Original Research Article

The Effect of Classical Music on Memory Retention and Emotional Dysregulation in Traffic Police

M. Dinah Charlota Lerik[1*], Marleny P. Panis[2], Karolus B Jama[3]

[1]Psychology Study Program, Faculty of Public Health, University of Nusa Cendana, Indonesia
[2]Psychology Study Program, Faculty of Public Health, University of Nusa Cendana, Indonesia
[3]Arts and Culture Study Program, Faculty of Teacher Training and Education, University of Nusa Cendana, Indonesia

Received: 20-11-2024 / Revised: 12-12-2024 / Accepted: 24-12-2024

Abstract
Music has a therapeutic effect on overcoming impaired cognitive dysfunction. This study aims to evaluate the effect of classical music on memory retention and its role in mitigating difficulties in emotion regulation among traffic police officers. A quasi-experimental study with a one-group pretest-posttest design was conducted on the participants (N = 9). Paired samples t-test was conducted to determine the effect of classical music on memory retention and difficulties in emotional regulation of traffic police officers. The results show that classical music has a significant effect on memory retention, $t(8) = 5.196$, $p < 0.001$, $d = 1.732$, and on reducing difficulties in emotional regulation, $t(8) = 8.013$, $p < 0.001$, $d = 2,671$. The findings suggest that classical music can serve as an effective intervention in improving cognitive and emotional functions, particularly in high-stress occupations like traffic policing. It is recommended that organizations incorporate structured music therapy programs to enhance the mental well-being and cognitive performance of employees. Further research with larger samples and diverse occupational settings is needed to generalize these findings.
Keywords: classical music, difficulties in emotion regulation, memory retention, psychotherapy, traffic police officers

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0) and the Budapest Open Access Initiative (http://www.budapestopenaccessinitiative.org/read), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

Music is an inner expression through regular and harmonious sounds that are felt through the sense of hearing and can give an emotional arousing effect on humans. The sentiments caused by music can trigger memories of events that have been experienced that have meaning for the individual. Music is also a cathartic medium for individuals who are controlled by negative emotions. Individuals who have gone through the catharsis process have the ability to regulate emotions better.Zhang et al. (2022)proved the effects of music in a therapeutic context and revealed that music therapy given to a group of individuals was able to improve emotional regulation abilities and reduce negative emotional symptoms such as depression.

In everyday life, music is often perceived as only serving as entertainment. In fact, in clinical situations, music has a therapeutic effect (Zhang et al., 2022).[26]One popular phenomenon about the use of music as a means of entertainment is the presence of police who enjoy music while on duty as happened to a former police officer named Norman Kamaru who went viral after singing with lip sync[24]. If observed further, this phenomenon does not only occur because of the police's need for entertainment. In fact, there is a more important aspect that needs to be studied from the behavior of these police, namely the need for music as a cathartic medium that can help them regulate negative emotions while on duty.

The Mastiff (2020)argue that music therapy can improve the psychological well-being of police officers. Music therapy for police officers has been shown to help reduce stress, support the desire to connect with others, motivate self-expression, and help to engage more deeply with music (Mastoraki, 2020). This is understandable because in Indonesia the police have 2 predicates attached to them. The police are law enforcers who have the authority to protect, serve, and serve the community.

*Correspondence
Dr. M. Dinah Charlota Lerik
Psychology Study Program, Faculty of Public Health, University of Nusa Cendana, Indonesia
E-mail: mdinah.lerik@staf.undana.ac.id.

The police are also ordinary individuals who have various life problems, both related to work and personal life. These problems have the potential to cause police to experience negative emotions that are stressful while on duty which can affect their performance and function as law enforcers. This is implicitly seen from the stigma against the behavior of seeking help for mental health problems which are more intensely experienced by individuals who work in law enforcement[11].

Emotions are mental experiences that arise as an individual's automatic reaction to an event. Police officers experience being in an environment where emotion regulation is important, with clear expectations regarding the expression and suppression of emotions. In general, police officers are quite certain that they are expected to frequently express certain emotions, such as anger, empathy, and also frequently suppress negative emotions, such as anger/hate, sadness. Police officers report beliefs about the appropriateness of emotions such as anger, empathy, and sadness. Empathy is also known to be important in police work. Police officers describe anger as an emotion that is best expressed and suppressed. Given the nature of police work, this seems intuitively reasonable, as expressing anger is intended to achieve desired outcomes, but excessive use can also be harmful[7]. From here it can be said that one of the experiences for individuals who serve as police is accepting their negative emotions so that the impact does not affect their performance on duty. This can be compared with the results of research presented byFord et al. (2018)[8] that individual acceptance of their negative emotions is actually related to low levels of anxiety and depression. The identity as a law enforcer makes the police show suppression mechanisms in order to defend themselves from various negative emotional experiences such as trauma and stress.[21] However, the suppression mechanism as an emotional regulation strategy is known to have a negative impact on the functioning of memory functions.(Gross, 2014). In addition, negative emotions experienced by a person can affect memory. This is in line with the results of research presented byAmran et al. (2019[4])that negative emotions experienced by individuals are related to a decline in their memory performance.

According toMoreno-Morales et al. (2020)[16], music therapy has an influence in overcoming the problem of mental and cognitive decline. However,Scott et al. (2010)[22]found in their research the results of the study stated that music had no effect on the cognitive function of memory retention.

According to Amin & Malik (2013),[2] there are 3 cognitive processes related to memory function, namely encoding, retention, and recall. Retention occurs when events and information are encoded and stored in memory and then with the help of external stimuli, information that has been stored in memory can be accessed again through the process of recall or recall.(HUA Amin & Malik, 2014).[3]The imbalance between work life and personal life is a factor causing work stress in traffic police.[19] The high mental burden experienced by individuals at work can have an impact on increasing mental fatigue (burn out) and decreasing work performance.[1] Furthermore, burnout and emotional regulation are 2 factors that are negatively correlated in work.(Chalikkandy et al., 2022), [5] while the ability to remember is one of the cognitive ability functions that is known to be positively and significantly related to individual work performance.[20]

In the news reported in the Pos Kupang media in 2019, it was discovered that there was a 200% increase in traffic violations from 2017 to 2018.(Nong, 2019)[17]. In 2018, it was also known that the number of traffic accidents in Kupang City increased by 22.5% in a period of 1 month, namely between September and October 2018.[18] Researchers argue that the high number of traffic violations and accidents in Kupang City indicates the increasing workload of traffic police in Kupang City which can become a more serious problem if traffic police in Kupang City show poor emotional regulation and memory retention.

Classical music has an effect on increasing the ability to regulate emotions(Haryadi & Fardah, 2015)and has an effect on reducing symptoms of depression[15]. Listening to music activates areas of the brain associated with memory, cognitive function, and emotion.(Stubbs in Laksmidewi & Dewi, 2021)[14]. According to Yerkes & Dodson(in Howes & O'Shea, 2014), the more arousal increases due to emotional experiences, then at a point when the arousal becomes too intense, the working of memory functions will be disrupted. Emotional dysregulation is a disturbance in the ability to regulate emotions.(Sugianto, 2020). The researcher argues that the difficulty in regulating emotions in traffic police in Kupang City is related to the memory retention process.

In the next 5 years, the scientific significance of this topic is likely to become even more apparent, especially as the importance of mental health takes center stage in high-stress professions like law enforcement. Music, particularly classical music, is increasingly recognized as a powerful way to help people manage their emotions, stay focused, and cope with stress. As research continues to shed light on how music can be used as a practical, non-medical tool for emotional and cognitive support, it's likely to become a more mainstream approach in both therapeutic and workplace settings. This progress could make a real difference not only for individuals but also for organizations seeking to foster healthier, more supportive environments for their teams.

In this regard, the researcher proposes the view that classical music has an effect on traffic police in retaining memories and overcoming the problem of difficulty in regulating emotions when working and dealing with traffic violation cases. More clearly, this study has 2 main hypotheses:

Null Hypothesis 1: There is a difference in emotional dysregulation in traffic police before and after being given classical music.

Alternative Hypothesis 1: There is no difference in emotional dysregulation in traffic police before and after being given classical music.

Null Hypothesis 2: There is a difference in memory retention in traffic police before and after being given classical music.

Alternative Hypothesis 2: There is no difference in memory retention in traffic police before and after being given classical music.

Method

Participant

Participants in this study were 9 police officers who served in the Traffic Directorate (Ditlantas) in the NTT Provincial Police area (12 people in the pre-test and 9 people in the post-test). There were 3 participants in the experimental mortality. The sampling technique used was the voluntary sampling technique. Participant characteristics (4 men and 5 women). Mean age years. Working period as a police officer between 3-26 years.

Design

The independent variable in this study is classical music, while the dependent variables are memory retention and difficulty in regulating emotions. This study is a quasi-experimental study with a two-group pretest-posttest design with the following scheme:

Table 1. Experimental Research Design

Research Group	Pretest	Treatment	Posttest
TO	O1	X	O2
KK	01	-	O2

Description:
TO: Group of participants who were given classical music
KK : Control Group
O1: Pretest to measure memory retention and emotional regulation difficulties in participants before being given classical music.
O2: Posttest to measure memory retention and emotional regulation difficulties in participants after being given classical music.
X: Classical music

Procedure

Pre-Test

First: Participants fill out informed consent and demographic data. Participants are asked for their willingness to be included in the Whatsapp group to facilitate coordination between researchers and participants in the implementation of the quasi-experiment.

Second Pre-test: the experimenter distributed writing instruments and a piece of paper to the participants. After that, the researcher displayed 60 meaningless words using an LCD projector on the wall of the room. The researcher asked the participants to encode by remembering the words displayed for 2 minutes (120 seconds). After that, the researcher closed the projector so that the 60 words to be remembered were not visible to the participants and asked the participants for 10 minutes to recall by writing down any words they remembered on the white paper that was distributed and then collected.

Third: participants filled out the emotional dysregulation scale.

Fourth: the experimenter researcher sent a google drive link containing 9 classical music recording files. (Haryadi & Fardah, 2015) [12] to participants via WhatsApp group. The experimenter explained how to listen to classical music using a headset. Participants listened to the collection of classical music provided for 30 minutes to 60 minutes, starting from December 8 to December 10, 2023 (3 days). After listening to classical music, participants were asked to fill out a googleform containing reflection questions to find out the picture of the participants' emotional regulation every day.[6]

Posttest

First: On December 11, 2023, the Experimenter again distributed a piece of white paper and a ballpoint pen to the participants. Participants were asked to once again do retrieval by rewriting 60 meaningless words that they managed to remember during the pretest with a duration of 10 minutes. The number of words remembered is memory retention data. Then the participants filled out the emotional dysregulation scale.

Second: The experimenter conducts a debriefing to explain to the participants about the research that has just been conducted.

Third: participants are given a reward of IDR 300,000 for their willingness to participate.

Instrument

Memory retention was measured by counting the frequency of the number of correct answers when subjects were given 60 meaningless words to remember for 2 minutes.(Zaromb & Roediger, 2010)[25]to be rewritten as much as possible during 10 minutes(Kelley & Whatson, 2013[13]. Emotional dysregulation was measured using the emotional dysregulation scale, Difficulties in Emotion Regulation Scale-Short Form (DERS-SF), which is a measuring tool developed byGratz & Roemer (2004)[9]. This measuring instrument was modified by Sugianto (2020)[23] to become a measuring instrument consisting of 12 items that measure the dimensions of awareness, clarity, non-acceptance, strategies, impulse, and goals. Data collection was carried out by asking participants to choose from 4 answer choices where answer choice 1 means "very inappropriate," while answer choice 4 means "very appropriate." The reliability of the DERS-SF measuring instrument has been tested (r = 0.865) and the validity of the reliable Aiken, V content (0.795-0.977) (Masdar, 2017).

Material

Headset
Mobile Phone
Classical music files
Paper and pencil

Analysis Techniques

The data analysis technique used in this study was Repeated Measure Anova using JASP 0.18.10 software. to determine the difference in mean total scores of memory retention and emotional dysregulation of each participant before and after being given classical music.

Results

The results of the statistical analysis of the studies that have been conducted can be seen in the following description.

Table 2. Normality Test

		W	p
Memory Retention Pretest Score	Memory Retention Posttest Score	0.933	0.510
Emotional Dysregulation Pretest Scores	Emotional Dysregulation Posttest Scores	0.907	0.294
Note. Significant results suggest a deviation from normality.			

In table 2 above, it is known that from the normality test using the Shapiro-Wilk test, the assumptions of normality and homogeneity for conducting the paired samples t-test have been met.

Table 3. Statistical Description of Pretest and Posttest Scores of Memory Retention and Emotion Regulation Difficulties

	N	Mean	SD	SE	Coefficient of variation
Memory Retention Pretest Score	9	4,667	1,500	0.500	0.321
Memory Retention Posttest Score	9	1,667	1.225	0.408	0.735
Emotional Dysregulation Pretest Scores	9	20,889	5,600	1,867	0.268
Emotional Dysregulation Posttest Scores	9	15,000	5,000	1,667	0.333

Table 3 shows the descriptive statistical results of the pretest and posttest scores of 9 participants who are traffic police officers, where there is a difference in the mean scores of memory retention and difficulty in regulating emotions of traffic police officers due to classical music. Participants reported a decrease in memory retention scores after being given classical music (M = 1.667, SD = 1.225) compared to before being given classical music (M = 4.667, SD = 1.5). The score of difficulty in regulating emotions also decreased (M = 15.000, SD = 5) compared to before being given classical music (M = 20.889, SD = 5.6).

Table 4. Hypothesis Testing

Measure 1	Measure 2	t	df	p	Mean Difference	SE Difference	Cohen's d
Memory Retention Pretest Score	Memory Retention Posttest Score	5.196	8	< .001	3,000	0.577	1,732
Emotional Dysregulation Pretest Scores	Emotional Dysregulation Posttest Scores	8.013	8	< .001	5,889	0.735	2,671

The results of the research hypothesis test in table 4 show that classical music has a significant effect on memory retention $t(8) = 5.196$, $p < 0.001$, $d = 1.732$, so the null hypothesis 1 is rejected and the alternative hypothesis 1 is accepted, so it is concluded that classical music has an effect on traffic police memory retention. Classical music also has a significant effect on the difficulty of traffic police emotion regulation $t(8) = 8.013$, $p < 0.001$, $d = 2.671$. These results indicate that giving classical music can reduce the level of difficulty for traffic police in regulating emotions. Thus, the null hypothesis 2 is rejected and the alternative hypothesis 2 is accepted, so it is concluded that classical music has an effect on the difficulty of traffic police emotion regulation.

Discussion

This study demonstrated that classical music had a significant impact on memory retention and the difficulty of regulating emotions among traffic police. Both aspects—memory retention and emotional regulation difficulties—showed improvements after participants were exposed to classical music. This suggests that music serves as an intervention capable of influencing emotional and cognitive processes. However, the effect observed in this study appears to be nuanced, particularly regarding memory retention, where decreased difficulty in emotional regulation did not correspond to enhanced memory performance.

A notable element of this study was the inclusion of reflective questions that encouraged participants to analyze their emotional regulation strategies during the experiment. This reflective process underscores the structured nature of the intervention, resembling therapeutic methods in psychotherapy. Such structured approaches have been shown to be effective in other contexts, as noted by Mastoraki (2020), who argued that music therapy functions not just as a passive intervention but as an active, participatory process that equips individuals with strategies to manage their emotional responses. This highlights the dual role of classical music as both a tool for self-regulation and a medium for psychological engagement.

The findings of this study align with previous research indicating that music can influence emotional regulation but diverge in the context of its impact on memory retention. Scott et al. (2010) found that music had no discernible effect on memory performance. Similarly, in this study, while participants exhibited reduced difficulty in regulating emotions after listening to classical music, this did not translate into enhanced memory retention. This aligns with the Yerkes-Dodson law, which suggests that moderate levels of arousal can enhance performance, but excessive or insufficient arousal can impair cognitive functions, including memory (Yerkes & Dodson in Howes & O'Shea, 2014).

One possible explanation for the lack of improvement in memory retention is the suppression mechanisms often employed by traffic police as a strategy to regulate emotions. Suppression, while helpful in maintaining professional composure, has been found to negatively impact cognitive processes, particularly memory performance (Gross, 2014). [10] This could mean that despite the benefits of classical music in aiding emotional regulation, the underlying cognitive cost of habitual suppression may counteract potential gains in memory retention.

Another important consideration is the specific context of the intervention. Classical music was administered within a structured environment that mimicked elements of psychotherapy. This structured context likely amplified the emotional regulation benefits by providing participants with a safe and controlled setting to process their emotions. However, the absence of a similar structured support system in real-life settings may limit the practical applicability of these findings. Future studies could explore how such interventions translate into less controlled, real-world environments.

Furthermore, the interaction between emotional regulation and cognitive performance may be more complex than a simple cause-effect relationship. Emotional regulation, particularly through music, may initially prioritize reducing emotional distress over enhancing cognitive functions like memory retention. Over time, however, as emotional stability improves, cognitive functions may also benefit indirectly. Longitudinal studies could provide more clarity on these potential delayed effects and the trajectory of benefits.

The role of individual differences should also be considered. Factors such as musical preference, baseline emotional regulation capacity, and cognitive resilience could significantly influence the outcomes of music interventions. Participants with a strong preference for classical music, for instance, might derive greater benefits compared to those who are less inclined toward this genre. Personalization of music interventions could, therefore, be a critical area for future research.

Lastly, this study contributes to a growing body of evidence supporting the use of music as a non-pharmacological intervention for mental health and cognitive challenges. However, it also highlights the need for more nuanced approaches that take into account the interplay between cognitive and emotional processes. By addressing these complexities, future research can better harness the potential of music-based interventions to support individuals in high-stress professions like traffic policing. This study underscores the potential of classical music as a tool for improving emotional regulation among traffic police, though its impact on memory retention remains inconclusive. While the structured, therapeutic-like context of the intervention played a key role in its success, the findings also point to the intricate relationship between emotional and cognitive processes. Future research should aim to refine these interventions, explore their application in real-world settings, and account for individual differences to maximize their benefits.

Conclusion

This study revealed that classical music had a significant impact on both memory retention and emotional regulation difficulties among traffic police. Interestingly, the findings showed that while classical music decreased the participants' ability to recall information encoded and stored in memory, it also played a pivotal role in addressing challenges related to emotional regulation. The use of classical music within this study mimicked a structured psychotherapy framework, wherein traffic police were provided with skills to better manage their emotional responses. This included improvements in emotional awareness and clarity, greater acceptance of emotional experiences, and enhanced access to effective strategies for emotional regulation. Moreover, the intervention proved effective in helping participants overcome difficulties in impulse control and maintaining goal-directed behavior, even in the presence of negative emotions. These findings underline the dual role of classical music in both supporting emotional resilience and influencing cognitive functions, presenting it as a potential tool for improving mental health and performance in high-stress professional contexts.

Suggestion

Theoretical Suggestions

Further research to determine the effect of classical music on memory retention in traffic police officers needs to involve tighter control of secondary variables.

Practical Advice

Providing individual and group mental health behavioral interventions to traffic police officers who are facing emotional regulation difficulties needs to be done by first conducting early detection related to problems related to emotional regulation difficulties or related to imbalance between work and personal life. In utilizing classical music induction on traffic police officers who are detected as having emotional regulation difficulties, the intervention obtained should be recognized by traffic police officers as increasing their access to effective emotional regulation strategies and involving goal-oriented behavior when they experience negative emotions.

Limitations and Future Research Directions

Despite its promising results, this study has certain limitations. First, the sample size was relatively small, which may limit the generalizability of the findings to a broader population of traffic police or other professions. Second, the short duration of the intervention may not fully capture the long-term effects of classical music on memory retention and emotional regulation. Third, the study relied on self-reported measures for assessing emotional regulation, which may be subject to social desirability bias. Lastly, potential external factors influencing memory retention and emotional regulation were not controlled for, which could have impacted the outcomes.

Future research should address these limitations by including a larger and more diverse sample size, conducting longitudinal studies to evaluate the sustained effects of classical music, and incorporating objective measures such as physiological indicators of stress and memory performance. Additionally, exploring the impact of other genres of music and tailoring music interventions to individual preferences could provide deeper insights into the mechanisms underlying the therapeutic effects of music. Expanding the scope to other high-stress professions could also help validate the findings and broaden the application of music as a tool for emotional and cognitive support.

Reference

1. Akca, M., & Küçükoglu, M.T. (2019). Relationships between mental workload, burnout, and job performance: A research among academicians. Evaluating Mental Workload for Improved Workplace Performance, January, 49–68. https://doi.org/10.4018/978-1-7998-1052-0.ch003
2. Amin, H., & Malik, AS (2013). Human memory retention and recall processes: A review of EEG and fMRI studies. Neurosciences, 18(4), 330–334.
3. Amin, HUA, & Malik, AS (2014). Memory Retention and Recall Process. In N. Kamel & AS Malik (Eds.), EEG/ERP Analysis (1st ed., pp. 219–237). CRC. https://doi.org/10.1201/b17605-11
4. Amran, MS, Shahlan, S., & Saemah, R. (2019). Emotions in Learning Mathematics and Its relationship to Memory: Insight from Neuroscience to Classroom findings. Religion, 4(20), 34–40.
5. Chalikkandy, S., Alhifzi, RSA, Asiri, MAY, Alshahrani, RSA, Saeed, WNA, & Alamri, SG (2022). Burnout and Its Relation to Emotion Dysregulation and Social Cognition among Female Interns and Undergraduate Dental Students at King Khalid University. Applied Sciences (Switzerland), 12(3), 1–10. https://doi.org/10.3390/app12031588
6. Chang, S. H. (2017). The effects of test trial and processing level on immediate and delayed retention. Europe's Journal of Psychology, 13(1), 129–142. https://doi.org/10.5964/ej

op.v13i1.1131
7. Daus, CS, & Brown, S. (2012). The emotional work of police. In Research on Emotion in Organizations (Vol. 8). Emerald Group Publishing Ltd. https://doi.org/10.1108/S1746-9791(2012)0000008016
8. Ford, B.Q., Lam, P., John, O.P., & Mauss, I.B. (2018). The Psychological Health Benefits of Accepting Negative Emotions and Thoughts: Laboratory, Diary, and Longitudinal Evidence. Journal of Personality and Social Psychology, 115(6), 1075–1092. https://doi.org/10.1037/pspp0000157.
9. Gratz, K. L., & Roemer, L. (2004). Multidimensional Assessment of Emotion Regulation and Dysregulation: Development, Factor Structure, and Initial Validation of the Difficulties in Emotion Regulation Scale. Journal of Psychopathology and Behavioral Assessment, 26(1), 41–54. https://doi.org/10.1023/B:JOBA.0000007455.08539.94
10. Gross, J. J. (2014). Emotion Regulation: Conceptual and Empirical Foundations. In J. J. Gross (Ed.), Handbook of Emotion Regulation (2nd ed., pp. 3–20). The Guilford Press.
11. Haecker, V. M. (2017). Factors Affecting Mental Health Seeking Behaviors of Law Enforcement Officers [University of Massachusetts Global]. https://digitalcommons.umassglobal.edu/ edd_dissertations/83
12. Haryadi, S., & Fardah, NN (2015). The Influence of Classical Music on Emotional Regulation of Physically Disabled People at YPAC Surakarta. Talenta, 1(1), 63–68.Howes, M. B., & O'Shea, G. (2014). Human Memory: A Constructivist View. Elsevier Inc.
13. Kelley, P., & Whatson, T. (2013). Making long-term memories in minutes: A spaced learning pattern from memory research in education. Frontiers in Human Neuroscience, 7(SEP), 1–9. https://doi.org/10.3389/fnhum.2013.00589
14. Laksmidewi, AAAP, & Dewi, VT (2021). Classical and Traditional Music Role in Cognitive Function and Critically Ill Patients. In A. Agrawal, R. Sutar, & A. Jallapally (Eds.), Music in Health and Diseases. IntechOpen. https://doi.org/10.5772/intechopen.98698
15. Lerik, MDC, & Prawitasari, JE (2004). The effect of music therapy on depression among students [Gajah Mada University]. https://etd.repository.ugm.ac.id/penelitian/detail/24249Mastoraki, K. (2020). Group Music Therapy at Greek Police: An Objectivist Case Study Research. Macedonia University.
16. Moreno-Morales, C., Calero, R., Moreno-Morales, P., & Pintado, C. (2020). Music therapy in the treatment of dementia: A systematic review and meta-analysis. Frontiers in Medicine, 7(May), 1–11. https://doi.org/10.3389/fmed.2020.00160
17. Nong, R. (2018). Traffic Accident Trend in Kupang City is Increasing! This is the Cause. PosKupang.Com.
18. Nong, R. (2019). Traffic Violations in Kupang Increase, Number of Tickets Increases by More than 200%. PosKupang.Com.
19. Omar, MK, Aluwi, AH, Hussein, N., Mohd, IH, & Rusdi, SD (2020). Factors influencing job stress among Malaysian traffic police officers. International Journal of Financial Research, 11(3), 155–161. https://doi.org/10.5430/ijfr.v11n3p155
20. Periman, WC (2016). The Relationship of Working Memory to Job Performance and Innovation with Stress and Effort as Moderators. Oklahoma State University.
21. Richards, N.K., Suarez, E.B., & Arocha, J.F. (2021). Law Enforcement Officers' Barriers to Seeking Mental Health Services: a Scoping Review. Journal of Police and Criminal Psychology, 36(3), 351–359. https://doi.org/10.1007/s11896-021-09454-x
22. Scott, T. N., Dixon, M., Wiscombe, K., & Bigler, E. D. (2010). The Effects of Music on Memory Retention. FHSS Mentored Research Conference. https://scholarsarchive.byu.edu/fhssconference_studentpub/238
23. Sugianto, NF (2020). The Influence of Emotional Dysregulation, Loneliness, and Religiosity on Self-Injury Behavior in Adolescents. Syarif Hidayatullah State Islamic University Jakarta.
24. TribunPalu.com. (2023). News of Norman Kamaru, Former Police Officer Who Went Viral Now Wears Tattoos, Is It True He Changed Religion? https://palu.tribunnews.com/2023/01/10/kabar-norman-kamaru-mantan-polisi-yang-dulu-viral-kini-pakai-tato-benarkah-pindah-agama
25. Zaromb, F. M., & Roediger, H. L. (2010). The testing effect in free recall is associated with enhanced organizational processes. Memory and Cognition, 38(8), 995–1008. https://doi.org/10.3758/MC.38.8.995
26. Zhang, M., Ding, Y., Zhang, J., Jiang, X., Xu, N., Zhang, L., & Yu, W. (2022). Effect of Group Impromptu Music Therapy on Emotional Regulation and Depressive Symptoms of College Students: A Randomized Controlled Study. Frontiers in Psychology, 13(March). https://doi.org/10.3389/fpsyg.2022.851526

Conflict of Interest: Nil
Source of support: Nil