International Journal of Advanced Health Science and Technology
Homepage: ijahst.org
e-ISSN:2808-6422; p-ISSN:2829-3037
Vol. 4 No. 2, pp. 43-49, April 2024
RESEARCH ARTICLE
OPEN ACCESS
Manuscript received February 26, 2024; revised March 16, 2024; accepted March 16, 2024; date of publication April 25, 2024
**Digital Object Identifier** (**DOI**): https://doi.org/10.35882/ijahst.v4i2.73

**How to cite**: Jujuk Proboningsih, Endah Suprihatin, Anita Joeliantina, Aida Novita Sari, and Fathimath Shifaza, "The Impact of Counseling on the Anxiety Level of the Surrounding Community Due to Positive Indication of Residents of Covid-19", International Journal of Advanced Health Science and Technology, Vol. 4, No. 2, pp. 43-49, April 2024.

# The Impact of Counseling on the Anxiety Level of the Surrounding Community Due to Positive Indication of Residents of Covid-19

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**ABSTRACT** The COVID-19 pandemic has triggered widespread psychological distress, notably heightened anxiety within communities due to the rapid spread of the virus and its socioeconomic repercussions. This study investigates the effectiveness of targeted counseling interventions in mitigating anxiety levels among community members in Surabaya, Indonesia, living near individuals diagnosed with COVID-19. The research aims to evaluate whether structured counseling can enhance public understanding of the virus, thereby reducing associated anxiety. A quasi-experimental design with a pre-post test control group was employed, involving 50 participants (25 in the treatment group and 25 in the control group) from the Tambak Rejo Health Center's working area. Participants, selected via non-randomized sampling, were adults over 21 who had not tested positive for COVID-19 and had no prior counseling on the virus. The treatment group received counseling via Zoom, while the control group did not. Anxiety levels were assessed using t-tests to compare pre- and post-intervention scores within and between groups. Results revealed a significant reduction in anxiety levels in the treatment group post-counseling (p=0.000), with no comparable decrease in the control group, where anxiety increased (p=0.002). Significant differences were also observed between the groups post-intervention (p=0.000). These findings underscore the efficacy of counseling in alleviating community anxiety during pandemics by providing accurate information and fostering adaptive coping strategies. The study advocates for collaborative efforts between healthcare facilities and community health workers to deliver ongoing, tailored health education to mitigate psychological distress and enhance public resilience in crisis situations.

**INDEX TERMS** Counseling, anxiety, COVID-19, community health, psychological impact.

## I. INTRODUCTION

The COVID-19 pandemic has profoundly disrupted global societies, precipitating multifaceted challenges across economic, social, religious, and psychological domains [1], [2]. Among these, psychological distress, particularly anxiety, has emerged as a critical public health concern due to the virus's rapid transmission and the resultant fear within communities [3], [4]. In Indonesia, as of September 2020, over 336,716 confirmed COVID-19 cases and 11,935 deaths underscored the severity of the crisis, amplifying public anxiety [5]. This pervasive fear, exacerbated by misinformation and socioeconomic disruptions, has often led to social stigmatization of infected individuals and heightened community tension [6], [7]. Addressing this psychological burden is imperative to foster resilience and promote adaptive coping mechanisms during pandemics.

Current interventions to mitigate anxiety during pandemics include health education, tele-counseling, and community-based psychosocial support [8]-[12]. Health education campaigns, often delivered through digital platforms, aim to disseminate accurate information about disease prevention and management [13], [14]. Tele-counseling has gained traction as a scalable method to provide psychological support, particularly in regions with restricted physical interactions [15], [16]. Community-based interventions, involving health cadres, have also shown promise in enhancing public awareness and reducing stigma [17], [18]. However, these approaches often lack specificity in addressing localized anxiety triggered by proximity to confirmed COVID-19 cases, and their effectiveness in community settings remains underexplored [19], [20].

Despite these efforts, a significant research gap persists in evaluating the impact of targeted, face-to-face or virtual counseling on anxiety levels in communities directly affected by nearby COVID-19 cases [21], [22]. Previous studies have primarily focused on general populations or healthcare workers, with limited attention to residents in close proximity to infected individuals [23], [24]. This study addresses this gap by examining the efficacy of structured counseling in reducing anxiety among community members in Surabaya, Indonesia,

e-ISSN:2808-6422; p-ISSN:2829-3037
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residing near confirmed COVID-19 cases. The aim is to assess whether counseling can enhance understanding of the virus and alleviate associated anxiety, thereby fostering informed and calm responses. This research offers three key contributions to the field:

1. It provides empirical evidence on the effectiveness of counseling in reducing localized anxiety, offering a model for community-based psychological interventions during pandemics [25].
2. It underscores the role of health cadres and digital platforms in delivering targeted health education, enhancing scalability and accessibility [26], [27].
3. It informs public health strategies by highlighting the need for collaborative efforts between healthcare facilities and community stakeholders to combat misinformation and stigma [28], [29].

The article is structured as follows: Section II outlines the quasi-experimental methodology, including participant selection and data collection procedures. Section III presents the results, detailing the statistical analysis of anxiety levels pre- and post-counseling. Section IV discusses the findings in the context of existing literature, and Section V concludes with implications and recommendations for future research.

## II. METHOD

This study employed a quasi-experimental design with a pre-post test control group to evaluate the effectiveness of counseling in reducing anxiety levels among community members residing near individuals diagnosed with COVID-19. Conducted in the working area of Tambak Rejo Health Center, Surabaya, Indonesia, from August to October 2021, the study adhered to ethical standards approved by the Ethics Committee of Poltekkes Kemenkes Surabaya on October 5, 2021 [30].

### *A. STUDY POPULATION AND SAMPLING*

The study population comprised 108 residents within the Tambak Rejo Health Center's jurisdiction, covering Simokerto, Tambak Rejo, and Kapasan villages. A sample of 50 participants was selected using non-randomized purposive sampling, divided equally into a treatment group (n=25) and a control group (n=25). Inclusion criteria required participants to be over 21 years old, never tested positive for COVID-19, not previously received COVID-19 counseling, in good health during data collection, and proficient in using WhatsApp, Google Meet, or Zoom for virtual interactions. Exclusion criteria included individuals unwilling to participate or unable to provide informed consent. Group assignment was determined by simple random selection to ensure balanced distribution [31], [32].

### *B. MATERIALS AND INSTRUMENTS*

Data collection utilized validated online questionnaires administered via Google Forms to assess anxiety levels. The pre-test questionnaire was distributed before the intervention, and the post-test questionnaire was completed one day after the intervention. Anxiety was measured using a standardized scale, previously validated for use in community settings [33]. The counseling intervention was delivered through a structured Zoom session, employing a standardized module covering COVID-19 transmission, prevention strategies, and coping mechanisms to address anxiety. The module was developed based on guidelines from the Indonesian Ministry of Health and World Health Organization [34]. All digital platforms were tested for accessibility and functionality prior to data collection to ensure participant engagement [35].

### *C. STUDY PROCEDURE*

The study was executed in three phases: pre-intervention, intervention, and post-intervention. In the pre-intervention phase, participants completed the pre-test questionnaire via Google Forms to establish baseline anxiety levels. The treatment group then participated in a 60-minute counseling session on October 5, 2021, conducted via Zoom (link: https://us02web.zoom.us/j/6218921456?pwd=dnZTVFdhMmU4OHpISW9HWEVCWDVnUT09). The session was facilitated by trained health professionals and included interactive discussions and question-and-answer segments. The control group received no intervention during this period but was offered counseling post-study to ensure ethical considerations [36]. On October 6, 2021, both groups completed the post-test questionnaire via Google Forms (link: https://formfaca.de/sm/Ro_q-Bc9w) to measure changes in anxiety levels.

### *D. DATA ANALYSIS*

Data analysis commenced with a homogeneity test to confirm that the treatment and control groups shared similar baseline characteristics (gender, education, age, occupation, marital status, and presence of family members with COVID-19). The Levene's test was used to assess variance homogeneity, ensuring that observed differences were attributable to the intervention [37]. Descriptive statistics summarized participant characteristics. To evaluate the intervention's effect, paired t-tests compared pre- and post-test anxiety scores within each group, while independent t-tests assessed differences between the treatment and control groups post-intervention. Fisher's exact test was applied for categorical variables when sample sizes were small. All statistical analyses were performed using SPSS version 25, with a significance level set at $p<0.05$ [38].

### *E. ETHICAL CONSIDERATIONS*

Ethical approval was obtained from the Ethics Committee of Poltekkes Kemenkes Surabaya. Informed consent was secured from all participants prior to data collection, with assurances of confidentiality and the right to withdraw without penalty. Data were anonymized and stored securely in compliance with data protection regulations [39]. The study ensured equitable access to counseling for the control group post-data collection, addressing potential ethical disparities in intervention access [40].

### *F. STUDY DESIGN AND TYPE*

This quasi-experimental study was prospective, focusing on real-time data collection during the intervention period. The

e-ISSN:2808-6422; p-ISSN:2829-3037
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non-randomized design was chosen due to logistical constraints in the pandemic context, which limited the feasibility of full randomization. However, simple random selection for group assignment mitigated selection bias to the extent possible [31]. The study's experimental nature allowed for controlled evaluation of the counseling intervention's impact on anxiety levels.

## III. RESULTS

This study was conducted in the working area of Tambak Rejo Health Center, located in Simokerto District, Surabaya, which includes three administrative villages: Simokerto, Tambak Rejo, and Kapasan. Data collection took place on October 5, 2021. Respondents first completed a pre-test questionnaire via Google Form, followed by a counseling session for the treatment group held on the same day through Zoom. The post-test was administered online on October 6, 2021, using the same Google Form link.

### *A. COVID-19 CASE TRENDS IN THE STUDY AREA*

The number of residents identified as positive for COVID-19 in the Tambak Rejo Health Center area decreased substantially from over 200 cases in June 2021 to 180 cases in July, 79 cases in August, 21 cases in September, and only 8 cases reported as of October 25, 2022. This downward trend indicates a progressive improvement in the local public health situation.

### *B. HOMOGENEITY OF RESPONDENTS*

To ensure group comparability, the characteristics of all 50 respondents were tested for homogeneity, including gender, age, education, occupation, marital status, and whether they had family members who tested positive for COVID-19. Respondents were divided equally into two groups (n=25): the treatment group and the control group. Descriptive analysis (FIGURES 1-6) showed no significant differences between the two groups. Most respondents in both groups were female (96% in the treatment group, 72% in the control group), aged 36–50 years, and predominantly housewives. Educational backgrounds were similar, with most having completed high school. The majority were married (84% and 80% respectively), and a high proportion had family members who had tested positive for COVID-19 (88% and 80%). These results confirm the homogeneity of both groups, validating the comparability for intervention analysis.

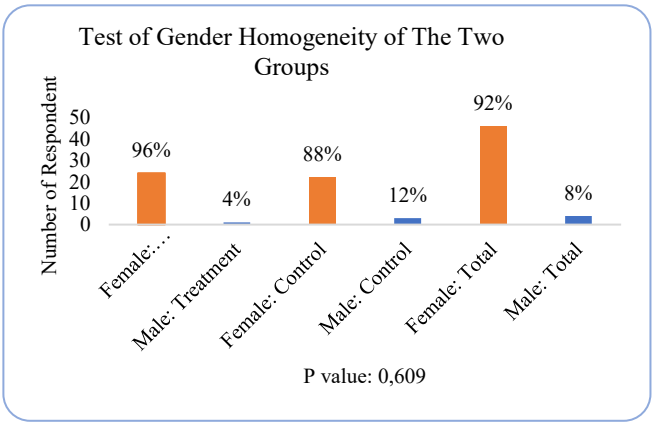


FIGURE 1. Test of Gender Homogeneity of The Two Groups

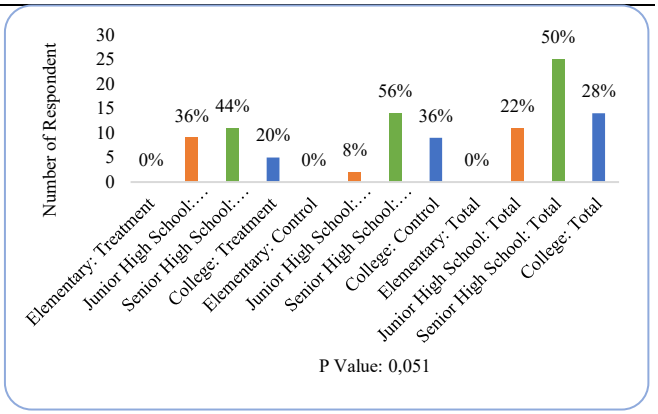


FIGURE 2. Test of Educational Homogeneity of Respondents in Two Groups

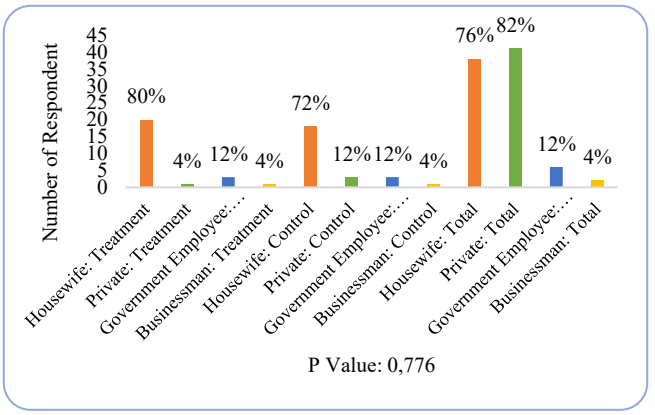


FIGURE 3. Test of Work Homogeneity of Respondents in Two Groups

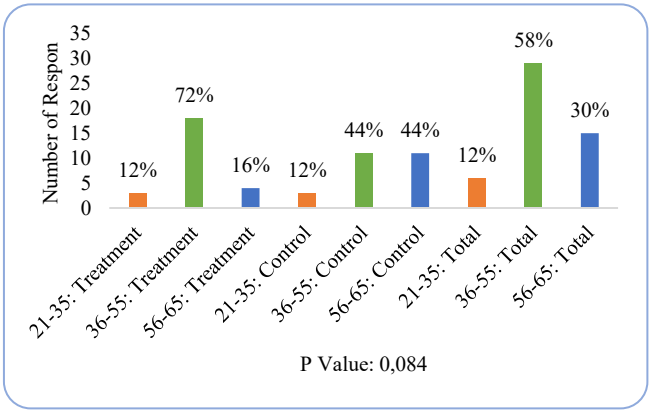


FIGURE 4. Test of Age Homogeneity of Respondents in Two Groups

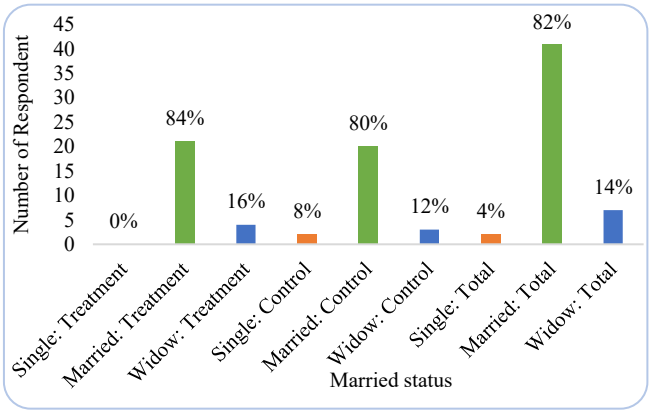


FIGURE 5. Test of Homogeneity of The Martial Status of Respondents in Two Groups

e-ISSN:2808-6422; p-ISSN:2829-3037
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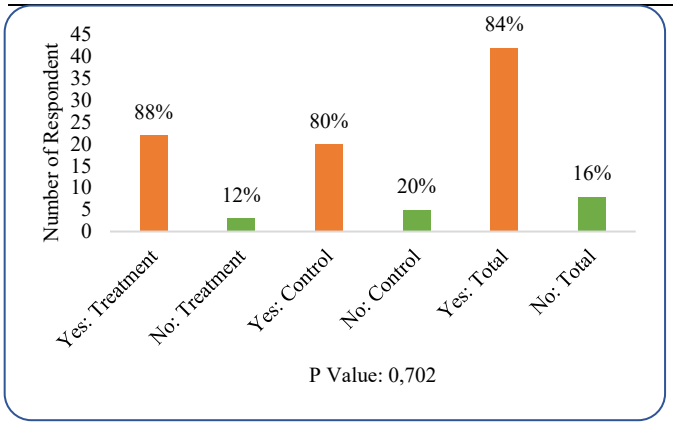


**FIGURE 6. Test of Homogeneity of Existence of Family Members Positive for Covid-19 Respondents in Two Groups Table 5**

### *C. EFFECT OF COUNSELING ON ANXIETY LEVELS (WITHIN-GROUP ANALYSIS)*

This study aimed to evaluate the effectiveness of counseling in reducing anxiety levels among community members affected by COVID-19 cases in their surroundings. Anxiety was assessed before and after the intervention using a standardized instrument and analyzed using the paired t-test. In the treatment group, the results showed a statistically significant decrease in anxiety levels following the counseling intervention ($p = 0.00$, $p < 0.05$), as evidenced by a reduction in the mean rank score (TABLE 6). Conversely, in the control group who received no counseling there was a statistically significant increase in anxiety levels after the observation period ($p = 0.002$, $p < 0.05$), indicating heightened stress in the absence of intervention.

### *D. COMPARISON BETWEEN TREATMENT AND CONTROL GROUPS (BETWEEN-GROUP ANALYSIS)*

An independent t-test was conducted to compare anxiety levels between the treatment and control groups both before and after the intervention. The pre-test results showed no significant difference between the two groups ($p > 0.05$), confirming baseline equivalence. However, post-intervention results revealed a significant difference in anxiety levels ($p < 0.05$), with the control group exhibiting higher anxiety scores than the treatment group (TABLE 7). These findings suggest that the counseling intervention effectively reduced anxiety among participants, in contrast to the control group, whose anxiety levels increased likely due to ongoing exposure to COVID-19 risks without psychological support.

## IV. DISCUSSION

This study evaluated the efficacy of structured counseling in reducing anxiety levels among community members in Surabaya, Indonesia, residing near individuals diagnosed with COVID-19. The findings provide compelling evidence for the role of targeted psychological interventions in mitigating pandemic-related distress, offering a model for community-based mental health support. The results demonstrated a statistically significant reduction in anxiety levels within the treatment group following the counseling intervention ($p=0.000$), while the control group exhibited a significant increase in anxiety ($p=0.002$). These findings indicate that structured counseling, delivered virtually via Zoom, effectively alleviated anxiety by providing accurate, evidence-based information about COVID-19 transmission, prevention strategies, and coping mechanisms. The intervention likely facilitated cognitive reframing, enabling participants to manage fear associated with proximity to infected individuals [41]. The significant post-intervention difference between the treatment and control groups ($p=0.000$) underscores the importance of proactive, targeted health education in counteracting misinformation-driven anxiety, a prevalent issue during the COVID-19 pandemic [42]. The increase in anxiety among the control group suggests that, without structured support, ongoing uncertainty and exposure to unverified information may exacerbate psychological distress [43]. The homogeneity of participant characteristics such as gender (predominantly female), education (high school level for most), and age (mostly 36–50 years) ensured that observed differences in anxiety levels were attributable to the intervention rather than demographic disparities [44]. The study was conducted during a period of declining COVID-19 cases in Surabaya (from over 200 cases in June to 8 in October 2021), which may have created a favorable context for the intervention's success. Lower case numbers likely reduced baseline fear, allowing participants to engage more effectively with the counseling content [45]. This suggests that the timing of psychological interventions is critical, with periods of relative stability potentially enhancing their impact. The use of a standardized anxiety scale and rigorous statistical analysis (t-tests and Fisher's exact test) further strengthens the reliability of these findings, confirming counseling as a viable strategy for addressing localized psychological distress [46].

The study's findings align with recent research on psychological interventions during the COVID-19 pandemic. A study in Pakistan reported that community-based psychoeducation significantly reduced anxiety by addressing

**TABLE 6.**
**Different tests of the pre-post test of citizen anxiety**

| Treatment Group | | | Control Group | | |
|---|---|---|---|---|---|
| Variabel | Mean Rank | p value | Variabel | Mean Rank | p value |
| Pre intervention-anxiety | 29.72 | 0.000 | Pre-anxiety | 27.92 | 0.002 |
| Post-intervention -anxiety | 23.96 | | Post-anxiety | 29.52 | |

**TABLE 7.**
**Different tests of treatment and control on citizens' anxiety**

| Variable | Mean Treatment | Mean Control | P- value |
|---|---|---|---|
| Pre intervention -anxiety | 29.72 | 27.92 | 0.217 |
| Post intervention -anxiety | 15.60 | 35.40 | 0.000 |

e-ISSN:2808-6422; p-ISSN:2829-3037
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misinformation and promoting coping strategies, similar to the outcomes observed here [47]. Likewise, research in Singapore demonstrated that targeted health education programs effectively lowered anxiety levels in communities affected by infectious disease outbreaks, supporting the efficacy of structured counseling [48]. However, contrasts emerge in delivery methods. A study in India noted challenges in virtual counseling due to inconsistent internet access and low digital literacy, which were less pronounced in this study as participants were proficient in using Zoom and Google Forms [49]. This highlights the importance of digital infrastructure in ensuring intervention success. Unlike studies focusing on healthcare workers or infected individuals, this research uniquely targets community members living near confirmed cases, addressing a specific gap in the literature [50]. The significant reduction in anxiety aligns with findings from a 2021 study in Indonesia, which reported that nurse-led health education decreased psychological distress through context-specific information [47]. Conversely, the increase in anxiety in the control group corroborates a 2020 study in the Philippines, which found elevated distress in populations without access to structured interventions during the pandemic [51]. These comparisons emphasize the need for tailored, accessible counseling to address localized anxiety triggers. Additionally, the study's focus on community-level interventions complements research advocating for the involvement of local health workers to enhance trust and engagement, thereby improving intervention outcomes [48].

Several limitations must be acknowledged to contextualize the study's findings. First, the reliance on virtual counseling via Zoom, necessitated by pandemic restrictions, may have limited the depth of interpersonal engagement compared to face-to-face interactions. While digital platforms ensured accessibility, participants with limited technological proficiency may have faced challenges, potentially affecting engagement quality [50]. Second, the non-randomized sampling approach, driven by logistical constraints, introduces the possibility of selection bias, despite efforts to ensure group homogeneity through random group assignment [44]. Third, the study was conducted during a period of declining COVID-19 cases, which may have influenced baseline anxiety levels and amplified the intervention's perceived impact. In high-transmission periods, anxiety may be more resistant to change, necessitating further research under varying epidemiological conditions [45]. Fourth, the sample size (n=50) was relatively small, limiting the generalizability of the findings to broader populations or different cultural contexts [46]. Fifth, the study did not assess the long-term effects of the intervention, leaving uncertainty about the sustainability of reduced anxiety levels over time [51]. Finally, the reliance on self-reported anxiety measures may introduce response bias, as participants' perceptions of their anxiety could be influenced by social desirability [49]. The findings have significant implications for public health practice and research. First, they underscore the efficacy of structured counseling in reducing community anxiety during pandemics, advocating for its integration into routine public health strategies [41]. Health institutions, such as Puskesmas, should prioritize regular, evidence-based counseling sessions, potentially delivered by trained health cadres to enhance community outreach and scalability [48]. This approach could be particularly effective in low-resource settings, where access to mental health services is limited. Second, the success of virtual delivery highlights the potential of digital platforms to provide psychological support in restricted or resource-constrained environments, provided participants have adequate digital access and literacy [49]. This model could be adapted for other public health crises, such as future pandemics, natural disasters, or emerging infectious diseases, to address psychological distress promptly. Third, the study emphasizes the importance of collaborative efforts between healthcare facilities, community leaders, and health workers to combat misinformation and stigma, which exacerbate anxiety and social exclusion [50]. Regular counseling sessions, updated with current health trends and delivered every 1–2 months, could prevent maladaptive behaviors, such as stigmatization of infected individuals, fostering community cohesion and resilience [51]. Future research should explore face-to-face counseling in non-pandemic settings to compare its efficacy with virtual methods, addressing the limitation of digital-only interactions [50]. Larger, randomized controlled trials across diverse populations and cultural contexts could enhance the generalizability of the findings and validate the intervention's effectiveness [46]. Longitudinal studies are needed to assess the sustained impact of counseling on anxiety levels, particularly during different phases of a pandemic, to determine whether effects persist over time [51]. Incorporating qualitative methods, such as interviews or focus groups, could provide deeper insights into participants' experiences and perceptions, enriching the understanding of the intervention's mechanisms [44]. Additionally, evaluating the cost-effectiveness and scalability of involving health cadres in regular counseling programs could inform resource allocation in public health systems, particularly in low- and middle-income countries [48]. Integrating multimedia approaches, such as combining virtual counseling with social media campaigns, could enhance reach and engagement, addressing the limitations of single-mode delivery [49]. Finally, exploring the role of community trust in intervention uptake could provide insights into optimizing engagement in diverse settings [47]. In conclusion, this study provides robust evidence that targeted counseling significantly reduces anxiety among community members living near COVID-19 cases, offering a scalable, evidence-based model for psychological support. By addressing localized fears through accurate information and community engagement, public health interventions can enhance resilience and adaptive coping during crises. These findings call for sustained investment in community-based health education and collaborative frameworks to mitigate psychological distress in future public health emergencies, ensuring communities are equipped to navigate uncertainty with informed confidence.

## V. CONCLUSION

This study aimed to evaluate the effectiveness of structured counseling in reducing anxiety levels among community

e-ISSN:2808-6422; p-ISSN:2829-3037
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members in Surabaya, Indonesia, residing near individuals diagnosed with COVID-19, with the goal of enhancing public understanding and mitigating psychological distress. The findings demonstrate a significant reduction in anxiety in the treatment group post-counseling, with a p-value of 0.000, indicating a robust statistical difference compared to the pre-intervention baseline. In contrast, the control group exhibited a significant increase in anxiety (p=0.002), and post-intervention comparisons between groups revealed a significant difference (p=0.000), with the treatment group showing a lower mean anxiety score. These results underscore the efficacy of targeted counseling in alleviating anxiety by providing accurate, evidence-based information, thereby counteracting misinformation and fostering adaptive coping strategies. The intervention's success highlights the critical role of community-based health education in addressing localized psychological distress during pandemics. Future research should focus on replicating this study with larger, randomized samples across diverse cultural and epidemiological contexts to enhance generalizability. Longitudinal studies are needed to assess the sustained impact of counseling on anxiety levels, particularly during varying phases of public health crises. Additionally, exploring face-to-face counseling in non-pandemic settings could provide insights into its comparative efficacy against virtual methods. Integrating qualitative approaches, such as participant interviews, could further elucidate the mechanisms underlying the intervention's effectiveness. Evaluating the cost-effectiveness and scalability of involving health cadres in counseling can guide public health strategies, ensuring equitable psychological support and strengthening community resilience during future health crises

## ACKNOWLEDGEMENTS

We express our sincere gratitude to the Tambak Rejo Health Center, Surabaya, for their support and facilitation during this study. We deeply appreciate the participants for their time and commitment, despite the challenges posed by the COVID-19 pandemic. Special thanks go to the health cadres and nursing staff for their invaluable assistance in coordinating the intervention. We also acknowledge Poltekkes Kemenkes Surabaya for ethical approval and resources. This research was made possible through the collaborative efforts of all involved, and we are grateful for their dedication to advancing community health.

## FUNDING

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

## DATA AVAILABILITY

No datasets were generated or analyzed during the current study.

## AUTHOR CONTRIBUTION

Jujuk Proboningsih conceptualized the study, designed the methodology, and led the data collection and analysis, ensuring the research adhered to ethical standards. Endah Suprihatin contributed to the development of the counseling module, facilitated participant recruitment, and assisted in data interpretation. Anita Joeliantina conducted the literature review, supported data collection, and drafted sections of the manuscript. Aida Novita Sari managed the virtual intervention platform, coordinated participant communication, and performed statistical analyses. Fathimath Shifaza provided critical insights into the study design, reviewed the manuscript for intellectual content, and ensured alignment with international health research standards. All authors reviewed and approved the final manuscript.

## DECLARATIONS

### *ETHICAL APPROVAL*

Ethical approval is not available.

### *CONSENT FOR PUBLICATION PARTICIPANTS.*

Consent for publication was given by all participants

### *COMPETING INTERESTS*

The authors declare no competing interests.

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