

# A Comparative Study of Mental Health and Emotional Regulation Between Musicians and Non-Musicians

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## ABSTRACT

This study aimed to determine the difference in mental health condition and emotional regulation skill between musicians and non-musicians. Researchers enrolled musicians and non-musicians, both aged 19–40 years, and divided them according to their musical activity based on the classification of Hanna-Plady and MacKay (2011). A total of 679 participants consisting of 338 musicians and 341 non-musicians were analyzed. Mental health was measured using the Mental Health Inventory-5 developed by Veit and Ware (1983), and emotional regulation was measured using the Difficulties in Emotional Regulation Scale developed by Gratz and Roemer (2003). This research found that mental health and emotional regulation were significantly different between musicians and non-musicians. In addition, the musicians had significantly higher levels of mental health and emotional regulation than non-musicians.

**Keywords:** *Psychology of Music, Mental Health, Emotion Regulation.*

## 1. INTRODUCTION

Music is closely linked to emotions (Krumhansl, 1997), as well as to music-related professions. In other words, musicians should be able to understand and regulate their emotions. Otherwise, they can easily be distracted when performing on stage. For instance, Rossa cannot hold back her sadness and cried until she stopped singing ([www.jpnn.com](http://www.jpnn.com), 2011). Another example exhibiting emotional dysregulation is damaging musical instruments, usually by slamming the guitar or burning the piano, because of excessive emotions. Otong, who was a vocalist and guitarist from the band Koil, slammed his guitar to damage in one of his concerts in 2011 (Prasetyo, 2015). All of

these acts are considered drawbacks as a result of the inability of musicians to regulate their emotions.

Emotional regulation is an individual's effort to modulate emotional responses (Gross, 1998). It encompasses awareness and understanding of emotions, acceptance of emotions, ability to control an impulsive behavior and behave in accordance with desired goals when experiencing negative emotions, ability to use emotional regulation strategies based on the given situation and flexibly modulate the desired emotional response to meet individual goals and circumstances or demands (Gratz & Roemer, 2003). In Indonesia, as a collectivist country, the ability to

regulate one's emotions is needed to meet social norms because a collectivist culture requires more people who can adjust to each behavior to achieve group goals regardless of the individual emotions (Matsumoto, 2006). The ability of emotional regulation is also necessary for each individual to support good mental health. Gross (1998) states that to maintain or achieve a good psychological health, individuals should be able to regulate emotional impulses appropriately. In line with the study of Gross, difficulty in regulating emotions is associated with mental health problems such as depression, anxiety disorders, post-traumatic stress disorder, and social dysfunction (Saxena, Dubey, & Pandey, 2011). In contrast, the ability to understand, communicate, and regulate emotions well is generally connected with good mental health (Saxena, Dubey, & Pandey, 2011).

The interest of each individual to be able to successfully develop good emotional regulation has been facilitated through education since preschool age. Today, several educational systems have established music as a learning medium for developing student's emotional regulation. For instance, education with the "Suzuki Approach" has been proven to build emotional regulation among children (Kovarovic, 2012). Music education has also begun to develop in Indonesia. One of their approaches is rhythmic motion learning, which also facilitates emotional development in the early childhood stage. Learning with this method is an innovation from one of the indicators of the refined 2004 Kindergarten Curriculum, that is, social emotional indicators (Triena, 2012). This method combines motion and music

as the main elements that are believed to be favored by children, making it easier to catch their attention. In addition, it uses music that can evoke certain emotions from children to develop their abilities in expressing thoughts through tones, emotions, and movements (Triena, 2012).

The success of music training as a medium for developing emotional regulation has already been investigated. Through brain-activity recording, musical experiences, whether listening, singing, or improvising using musical instruments, have an impact on emotional regulation. Music could activate brain areas such as the anterior cingulate cortex, lateral prefrontal cortex, amygdala, and orbitofrontal cortex, which are involved in the regulation of human emotions (Moore, 2013). In line with Moore's research, an experimental research was conducted to identify the effects of music in regulating human emotions. Graham, Robinson, and Mulhall (2009) examined how music can eliminate emotional threats when participants were asked to work on cognitive tasks that can cause emotional threats. According to the study results, music can remarkably help participants regulate their emotions, consequently diminishing emotional threats as a result of Stroop task. The presence of music explained can provide a relaxing effect that helps regulate emotions when individual attention must be divided in such a way as to pose certain threats even though the music provided is neutral music and is not intended to stimulate certain emotions.

Likewise, Saarikallio (2010) reported that music is often used for relaxation and employed as a tool that can maintain certain emotions, such as maintaining a

happy feeling to continue to exist. Listening to music can also be a means to replenish individual energy. With the diversity of existing songs, individuals commonly listen to songs that provide certain effects that are in accordance with their objectives; for example, they listen to classic songs to eliminate negative emotions (Elliott et al., 2011). According to Baker and Bor (2008), music can help regulate emotions by allowing individuals to release thoughts or feelings temporarily, accompanying individuals in the process of thinking or feeling something, and also releasing pent-up emotions. The process of emotional regulation through music conceptually has not yet been comprehensively explained, but in essence, the use of music to regulate emotions is one of the most important reasons for individuals to continue their attachment to music (Saarikallo, 2010). The more individuals are bound to music, the more also have high emotional regulation ability (Chin & Rickard, 2012).

Freggens (2014) stated that the ability of music to help regulate human emotions has already been proven by several studies. If indeed musical experience in various types, both listening and making music, can help develop emotion regulation, a musician or someone close to music is expected to have good emotional regulation skills. Moreover, if emotion regulation positively correlates with mental health, musicians should have good mental health. However, not all musicians are mentally healthy. Kobayashi (1996) mentioned that many musicians worldwide reportedly have mental disorders.

Moreover, classical musicians who are members of an orchestra reportedly have mental disorders. Raymond, Romeo, and

Kumke (2012) conducted a study investigating the health of classical musicians and found that depression was the second highest diagnosis among orchestra members. Oliwenstein (2004) mentioned that famous musicians such as Ludwig von Beethoven, Gaetano Donizetti, and Robert Schumann had bipolar disorder. Famous musicians such as them made music their career focus and intersected with it in their daily lives, suggesting the ability of music to develop emotion regulation, but unfortunately, they suffered from bipolar disorder. Conversely, bipolar disorder reportedly arises as a result of imperfect emotion regulation (Dickstein & Leibenluft, 2006). People with bipolar disorder have difficulty regulating emotions even during remission (Hay, Gross, Shepper, & Gruber, 2015). Considering that many musicians manifest mental disorders, the notion that music can help develop emotional regulation and affect the mental health of individuals, remains controversial (Kobayashi, 1996). The emergence of this controversy triggers researchers to reexamine how individual musical experiences differentiate their emotion regulation and mental health abilities.

With studies that have searched the relationship between music and individual emotional regulation, researchers hypothesized that if indeed musical activity or experience positively correlates with the ability to regulate individual emotions, musicians can regulate emotions better than non-musicians. In addition, if the ability of emotion regulation is related to good mental health, musicians should ultimately have better mental health than non-musicians.

Musicians themselves are defined by St George, Holbrook, and Cantwell (2014) as people who have a need for music, feel a sense of destiny for music, feel that the development of their music is a form of self-development, can create music, and can find their true identity in their music. Apart from conceptual definitions that are difficult to measure, Hanna-Plady and MacKay (2011) classify humans according to their musical activities; the classification includes high-activity musicians, low-activity musicians, and non-musicians. High-activity musicians are those who have 10 years of daily musical experience and have received formal music education; low-activity musicians are those who have at least 1 year of musical experience but not more than 9 years and have had formal training; lastly, non-musicians are those who have never received music education, cannot play any musical instrument, and cannot read musical scores.

In Indonesia, music has been part of their culture since time immemorial, and it continues to develop at present. Traditional music, or often called as archipelago music, is an extremely diverse cultural heritage of Indonesia. For example, from East Java, to accompany the traditional Indonesian dance Reog Ponorogo, musicians need several types of musical instruments, such as Reog trumpet, angklung reog, saronen, gong, kempul, and kenong, each of which is played by musicians with different skills (Mahmud, 2015). Currently, music continues to grow, marked by the increasing number of Indonesian musicians. In the 2000s, the independent recording industry in Indonesia was revived, indirectly influencing the growth

of Indonesian musicians (Yandiawan, 2012). With the increasing number of independent recording industries or commonly referred to as indie labels, the opportunity for people who are fond of music to get a place to channel their hobby widens, subsequently increasing the number of people who are interested in making music as their career. The development of music in Indonesia can also be seen from the increasing number of music courses or schools, increasing music competitions on national television, and others. This phenomenon is remarkable if indeed the connection of individuals with music has a good impact, such as improving the mental health and emotional regulation ability of these individuals.

In this study, researchers aimed to determine differences in mental health and emotional regulation between musicians and non-musicians. In accordance with Hanna-Plady and MacKay's (2011) classification, high-activity musicians and non-musicians were the study participants, considering that many musicians have indeed poor mental health. Researchers hypothesized that high-activity musicians have significantly different emotional regulation capabilities compared with non-musicians. In addition, high-activity musicians have better mental health as a result of good emotional regulation than non-musicians. This research aimed to reexamine whether musical activities or experiences really enhance the ability of individuals to regulate their emotions and also improve their mental health.

### ***1.1. Theoretical Review***

In this study, mental health was defined as a collection of positive

affections or psychological well-being and negative or psychological distress experienced by all in their daily lives (Veit & Ware, 1983; Jufrie & Musabiq, 2013). An individual's mental health can be affected by several factors, including gender, age, conflict, natural disasters, chronic diseases, family, and the environment (WHO, 2001). Meanwhile, emotion regulation was defined in this study as an individual's attempt to modulate emotional responses (Gross, 1998), consisting of awareness and understanding of emotions, acceptance of emotions, ability to control an impulsive behavior and behave according to desired goals when experiencing negative emotions, ability to use strategies to regulate emotions according to the given situation and flexibly modulate the desired emotional response to meet individual goals and circumstances (Gratz & Roemer, 2003). Emotion regulation is also affected by many factors, including age (Ochsner & Gross, 2007; Moore, 2013), parental relationship (Thompson & Meyer, 2007; Moore, 2013), and social and cognitive factors (Gross, 2014; Tamir & Mauss 2010). In addition to the two abovementioned variables, the terms musicians and non-musicians should also be defined. According to Shuker (2005), musicians are a term for all people who make music, both those who play instruments solely for recreational purposes and those who participate in the recording process. As described by Hanna-Plady and MacKay (2011), musicians are those who have 10 years of daily musical experience and have received formal music education, whereas non-musicians are those who have never received music education and cannot play any musical instrument nor read music scores.

## 2. METHODS

### 2.1. Participants

This research is a comparative study between individuals with high and low musical activities; hence, participants with extreme differences in characteristics were selected. This extreme difference is based on Plady and MacKay's classification (2011), which divides individuals into three groups according to musical activities. These groups were non-musicians, low-activity musicians, and high-activity musicians. To distinguish extreme differences, researchers considered the study participants with the lowest musical activity as non-musicians, hereinafter referred to as non-musicians, and those with the highest musical activity as high-activity musicians, hereinafter referred to as musicians. Non-musicians are individuals who have never attained an education in music, cannot play any musical instrument, and cannot read musical scores, whereas musicians are those who have a musical experience for more than 10 years in the field of music, whether playing musical instruments or singing to produce music. Samples must have had formal music education such as tutoring or enrolling in a music school. Moreover, the study population was composed of young adults aged 19–40 years. The age range of young adults was chosen to avoid emotional instability in adolescents and the maturity of emotional regulation in other adult age groups because emotional regulation develops with age. Researchers also set a minimum level of participant education as high-school graduate, so that participants can fully understand the questionnaire. Samples were selected using one of the nonprobability sampling techniques, that

is, accidental sampling or commonly called as convenience sampling. With this technique, researchers were able to select individuals who had appropriate research participant characteristics and were willing to participate in this study (Gravetter & Forzano, 2012).

**2.2. Measures**

The level of mental health was measured using a tool that is in line with the definition of mental health in this study. Mental health was defined herein as a collection of positive affection or psychological well-being and negative or psychological distress experienced by all in their daily lives (Veit & Ware, 1983; Jufrie & Musabiq, 2013). Thus, Mental Health Inventory-5 (MHI-5), which was developed by Veit and Ware (1983), was chosen as the measuring instrument.

The ability to regulate one’s emotions was measured using the Difficulties in Emotion Regulation Scale (DERS), a measuring instrument constructed by Gratz and Roemer (2003) that measures emotional dysregulation. The higher the participants' emotional dysregulation

scores, the lower the emotional regulation ability.

Both measuring instruments used in this study, namely, MHI-5 and DERS, were adapted to adjust the characteristics of participants by using Indonesian language and underwent through expert judgment from experts in their fields. The MHI-5 and DERS scores were then processed by a statistical independent sample *t*-test technique.

**3. RESULTS**

This study included 679 participants aged between 19 and 40 years. These participants were divided into two groups: musicians and non-musicians. As mentioned above, the musician group consisted of participants who had been playing music for more than 10 years in their daily lives and had received formal music education, whereas the nonmusician group was composed of those who had never received an education in music, cannot play any musical instrument, and cannot read musical scores.

Table I. Frequency Distribution of Participants According to Gender

| Gender | Musicians |      | Non-musicians |      | Total |
|--------|-----------|------|---------------|------|-------|
|        | N         | %    | N             | %    |       |
| Female | 219       | 32,3 | 238           | 35,1 | 457   |
| Male   | 119       | 17,5 | 103           | 15,2 | 222   |
| Total  | 338       | 49,8 | 341           | 50,2 | 679   |

The study included 457 female and 222 male participants, with age ranges as described below:

Table II. Frequency Distribution of Participants According to Age

| Age | Musicians | Non-musicians | Total |
|-----|-----------|---------------|-------|
|-----|-----------|---------------|-------|

|       | N   | %    | N   | %    | N   | %    |
|-------|-----|------|-----|------|-----|------|
| 19-21 | 172 | 25,3 | 242 | 35,7 | 414 | 61   |
| 22-25 | 102 | 15,1 | 91  | 13,5 | 193 | 28,6 |
| 26-30 | 33  | 4,9  | 6   | 0,8  | 39  | 5,7  |
| 31-40 | 31  | 4,4  | 2   | 0,3  | 33  | 4,7  |

Participants were between 19 and 40 years old, and the majority were in the range of 19–21 years (61%). Furthermore, most of them lived in the Greater Jakarta

area (73.2%) and were high-school graduates (62.9%), as shown below:

Table III. Frequency Distribution of Participants According to Domicile

| Domicile                  | Musicians |      | Non-musicians |      |
|---------------------------|-----------|------|---------------|------|
|                           | N         | %    | N             | %    |
| Greater Jakarta           | 243       | 35,8 | 254           | 37,4 |
| Other cities in Indonesia | 91        | 13,4 | 85            | 12,5 |
| Other countries           | 4         | 0,6  | 2             | 0,3  |

Of the 338 musicians, only 15.7% were working in the music field. Most of the musicians (80.2%) obtained music education through music lessons, 21% were solo musicians, and the remaining were members of various music groups, such as choirs, vocal groups, orchestras, or

bands. In addition, nearly half of them (48%) played music 1 to 3 times per week.

Through MHI-5 and DERS, researchers obtained the following results:

Table IV. Participants' Score

| Variable              | Mean   | Std Deviation | Std Error |
|-----------------------|--------|---------------|-----------|
| Mental health         | 62,34  | 17,32         | 0,66      |
| Emotion Dysregulation | 103,98 | 23,07         | 0,88      |

This table shows the scores for both musician and non-musician:

Table V. Musician and Non-musicians' Scores

| Variable              | Group         | Mean z-Score | Std Deviation | Std Error |
|-----------------------|---------------|--------------|---------------|-----------|
| Mental Health         | Musicians     | 0,196        | 3,962         | 0,216     |
|                       | Non-musicians | 0,164        | 4,516         | 0,245     |
| Emotion Dysregulation | Musicians     | -0,254       | 21,419        | 1,165     |
|                       | Non-musicians | 0,252        | 22,616        | 1,225     |

Researchers compared the mental health level scores and emotional regulation abilities between musicians and

non-musicians by using the independent sample *t*-test technique and obtained the following results:

Table VI. Test Independent Sample t-test MHI-5

|             | Levene's Test |       | t     | df  | Sig (2-tailed) |
|-------------|---------------|-------|-------|-----|----------------|
|             | F             | Sig   |       |     |                |
| MHI-5 Score | 5,111         | 0,024 | 5,212 | 677 | 0.000*         |

MHI-5, Mental Health Inventory-5

As shown in Table VI, the *t* arithmetic is 5,212 at df 677. In the distribution table of *t*, when df > 120, *t* should be > 1,960 (Gravetter & Wallnau, 2013), indicating that the null hypothesis was rejected and the alternative hypothesis was accepted. Furthermore, the level of mental health was significantly different between

musicians and non-musicians ( $t [677] = 5,212; P < 0.05; M = 62.34; SD = 17.32$ ). The Cohen's value *d* is 0,04, which indicates a small effect size according to Cohen (1988) (Gravetter & Wallnau, 2013).

Table VII. Independent Sample *t*-test of the DERS

|            | Levene's Test |       | t     | df  | Sig (2-tailed) |
|------------|---------------|-------|-------|-----|----------------|
|            | F             | Sig   |       |     |                |
| DERS Score | 0,980         | 0,323 | 6,771 | 677 | 0.000*         |

DERS, Difficulties in Emotion Regulation Scale

As shown in Table VII, the *t* arithmetic is 6,771 at df 677. In the distribution table of *t*, when df > 120, *t* should be > 1,960. The data above show that the *t* arithmetic was greater than the *t* table. In addition, the level of emotional dysregulation was

significantly different between musicians and non-musicians ( $t [677] = -6,843; P < 0.05; M = 103.98; SD = 23.08$ ). The value of Cohen's *d* is 0.05, which indicates a small effect size according to Cohen (1988) (Gravetter & Wallnau, 2013).

#### 4. DISCUSSION

This study found that the ability of emotional regulation was significantly different between musicians and non-musicians. The results of this study are in line with previous studies that stated that musical activity can increase the ability of emotional regulation. Additional analysis also proved that musicians who listened to music daily had the highest emotional regulation ability compared with those musicians listening to music with different frequencies. With regard to occupational aspects, full-time musicians had higher emotional regulation capabilities than those musicians whose work was not related to music. This phenomenon can

happen because when music is used as a field of work, the person is increasingly attached to music. Another theory related to emotional regulation that is also in line with this research is from Ochsner and Gross (2007) (Moore, 2013); they concluded that emotional regulation develops throughout human life and that the older the age, the more the emotional regulation capabilities will mature. Similarly, the current study results indicated that the older the participants, the higher their emotional regulation ability.

In this study, the relationship between emotional regulation and mental health can be observed from the presence of significant differences in the level of



mental health in musicians and non-musicians in addition to differences in emotional regulation abilities. Musicians had a higher level of mental health than non-musicians. Furthermore, participants who most often listened to classical music had the highest level of mental health, followed by those who often listened to heavy music genre and other genre, such as pop, jazz, soul, and funk. This finding is different from what was stated by Baker and Bor (2008); they inferred that the genre of heavy music is generally associated with depression, suicidal tendencies, and other risk behaviors. In their study, participants who often listened to heavy music actually had a better level of mental health than other music listeners. These researchers suspect as such because listening to heavy music can yield a cathartic effect or release negative emotions, facilitating individuals to regulate their emotions.

The difference between emotional regulation and mental health is significant in musicians and non-musicians, but it only has a weak effect size. This effect size can occur because the characteristics of the participants may not fully meet the sampling criteria. In Indonesia, students in elementary to high school receive music art subjects that encourage them to learn ways to create music even though they are not in a formal music education. This practice can make non-musicians in the study have at least played an instrument and sang even though they classified themselves as people who cannot play an instrument or sing. Another factor that can affect this weak effect size is that most of the 338 participants in the music group were not active in music on a daily basis; only 15.7% of them had jobs related to

music. In other words, the remaining 84.3% were nonprofessional musicians or people who make music as a field in their careers. Majority of the participants in the musician group listened to music 1 to 3 times per week, accounting for 48%; this result implies that non-musicians were more frequent in listening to music, although 18.9% of musicians made music daily.

The discovery of differences between mental health and emotional regulation in musicians and non-musicians in this study cannot precisely answer the phenomenon of the many musicians who have mental disorders (Kobayashi, 1996). Considering that this research failed to provide an explanation of this phenomenon, researchers deemed that the musicians' emotional regulation ability may not be the factor that caused them to have unfavorable mental health, but other factors such as high workload and inadequate rest. However, this notion requires further research.

With regard to the limitation of this study, the characteristics of the participants are excessively broad and not proportional; hence, it is not sufficient for generalization. Future studies should use more specific participant characteristics, such as full-time musicians or a narrower age range. Another limitation is the difficulty of researchers to recruit participants who are extremely compatible with the characteristics of the sample, especially the nonmusician group. As explained above, Indonesian people receive music education during their elementary years; thus, participants in the nonmusician group may have actually played certain musical instruments in the past.

## 5. CONCLUSION

This study aimed to determine differences in mental health and emotional regulation between musicians and non-musicians. The study results indicated that mental health and emotional regulation were significantly different between musicians and non-musicians. Musicians showed higher emotional regulation ability and mental health level than non-musicians.

Therefore, this study suggests that practitioners in the field of mental health and emotional regulation should develop and disseminate music-related strategies that can facilitate in improving mental health (e.g., music therapy) and can help develop emotional regulation (e.g., emotional regulation education involving music), or encourage parents to introduce music to their children.

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