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Through My Lens: Photovoice-Based Videos as Depression Anti-Stigma among Generation Z Students

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Abstract. Depression is a mental issue closely related to the surrounding society, especially among Generation Z. The stigma associated with depression has led to several negative consequences, hindering life-long well-being. Developing an anti-stigma intervention regarding depression should be a collective concern. Therefore, this study aimed to investigate the effectiveness of photovoice-based videos as an anti-stigma intervention for depression. It included 29 Bandung-based Generation Z university students, using a pre-experimental design with one group pretest-posttest method. In this study, data were analyzed using normality tests, categorizations, and paired sample t-tests. The t-test results showed that the screening of photovoice-based videos caused a significant difference between pretest and posttest scores, confirming the rejection of H_0 and the acceptance of H_a. Therefore, photovoice-based videos proved effective in reducing depression stigma among Generation Z university students in Bandung.

Keywords: depression, Generation Z, Photovoice-Based Video, Stigma, Student

Through My Lens: *Photovoice-Based Video* sebagai Anti-Stigma Depresi pada Mahasiswa Generasi Z

Abstrak. Depresi menjadi salah satu gangguan mental yang dekat dengan kehidupan masyarakat, khususnya Generasi Z. Stigma sebagai label negatif membawa beragam konsekuensi merugikan yang turut menghambat kesejahteraan pengidap gangguan depresi. Oleh karena itu, pengadaan intervensi *anti-stigma* tentang gangguan depresi perlu menjadi perhatian bersama. Penelitian ini berusaha menguji efektivitas *photovoice-based video* sebagai intervensi *anti-stigma* tentang gangguan depresi. Penelitian yang melibatkan 29 mahasiswa Generasi Z di Bandung ini menggunakan desain pre-experimental dengan tipe *one group pretest-posttest study.* Analisis data melibatkan uji normalitas, kategorisasi, dan uji-t berpasangan. Hasil analisis *uji-t* menunjukkan bahwa penayangan *photovoice-based video* menyebabkan adanya perbedaan signifikan dari hasil *pretest* dan *posttest* sehingga H_0 ditolak dan H_a diterima. Maka *photovoice-based video* dinilai berpengaruh terhadap penurunan stigma gangguan depresi pada mahasiswa Generasi Z di Bandung.

Kata Kunci: depresi, Generasi Z, mahasiswa, *photovoice-based video*, stigma

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Mental disorders are problems that affect vulnerable populations with inadequate treatment coverage globally (Moitra et al., 2023). Depression is among the most prevalent mental disorders, with over 300 million people (4.4%) of the global population recorded as sufferers (WHO, 2017). The Indonesian Health Survey (SKI) in 2023 recorded that 1.4% of the population or 630,827 people experienced depression. In this context, West Java had the highest prevalence, with 3.3% or 113,568 residents (BKPK Kemenkes RI, 2024). Based on the same report, the 15-24 age group had the highest incidence of depression (2.0% or 130,977 people) and the lowest treatment rates (10.4% or 2,572 people) compared to other age groups (BKPK Kemenkes RI, 2024). This showed the significant impact of depression on the younger generation.

Bandung, as the capital of West Java province is also threatened by depression. Among 112 surveyed students, the severity of symptoms ranged from severe (16.1%) to moderate (51.8%), mild (19.6%), and minimal (12.5%) levels (Auliannisa & Hatta, 2022). Although moderate depression levels dominated, many students still faced significant challenges. For instance, among nursing students in Bandung, 2.4% (n = 84) fell into the very severe category (Wira'atmaja & Ricky, 2021). Auliannisa and Hatta (2022) also found that students engaging in negative self-comparison with others on social media experienced more severe symptoms, showing the relationship between depression and online activities.

Students, currently dominated by Generation Z born between 1996-2009, are at high risk of depression due to various factors. This is related to their characteristics as digital natives (Hastini et al., 2020; Rastati, 2018) who spend a significant amount of time online and rely on the internet to support academic activities (Syukur, 2021). However, excessive use of the internet and technology has been correlated to an increased risk of depression (Ahmad et al., 2024; Stanković & Nešić, 2022). Academic stress is another contributing factor in addition to the use of the internet (Zhang et al., 2022). In the university environment, students need to adapt to new learning styles, meet assignment deadlines, and navigate other challenges that impact their mental health (Olivera et al., 2023). Barbayannis et al. (2022) stated that academic stress can manifest as anxiety, depression, and emotional exhaustion, negatively affecting students' psychological well-being.

Depression manifests in psychological, physical, and social symptoms (Dirgayunita, 2016). According to the DSM-V, these symptoms include pervasive sadness, reduced interest or enjoyment in activities, drastic weight gain or loss, sleep disturbances, psychomotor changes, loss of energy, feelings of worthlessness or excessive guilt, reduced cognitive abilities, and even urges to commit suicide (APA, 2013). It is understood that depression as a mood disorder can significantly affect individuals' capacity to function

(Dianovinina, 2018). The causative factors can be genetic, biological, environmental, or psychological (Aziz & Abidah, 2020). Furthermore, painful life experiences can increase vulnerability to depression (Grudug & Surjaningrum, 2021).

Generation Z faces a high risk of depression, which increases susceptibility to stigma (Mojtabai et al., 2016). Additionally, their widespread digital access increases vulnerability to misinformation, potentially reinforcing stigma surrounding mental health (Johnson & Riles, 2018). When left unaddressed, stigma can lead to isolation, marginalization, and discrimination, hindering individuals from seeking necessary treatment and escalating suicide risk (Rüsch et al., 2014; Sickel et al., 2014; Subu et al., 2021). Andersen et al. (2022) defined stigma as a social phenomenon involving labeling, negative stereotypes, separation, and power imbalances, affecting specific groups with individuals bearing the consequences. This can include stigma related to physical conditions, criminal records, or mental health disorders (Clair, 2018). Stigma is a form of social injustice experienced by individuals with mental disorders, posing a significant challenge to their functioning in life (Corrigan & Bink, 2016). Subu et al. (2021) stated that stigma originates mainly as a result of societal misconceptions about mental disorders, characterized by violence, fear, exclusion, isolation, rejection, blame, discrimination, and devaluation.

Stigma is divided into two types, namely public and self-stigma. Public stigma exists as prejudice and discrimination from the general public aimed at and affecting certain individuals/groups, while self-stigma occurs when individuals internalize bad prejudice (Corrigan et al., 2012). Public stigma is more associated with psychological than physical disorders (Kowalski & Peipert, 2019). Pattyn et al. (2014) found that public stigma makes individuals with psychological disorders devalue seeking informal help from friends and family. Alleviating barriers to recovery necessitates addressing the public stigma directed at students with depression.

Stigma, as a discrediting perception often attached to individuals with mental disorders, clearly has a negative impact (Hartini et al., 2018; Subu et al., 2021). In effect, individuals with mental disorders are considered to have a different social status compared to those without mental disorders (Rössler, 2016). Common societal stigmas toward individuals with depression include beliefs that they lack faith and gratitude, or are not truly suffering from mental disorders (Dirgayunita, 2016; Sulistyorini & Sabarisman, 2017). Furthermore, these individuals are often viewed as weak and unproductive (Favre et al., 2023; Subramaniam et al., 2017), thereby hindering the ability to achieve functional objectives (Clement et al., 2015). Therefore, anti-stigma interventions targeting Generation Z need to be encouraged.

According to Rössler (2016), effective anti-stigma interventions include education, protest, and direct contact. Photovoice has

become an alternative to overcome the problem of stigma with an educational and contact approach. Wang and Burris (1997) developed photovoice in the early 1990s as a method for identifying, representing, and improving communities through photography techniques, where those promoting change photograph themselves with symbolic representations of the issues raised. Because it provides rich insight into context through a combination of photos and participant narratives (Han & Oliffe, 2016), photovoice is widely used as a method in participatory action research (PAR) to empower marginalized groups (Sutton-Brown, 2014). It can be adapted flexibly, but there are peculiarities such as the need for an initial meeting for participant orientation (explaining the research, providing shooting directions, and discussing ethics), group discussions on photovoice results that support reflection between participants, as well as presenting photovoice results to the public or policymakers to promote positive change (Han & Oliffe, 2016; Wang & Burris, 1997).

Photovoice is suitable for use as an instrument of change in studies around mental disorders that focuses on stigma because it can increase understanding of the experience of mental disorders, which can then affect clinical practice, increase public awareness, and guide policies in empowering and supporting individuals in their recovery efforts (Han & Oliffe, 2016). Individuals with mental disorders as targets of stigma are marginalized groups who, through photovoice, get a platform to express the difficulties they face in the form of photography and critical dialogue (Sutton-Brown, 2014). Therefore, this can foster reflection which then facilitates social change in the community (Budig et al., 2018; van Hees et al., 2017)

Considering the characteristics of Generation Z being close to technology and social media, an effective way of providing information is through video (Rastati, 2018). Videos that facilitate education and contact with people with mental disorders have been shown to reduce stigma among college students (Kosyluk et al., 2016) because telling their recovery stories has a significant impact on others (Corrigan & Bink, 2016). Janoušková et al. (2017) stated that effective anti-stigma intervention videos have components including social contact, simulation, potential for recovery, and professional information. In this way, photovoice which is processed into video has the potential to create a variety of new points of view for society which leads to reduced stigma.

A form of video that can facilitate the raising of stigma social issues is documentary which is a film genre usually defined as a recording of reality in the form of moving images (Hasan, 2020). This is most suitable for presenting current topics in society but is generally unknown to the public. Furthermore, both documentary films and photovoice can be used as media to investigate various complex

social problems in the real world to achieve advocacy for policies, systems, and environmental change (Franceschelli & Galipò, 2021; Strack et al., 2022), hence in line to be combined into an anti-stigma intervention. Related to the level of penetration of creative media into society (Barrett & Leddy, 2008), the making of photovoice as a short documentary video aims to achieve engagement or to reach out to society to start eliminating the negative stigma towards people with depression. Meanwhile, the main achievement is at the social change level, which in the future is expected to change the public's treatment and view.

Photovoice is popularly used in participatory studies to qualitatively explore students' experiences of mental disorders (Skoy & Werremeyer, 2019; Werremeyer et al., 2020). Russinova et al. (2018) have focused more on stigma, by producing photovoice themes including symbolic representation, negative impacts, coping strategies, personal transformation related to stigma, and educational messages for others. These findings assess photovoice as a useful method of experience exploration.

Since the use of photovoice-based video (PBV) is a follow-up innovation from previous qualitative analysis, there is limited studies that specifically examine the effectiveness of photovoice-based video as an anti-stigma intervention for students from a quantitative perspective. However, Tippin and Maranzan (2019; 2022) have explored this area, and it was shown that presenting 18-minute photovoice videos to Canadian students increased empathy and reduced stigma associated with various mental disorders, including depression, psychosis, drug addiction, and bipolar disorders. Additionally, further research conducted by Tippin and Maranzan (2022) on nursing and kinesiology students succeeded in describing the mechanism behind reducing the stigma of mental disorders as a result of showing photovoice-based videos, namely reducing the perception of people with mental disorders as unpredictable and incompetence, reduced desire to maintain distance, as well as fear of people with mental disorders, which are felt by students as an audience representing Generation Z.

Previous research on photovoice-based video attempted to target the stigma of mental disorders. This is considered less successful in examining stigma specific to certain disorders and opens up the possibility of multiple interpretations of a broad mental disorder (Tippin & Maranzan, 2022). This is also in accordance with Janoušková et al. (2017), that video-based stigma interventions are needed that focus on specific diagnoses to consider possible differences in stigma for each disorder. Therefore, testing the protective effect of photovoice-based video in reducing stigma such as depression is a necessary step.

In Indonesia, photovoice has received less attention in studies that investigate life issues.

For example, it can be used to depict the perspective of students with disabilities to support inclusive education (Bonati & Andriana, 2021), the perspective of young people regarding experiences in the 'new normal' era after the COVID-19 pandemic (Kiling et al., 2022), as well as the perspective of homeless people and beggars in social institutions regarding the government's contribution to their welfare (Faradilla et al., 2023). There are also studies that showed its effectiveness as an intervention to fight stigma, including leprosy in Papua (Dien et al., 2023), and mental disorders among health students (Prabawati et al., 2023). However, photovoice has been used as a qualitative exploratory method to explore the experiences of participants. Even though it is widely used for exploring social issues, the application as a video-based anti-stigma intervention is rare. Furthermore, there have been no studies specifically targeting depression stigma among students using this method.

This study aimed to quantitatively assess the potential of using photovoice-based videos as an intervention to reduce depression stigma among Generation Z students in Greater Bandung. The hypothesis states that photovoice-based videos can significantly reduce depression stigma. The current study is important because it is the first to implement photovoice-based videos as an anti-stigma intervention. Therefore, it is expected to enrich the body of knowledge regarding the mitigation of mental health stigma in Indonesia and serve as a catalyst for the creation of a safe and stigma-free environment.

Method

Research design

This study aimed to determine the effectiveness of using photovoice-based video in reducing the depression stigma among Generation Z students in Greater Bandung. Furthermore, it used a pre-experimental design, namely manipulation of the independent variable to examine its impact on the dependent without a control group (Sharma et al., 2019) because this is a preliminary test to determine the effect of photovoice-based video in reducing stigma. This study specifically used a one group pretest-posttest, which emphasized measuring the dependent variable before and after treatment (Sharma et al., 2019). The design can be described in Table 1.

Table 1

Research Design

Group	*Pretest* (Stigma)	Treatment (PBV)	*Posttest* (Stigma)
Experiment	Y_1	X	Y_2

This study included two variables. The independent variable (X) is photovoice-based videos, conveying the experiences of participants (survivors and social supporters of depression disorders) using photos and narratives arranged in videos format. The components included (1) Photovoice and participant voice-over, where participants narrated their stories and themes through photovoice; (2) Social contact including interviews with participants regarding their experiences of dealing with depression symptoms and the attitudes of the surrounding individuals; (3) Simulation in the form of reenactment of participants' experiences with depression and societal stigma; (4) Potential for recovery including the recordings of participants' daily lives to show the hope and the possibility of recovery; (5) Professional views in the form of interviews with psychologists regarding depression disorders and societal responses.

The dependent variable (Y) is depression stigma, namely negative labeling of individuals with depression. The effectiveness of photovoice-based videos in reducing depression stigma is measured across the following dimensions: (1) Anxiety, which is the affective aspect of feeling danger around individuals with depression; (2) Relationship Disruption, concerns that depression can disrupt relationships; (3) Hygiene, beliefs about the physical aspects of individuals with depression; (4) Visibility, recognizing symptoms of depression in others; (5) Treatability, beliefs about the treatability of depression; (6) Professional Efficacy (Potential for Professional Success), the belief the ability of professionals to treat depression; and (7) Recovery, beliefs about the potential for recovery from depression.

Research target

This study included both participants and subjects. Participants were students with experiences of depression who shared their perspectives through photovoice. This group included two survivors and one social supporter who created photovoice as intervention material. On the other hand, the subjects were students who viewed photovoice-based videos and whose stigma levels were measured. Both participants and subjects met the criteria of being active Generation Z students living in Greater Bandung, aged 18 to 22 years, and willing to participate in the study. Specifically, participants should have received a depression diagnosis and be willing to appear in documentary videos.

The data source for this study was primary, obtained directly from measuring the level of stigma among active Generation Z students in Greater Bandung. A convenience sampling technique was used, selecting subjects who were willing and met the required criteria (Obilor, 2023). Subjects were recruited through posters distributed on social media and campuses around Greater Bandung. Data were collected twice, namely

a pretest online via Google Forms and a posttest the following day at the National Education Museum, Indonesian Education University, after showing photovoice-based videos.

Research procedure

This study was conducted in eight stages. First, the Planning Stage includes creating a program design, conducting literature review, designing photovoice-based videos, obtaining informed consent from participants (depression survivors and social support) and subjects (students), developing guidelines, participant registration questionnaires, interview guidelines, research procedures, and adapting stigma measurement tools.

Second, the Preliminary Study Stage was carried out by conducting direct interviews with students studying in the Bandung area to understand their perspectives regarding depression and its stigma. The results of these interviews were included at the beginning of the photovoice video.

Third, the Participant Screening Stage was carried out by recruiting three participants and registering online via Google Form, namely two survivors and one social supporter of individuals with depression. Beck Depression Inventory-II (BDI-II) Indonesian Version was used to ensure the survivors were suitable for participation. Two technical meetings were held to discuss creating the photovoice.

Fourth is the Intervention Creation Stage where participants were given a week to create a photovoice covering five themes, namely experiences related to depression, needs of individuals with depression for recovery, depression stigma, efforts to reduce stigma, and hope for depression fighters. The photovoice results were subsequently processed into videos through pre-production, production, and post-production phases. In the pre-production stage, videos design was created based on discussions with three students from the Film and Television Study Program at the Indonesian Education University and a supervisor who was also a psychologist or expert in the field of mental disorders. The production stage consists of the filming process with participants, psychologists, and several students studying in Greater Bandung, and taking raw footage or recordings subsequently used in the post-production stage. The post-production stage consists of editing videos into a single unit, including audio scoring, adding subtitles, trigger warnings, and content warnings about potential emotional changes. The viewers were subsequently encouraged to seek help from professionals such as psychologists or psychiatrists when experiencing symptoms. Finally, the videos were uploaded to social media.

Figure 1

Photovoice-Based Videos Footage

Fifth, the Sampling Stage was carried out by collecting 29 subjects who met the criteria by distributing posters online and offline. Subjects registered via Google Form, which contained informed consent, and joined a WhatsApp group. The pretest using the Day's Mental Illness Stigma Scale was conducted online before the research day, specifically on October 14, 2023.

Sixth, Research Stage consisted of two activities conducted at the National Education Museum, Indonesian Education University on October 15, 2023: (1) Research, experimental playback of photovoice-based videos, lasting around 15 minutes, was shown to the subjects. After watching, subjects completed the stigma scale as a posttest on paper with a duration of about 20 minutes. This was followed by an experience-sharing session regarding the videos. (2) Exhibitions were held to display printed versions of photovoice handmade by participants to the general public. This aimed to raise awareness about the depression stigma.

Seventh, the Evaluation Stage was carried out by analyzing the pretest-posttest results to draw conclusions. The analysis techniques used were normality, categorization, and paired t-tests. Eighth, the Publication Stage included publishing research results through scientific articles.

Measuring instrument

Data were collected using Day's Mental Illness Stigma Scale and Beck Depression Inventory-II (BDI-II) Indonesian Version. Day's Mental Illness Stigma Scale was used as both pretest and posttest to measure the depression stigma among subjects. The scale, developed by Day et al. (2007), consists of 28 items. Each statement was rated on a 7-point Likert Scale ranging from "strongly disagree" to "strongly agree". The seven dimensions of public stigma measured were Anxiety (α = .90), Relationship Disruption (α = .84), Hygiene (α = .83), Visibility (α = .78), Treatability (α = .71), Professional Efficacy (α = .86) and Recovery (α = .75). Examples of adapted items included "*Individu yang depresi tidak merawat dirinya dengan baik* (Individuals who are depressed do not take good care of themselves)", and *"Individu dengan*

*depresi akan tetap 'sakit' sepanjang hidupny*a (Individuals with depression will remain 'sick' throughout their lives)".

Beck Depression Inventory-II (BDI-II) Indonesian Version was given only to participants who were survivors to confirm the state of depression before the photovoice creation process. The results of the analysis are not shown in this study. Participants responded to 21 items with four answer scales, and the instrument had an $\alpha = 0.9$ (Ginting et al., 2013). Each item in BDI-II Indonesian Version provided four options to show the level of depression. For example, in item 1 options included (1) I do not feel sad, (2) I feel sad, (3) I feel sad all the time, and (4) I am so sad that I feel like I cannot stand it anymore.

Data analysis

The main data obtained through questionnaires were analyzed quantitatively using regression techniques, namely paired t-test, as a hypothesis testing method for two dependent data groups (Nuryadi et al., 2017). This analysis was based on pretest and posttest data. Shapiro-Wilk normality test and subject stigma categorization were conducted before performing t-test. Data analysis was carried out using IBM SPSS version 27 software. Conclusions were drawn based on the following hypotheses:

H_0 = *photovoice-based videos* affect depression stigma.

H_a = *photovoice-based videos can significantly reduce* depression stigma.

Photovoice-based videos were considered effective in reducing depression stigma when the significance value is <0.05, showing the rejection of H_0 and acceptance of H_a.

Results

The subjects comprised 29 students, specifically 17 females and 12 males. The average age was 20.59 years, with the highest frequency of subjects aged 20 and 21 years old, totaling 10 individuals. Further information regarding the subjects' demographic characteristics is presented in Table 2.

Table 2

Subjects' Demographic Characteristics

Variable	Category	*n*	%
Gender	Female	17	58.62
	Male	12	41.38
Age	18 years old	2	6.90
	19 years old	1	3.45
	20 years old	10	34.48
	21 years old	10	34.48
	22 years old	6	20.69

Normality test

The normality test ensured that population data was normally distributed (Nuryadi et al., 2017). The current study used the Shapiro-Wilk normality test for both pretest and posttest data because it is suitable for all types of distributions and sample sizes (Pek et al., 2017; Sintia et al., 2022), especially small sample sizes around 4-30 samples (Miot, 2017). Shapiro-Wilk normality test results showed a significance of .494 for the pretest and .747 for the posttest. Therefore, the data were normally distributed since the significance level was greater than .05. This was also evidenced by the following histogram graphs.

Figure 2

Pretest Histogram Graph

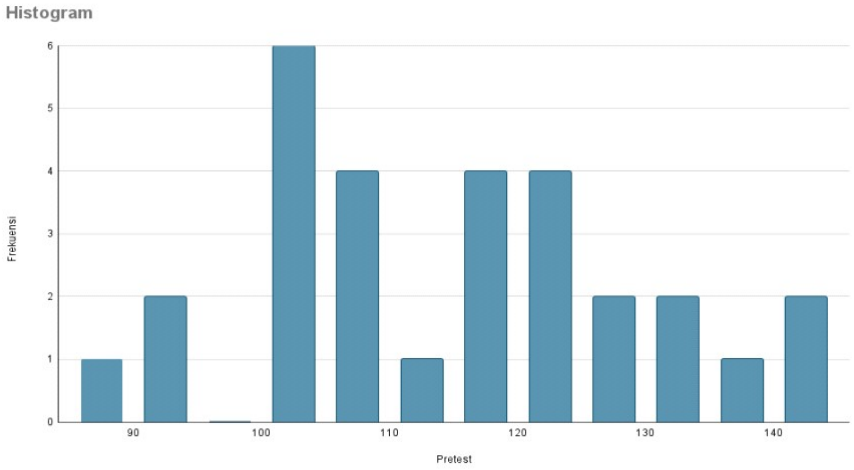
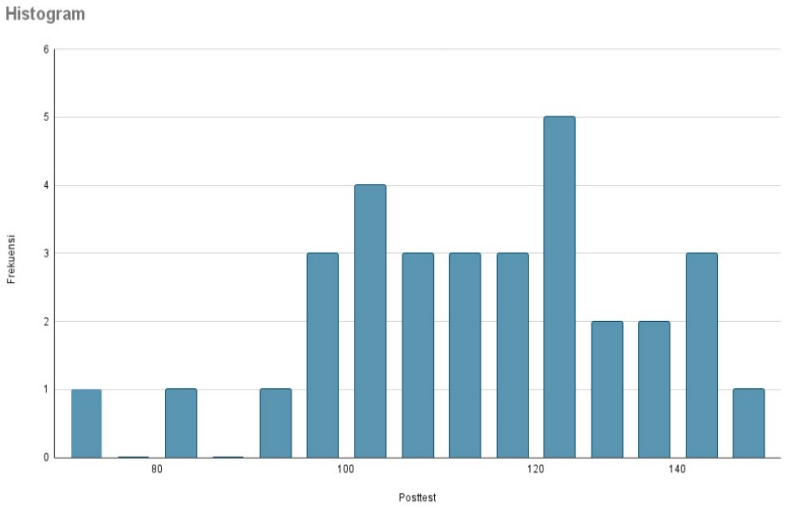


Figure 3

Posttest Histogram Graph



A histogram graph is considered normal when the data distribution is bell-shaped. In the preceding histogram graphs, the data distribution formed a bell shape, confirming that the data were normally distributed.

Categorization

Categorization was carried out to provide an overview of the level of depression stigma among subjects before (pretest) and after (posttest) viewing photovoice-based videos. The procedures followed the categorization guidelines described by Azwar (2012). Based on the pretest analysis, 27 subjects (93.1%) fell into the medium category, while 2 (6.9%) fell into the high category. Therefore, the majority of subjects had a medium level of stigma regarding depression before the intervention, with a smaller portion having a high level of stigma.

After the intervention, the posttest results showed that 27 subjects (93.1%) still fell into the medium category. There were also 2 subjects (6.9%) in the low category. While most subjects remained in the moderate category, some experienced a reduction in the level of stigma in the low category. Furthermore, there were no subjects with a high level of stigma after the intervention.

Paired t-test

The paired t-test is a regression test used to determine the difference in the averages of two paired samples when the data are normally distributed. In other words, it is a hypothesis-testing method where two types of sample data are obtained from the same individual (Nuryadi et al., 2017). The paired data comes from pretest and posttest data which contains the Day's Mental Illness Stigma Scale measuring instrument. To test whether the pretest and posttest data were related or dependent, this study conducted a pretest-posttest correlation test.

Based on the results of the pretest-posttest correlation test, the correlation had a value of $r = .746$ with a significance value of $p < .001$ which met the requirement of $p < .05$. This showed a positive and significant relationship or correlation between the pretest and posttest. It can be concluded that there was a relationship between the pretest and posttest data. Furthermore, there was a decrease in the mean or average. The average pretest score was 114.59, while the average posttest result was 110.24. This means that the stigma regarding depression among respondents decreased by 4.35 after watching the photovoice-based video. This average decrease strengthened the assumption that photovoice-based video can reduce stigma level. To accurately confirm the existence of the effect of photovoice-based video, a paired samples test was carried out which was the main test to prove the hypothesis in this study.

Based on the results of the paired t-test, the significance value obtained was .037 which met the requirement of Sig < .05. It can be concluded that there was a significant difference after providing treatment or

photovoice-based video intervention. Therefore, H_0 which indicates there no effect was rejected and H_a which states there is an effect was accepted. This study showed that photovoice-based video reduced the depression stigma in subjects.

Discussion

This study was conducted to determine the effectiveness of photovoice-based video as a form of anti-stigma intervention for Generation Z students in Bandung. The intervention aims to reduce public stigma which is a negative reaction from the population (Corrigan et al., 2012). The participants who voiced their experiences regarding depression via photovoice and the subjects as the targets of the video broadcast both had the student's status. This same status is intended to facilitate the establishment of connections, therefore the message that the participant is trying to convey which has the potential to reduce stigma can be interpreted by the subjects because both have life contexts and stages of development that are not much different.

The photovoice creation process was in accordance with previous studies. Werremeyer et al. (2020) did not use a disposable camera as a tool for participants to take pictures, but instead used a smartphone camera which facilitates the shooting process. Furthermore, the photovoice theme in this study was similar to Russinova et al. (2018) which focused on discussing the stigma of selected mental disorders. The themes included (1) experiences with depression, (2) the need for people with depression to recover, (3) the depression stigma, (4) efforts to reduce the stigma, and (5) hope for the depressed.

Pretest and posttest to measure the level of stigma were carried out to evaluate differences before and after treatment. The normality test results showed that the pretest and posttest data were normally distributed, therefore further analysis can be carried out. The pretest results showed medium and high stigma levels among Generation Z students. This confirmed the presence of stigma toward individuals with mental disorders, particularly depression. According to Johnson and Riles (2018), the accessibility of technology, which is associated with risk of exposure to incorrect information about mental disorders, may contribute to stigma development. This is relevant as digital natives whose lives depend on technology (Hastini et al., 2020; Rastati, 2018). The posttest findings indicated that even though the stigma levels remained in the medium category, there was a significant change because there were no subjects with a high stigma levels after the intervention.

The paired t-test results validated the efficacy of photovoice-based videos as an anti-stigma intervention. The findings correlated with previous studies which showed video-based photovoice reduced stigma related with mental disorders by fostering empathy (Tippin

& Maranzan, 2019) and addressing stigma-related factors (Tippin & Maranzan, 2022). In addition, there were significant distinctions between the current study and previous surveys.

The first difference is the characteristics of the intervention videos. Tippin and Maranzan (2019) used photovoice-based videos discussing various mental health problems (psychosis, depression, drug use, bipolar disorder) with a duration of 18 minutes, focusing on photovoice content narrated by participants through voiceover. On the other hand, the current study used photovoice-based videos of around 15 minutes, considering that shorter videos can be more engaging and effective for viewers (Guo et al., 2014).

There are also differences in the measuring instruments used between the current study and Tippin and Maranzan (2022). This study used one multidimensional tool, Day's Mental Illness Stigma Scale, while Tippin and Maranzan (2022) used separate measuring instruments for each variable, namely unpredictability (uncertainty), dangerousness (danger), and social distance (social distance). However, the dangerousness variable was represented by the Anxiety dimension in the measuring tool used to describe the affective aspect of the perceived danger when around individuals with depression. More broadly, the stigma measured also included several other aspects, such as Relationship Disruption (concern that depression disorders disrupt relationships), Hygiene (beliefs about the physical aspects of individuals with depression), Visibility (recognizing symptoms of depression in others), Treatability (beliefs about the treatment of depression disorders), Professional Efficacy (belief that professionals can treat depression), and Recovery (belief about the potential for recovery from depression).

The photovoice-based videos created not only displayed photovoice accompanied by narration voiced directly by the participants but also included components that, according to Janoušková et al. (2017), could increase the effectiveness of anti-stigma videos. These components include social contact through participant interviews, simulations of participants' experiences, the potential for recovery evidenced through recordings of participants' daily lives, and professional views via psychologist interviews.

The social contact in the current study involved interviews with participants regarding their experiences in dealing with symptoms of depression and the attitudes of the surrounding individuals. These interviews used the PHOTO technique (Amos et al., 2012), consisting of five main questions: *describe your picture?*, *what is happening in your picture?*, *why did you take a picture of this?, what does this picture tell us about your life?, and how can this picture provide opportunities for us to improve life?* (Amos et al., 2012).

Interviews were conducted with several students in Greater Bandung to be included as videos components. Some examples of questions asked to students included what is known and their opinions about depression disorders. Another component is a simulation in the form of a recreation of participants' experience regarding depression and stigma from society. Some examples included when participants have the desire to harm themselves or moments when they want to end their lives. The next component is the potential for recovery in the form of recordings of participants' daily lives which aims to show the hopes and opportunities to recover. Some examples of scenes that show this component are scenes of participants showing their hobbies such as reading books, playing with cats, and doing productive activities like completing assignments or work. The final component is a professional view in the form of an interview with a psychologist regarding depression disorders and how society responds. Some of the questions asked to psychologists included the definition of depression, the causes, how to deal with the symptoms, and how other people or society in general respond to people with depression.

The photovoice-based videos were specifically designed to target the depression stigma, not various or common mental disorders. This is because the study followed the suggestions of Janoušková et al. (2017) and Tippin and Maranzan (2022) who stated the importance of creating anti-stigma intervention videos that specifically discuss mental disorders. This can increase the depth of discussion regarding stigma which has different possibilities for each mental disorder. It is hoped that the differences can also act as a novelty that opens up wider opportunities in exploring the potential of photovoice-based videos as an anti-stigma intervention for mental disorders.

The limitation of this study included the potential for less-optimal generalization in the population and samples examined. This is because the subjects were only 29 people who were considered less representative of active Generation Z students who live in Greater Bandung with an age range of 18 to 22 years. In Greater Bandung, there are tens to hundreds of universities with very large numbers of students, therefore generalizing to the population is considered inaccurate. Furthermore, this study used a pre-experiment design which only has an experimental group, without a control. One of the shortcomings of using this design is that the significance of the photovoice-based video effectiveness in reducing the stigma is not clear because there is no comparison between the control and the experimental group. A design that can further reveal the significance of the effectiveness of photovoice-based video is a true experimental design, which has two groups. By using a true experimental design, research experts could accurately assess the impact of the intervention, showing the potential of photovoice-based videos to reduce stigma more significantly than a pre-experimental design.

Conclusions

In conclusion, this study investigated the effectiveness of photovoice-based videos as anti-stigma intervention for depression among Generation Z students in Bandung. Paired t-test analysis showed significant differences between pretest and posttest stigma results, with a significance value of .037 < .05, confirming the rejection of H_0 and the acceptance of H_a. Therefore, photovoice-based videos could significantly reduce depression stigma among Generation Z students in Bandung.

Suggestion

Future research should address several limitations of this study. First, a true experiment design involving both control and experimental groups was recommended. This would allow for more robust confirmation of the pre-experiment results observed in the initial analysis conducted in Indonesia. Second, increasing the number of subjects would be crucial for improving the accuracy of generalizations drawn from results. Exploring variations in videos length could provide insights into whether different durations impacted the effectiveness of the videos in reducing stigma. Furthermore, future studies should consider deepening videos components showing positive aspects for depression survivors and social support, focusing more on the potential for recovery and seeking help for individuals with mental disorders.

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