadapanddy et al., 2025). Interestingly, although the survivor participants in Tanjung Medang Village had no history of intensive inpatient care at a referral hospital—having instead undergone only self-isolation or primary care at a community health center—an anxiety rate of 20% was still observed. This situation indicates that the risk of post-infection mental health disorders looms not only over patients with severe physical illness but also over rural communities facing limited information and minimal access to mental health services.

Knowledge Enhancement Through Education and Training

The intervention consists of two main stages: counseling on stress and anxiety management provided by a psychiatrist, and in-person training in Progressive Muscle Relaxation (PMR) (Figure 2). PMR was selected as the primary method due to its advantages: it is easy to understand, affordable, can be performed independently, and has no adverse effects. Furthermore, PMR has been proven effective in reducing stress and anxiety levels by training participants to consciously distinguish between sensations of muscle tension and relaxation, thereby making it easier for them to identify and release persistent muscle tension caused by anxiety (Muhammad Khir et al., 2024).

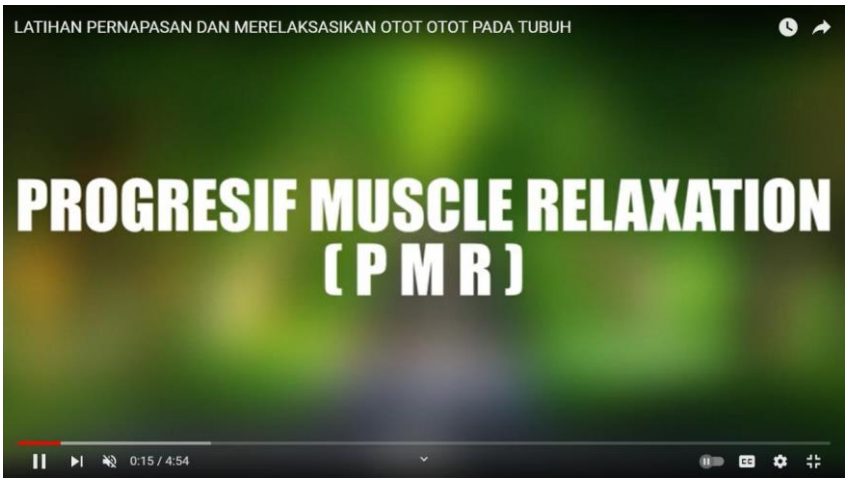


Figure 2. Video demonstrating progressive muscle relaxation exercises for COVID-19 survivors

An evaluation of the effectiveness of this activity showed a statistically significant increase in participants' knowledge. The increase in understanding can be broken down as follows:

- Average Pre-test Score: 65
- Average Post-test Score: 92
- Percentage Increase: 41.54%

This 41.54% increase in scores demonstrates that the interactive lecture method, combined with hands-on demonstrations, is effective in translating complex medical information into practical guidelines that are easily understood by the general public.

Development of Educational Media Outputs

As part of the program's sustainability efforts, the community service team designed visual and audiovisual educational materials in the form of interactive posters and PMR training guide videos (Figure 3; Figure 4). The posters were designed to be communicative, presenting information on the signs of mental health disorders and preventive measures for both adult and child survivors. Meanwhile, the PMR video serves as a self-guided resource so that survivors can relax their minds and muscles independently in their own homes after the community service activity concludes.

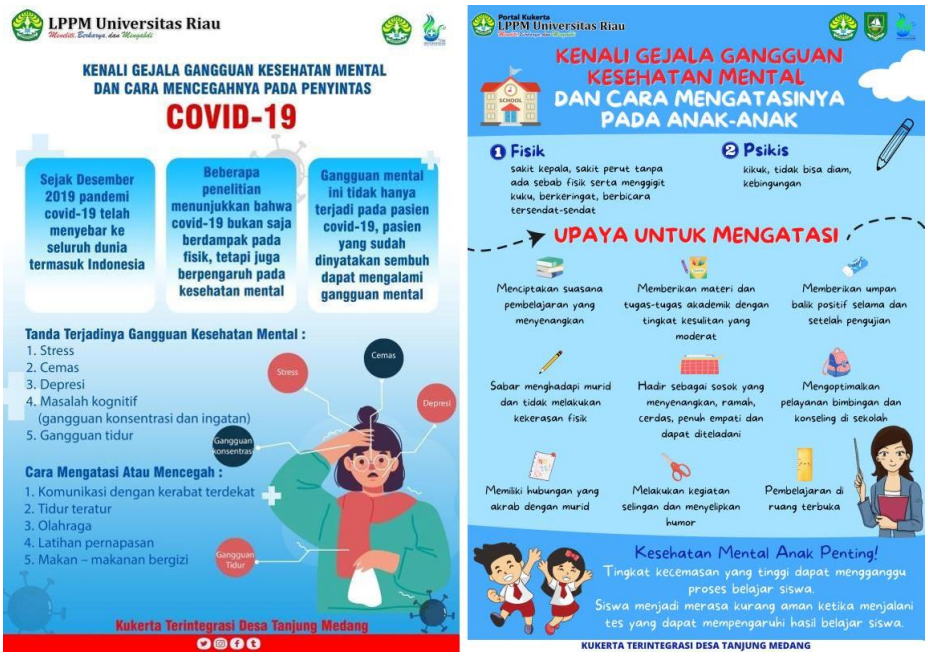
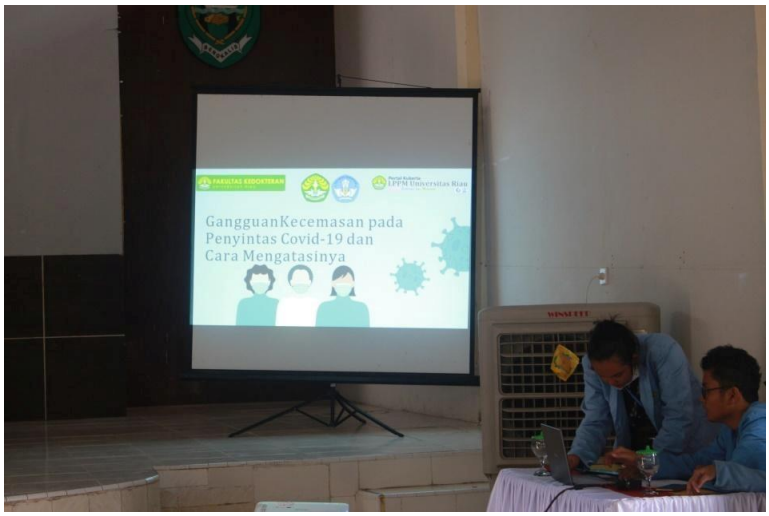


Figure 3. Mental health education poster design



(A)

(B)

Figure 4. The community service activities consisted of (A) educational sessions and (B) progressive muscle relaxation training.

Limitations and Recommendations

This community service activity was limited by the relatively short duration of the mentoring, which was conducted over only one day. Additionally, no long-term follow-up evaluation has been conducted to periodically assess participants' anxiety levels after the intervention. As a follow-up action plan, it is recommended that local village health workers lead PMR sessions on a regular basis (e.g., weekly) at the village hall to ensure these relaxation skills are sustainably integrated into the survivors' daily lives.

Conclusion

This community service activity aimed to assess and improve the knowledge and skills of COVID-19 survivors in Tanjung Medang Village, North Rupat District, in managing post-pandemic anxiety through stress management education and Progressive Muscle Relaxation (PMR) training. The results of the activity showed that 20% of survivors were identified as experiencing anxiety prior to the intervention, and there was a significant increase in community knowledge regarding post-COVID-19 mental health and relaxation techniques, as indicated by a rise in the average score from 65 (pre-test) to 92 (post-test). In addition to this improved foundational understanding, the program's success was supported by the creation and distribution of educational materials such as posters and PMR instructional video that serve as tools for self-directed learning. Overall, the integration of interactive education and hands-on PMR practice successfully equipped survivors with self-directed, safe, and practical relaxation methods. Moving forward, the active participation of participants and village health workers in practicing and disseminating these PMR techniques is expected to ensure the program's positive impact continues in maintaining the mental health of rural communities through self-directed efforts.

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