



Strengthening The Soul to Preserve Culture: Hangasa Juice Therapy on Sleep Quality and Anxiety to Prevent Psychosocial Mental Emergencies in Class IIB Correctional Centre, Banjar City

Reni Hertini^{1,a*}, Siti Rohimah¹⁾, Asri Aprilia Rohman¹⁾

¹Fakultas Ilmu Kesehatan Universitas Galuh, Ciamis, Jawa Barat, Indonesia

^arenihertini25@gmail@mail.com*

ABSTRACT

Correctional Inmates (WBP) in prisons are vulnerable to experiencing anxiety and sleep disorders due to environmental pressure. This study tested the effectiveness of hangasa juice, a herbal-based non-pharmacological intervention, in reducing anxiety and improving sleep quality in inmates at Class 2B Prison in Banjar City. A quantitative approach with a quasi-experimental one-group pretest-posttest design was used, involving WBP as the sample. The results show that the significance of the pre-test and post-test results on anxiety levels is $0.331 > 0.05$ and the results of sleep quality show that the significance of the pre-test and post-test results is $0.199 > 0.05$ collected using the PSQI and SAS/SRAS questionnaires. The results showed a decrease in anxiety levels and an increase in sleep quality after the intervention, although not statistically significant. These findings indicate the potential of hangasa juice in overcoming anxiety and improving sleep quality, in line with previous research that research results show that hangasa contains flavonoids, alkaloids, tannins and essential oils, which have biological activity that is good for health. Extracts from Hangasa have significant antioxidant activity. These properties are in line with the antioxidant and antimicrobial properties of the essential oils contained in this plant. So this research opens up opportunities for further research with a stronger design to test its effectiveness and explore its mechanism of action.

Keywords: *Amomum dealbatum, anxiety, non-pharmacological intervention, sleep quality, prison inmates.*

1. INTRODUCTION

In accordance with the World Health Organization (WHO) declaration, health services provided to prisoners or prisoners of correction (WBP) must meet quality standards equivalent to those provided to the general public (Arifat, 2018). Correctional institutions in Indonesia have a mission to ensure respect, fulfilment and protection of human rights,

including the right to health for prisoners. Health is a state of physical, mental, spiritual and social well-being that enables everyone to live a socially and economically productive life.

Life in a correctional institution can be a stressful situation and prolonged stressors (D'Aurizio, Caldarola, Ninniri, Avvantaggiato, & Curcio, 2020). High stressors, stressful environments and situations within prisons can alter the sleep habits of prisoners, with

*Reni Hertini.

Tel.: -

Email: arenihertini25@gmail@mail.com



insomnia increasing over time. This not only triggers messy sleep patterns, but can also lead to symptoms of mental imbalance such as anxiety disorders to depression (Hall et al., 2019). Research by Lerman et al. (2022) supports this, showing that almost half of the WBPs (48%) experienced anxiety and sleep disorders.

Mental health is a crucial aspect that needs to be addressed in prisons. Prisoners live in residential rooms for long periods of time, ranging from several years to a lifetime. During this time, they face various problems and suffering such as loss of independence, sexual opportunities, personal rights, and stigma from the community (Bukhori, 2012). Common mental health problems experienced by prisoners include depression, high levels of stress, and anxiety disorders (Dhika, 2020). Poor mental health has been shown to be associated with sleep disturbances, which in turn can trigger more serious physical health problems, ranging from digestive and respiratory issues to cardiovascular problems such as heart failure, coronary heart disease and heart attacks (Arenas, Thomas, Wang, & DeLisser, 2019).

Anxiety disorders in prisoners have a serious impact on their well-being. Uncontrolled anxiety can negatively impact mental and physical health, social relationships, and the rehabilitation process. Prisoners with anxiety disorders may have difficulty adapting to the prison environment, going through daily routines, and interacting with fellow prisoners and officers (Malik & Sovitriana, 2021). High anxiety can also affect sleep patterns, worsen physical health conditions, and reduce their quality of life in prison. Therefore, an in-depth understanding of anxiety disorders in prisoners and appropriate interventions are essential to support their well-being.

Reviewing these problems, it is appropriate that issues regarding the quality of mental health of WBP need to be given attention, because in accordance with what is stated in Law No. 22 of 2022 that prisoners are entitled to care, both physically and mentally. There are treatments that can be provided for individuals with anxiety disorders that affect their sleep quality, one form of nursing intervention includes pharmacological interventions, and

non-pharmacological including psychosocial, and CBT (*Cognitive Behaviour Therapy*) (Granero et al., 2020).

Although of the nursing interventions mentioned, pharmacological approaches have been shown to have the fastest effect, they are at risk of long-term side effects (Gøtzsche, Young, & Crace, 2015). Therefore, nonpharmacological therapies may be a viable alternative for nursing interventions in prisons. Interventions to overcome anxiety and improve sleep quality can be done by consuming several types of fruit that have natural ingredients that can provide effects similar to drugs such as hangasa fruit which is proven to contain flavonoids, terpenoids, alkaloids, steroids, and saponins that can help reduce stress levels and increase positive mood (Kusuma, Nurmalinga, Ramadhania, & Indradi, 2021). Consuming these fruits regularly in a healthy diet can be a natural intervention to manage anxiety and improve sleep quality without the need to rely on medication.

In ancient times, parents always utilised herbal remedies to treat diseases. Herbal therapy is a type of therapy that uses medicinal plants or herbs. Foods that contain physiologically active ingredients that can be used as antidotes or medicines for various diseases are called functional foods. Food containing antioxidants is a product. Functional foods are still being created (Susanti, Karyadi, Parlindungan, & Ruyani, 2023). One of the plants originating from Indonesia and known to have potential health benefits is hangasa (*Amomum dealbatum*). This plant contains various phytochemicals, including flavonoids, terpenoids, and saponins, which have antioxidant, anti-inflammatory, and antimicrobial properties (Singhal, Gautam, Kumar, & Kumar, 2022).

Some of the research conducted on hangasa fruit includes studies on antiinflammatory effects: Chen et al. (2018) conducted a study on *Amomum villosum* and found that the extract had significant antiinflammatory effects on macrophage cells. This study suggests that the active compounds in *Amomum villosum* fruit may inhibit the inflammatory response, showing potential in the treatment of inflammatory conditions. Pharmacological Studies and Traditional Uses: A study by Ao,

Wang, Chen, Li, & Dai (2019) evaluated the pharmacological information and traditional uses of *Amomum villosum* in China. The study identified various traditional applications of *Amomum* fruits in the treatment of digestive disorders, respiratory problems, and other conditions.

Test of Effects on the Nervous System: One of the studies conducted by (Prasad, Srinivasan, Chaudhary, Choudhary, & Jat, 2019) investigated the neuropharmacological effects of *Amomum subulatum* on lab rats. The results showed that the extract of this plant has potential antidepressant and anxiolytic activities, indicating possible positive effects on the nervous system. The traditional use of hangasa or related species in traditional medicinal herbs to cope with stress and improve sleep has been practised by people in several regions of Southeast Asia. These uses indicate a belief in the effectiveness of these herbs in relieving tension and improving sleep.

Based on previous studies that we found using *Simplicia Hangasa* extraction was carried out by maceration method. A total of 618.93 grams of *Simplicia Hangasa* was macerated with 2200 mL of 96% ethanol as solvent. This process involved remaceration twice. The result of the extraction was 6500 mL of aqueous extract, which was then thickened using a rotary evaporator and a water bath, resulting in a viscous extract of 17.51 grams of experimental approach to reveal the phytochemical composition of hangasa. Through observation of the use of plants by the community, it was confirmed that hangasa is not only used as traditional medicine, but also has the potential to be developed in modern pharmacology. The active compounds contained in these three plants, such as flavonoids, alkaloids, tannins, and essential oils, have promising biological activities (Rohimah, et al, 2024). For example, essential oil from *Engelhardia spicata* has been shown to have strong antioxidant properties, while *Vatica scortechinii* shows potential as an effective antimicrobial agent (Rohimah, et al, 2024). By combining the natural properties of these hangas, it is hoped that this research can provide an effective and easy alternative solution in overcoming mental health problems often experienced by WBP, especially anxiety and sleep disorders.

This research is important to do in an effort to improve the psychological well-being of prisoners while serving their sentences, as well as preserving local cultural heritage that can be utilised as complementary therapy. By providing appropriate interventions in overcoming mental health problems, it is hoped that it can prevent psychosocial emergencies in the penitentiary environment and assist the rehabilitation process of WBP so that they can reintegrate with the community productively after serving their sentence.

2. RESEARCH METHODS

This study applies a quantitative approach and implements the Quasi Experimental Design research method. This method uses a Onegroup Pretest-Posttest Design, which focuses on identifying cause-and-effect relationships through the involvement of a sample group of prisoners in class 2B Banjar City prison. Observations were made of the subject group before the intervention was implemented and after the intervention was implemented.

Data were collected using questionnaires in the form of Pittsburgh Sleep Quality Index (PSQI) and Zung Self-Rating Anxiety Scale (SAS/SRAS) tests to determine sleep quality and anxiety levels in WBP. Furthermore, the data were analysed using non-parametric tests, namely the Wilcoxon match pairs test with the aim of seeing the significance between sleep quality and anxiety levels in WBP before and after the hangasa juice therapy intervention. Samples were taken with the inclusion criteria of participants who were prisoners at the Banjar City Class IIB Correctional Institution with the same block, aged between 20-60 years. Willing to consume hangasa juice according to the schedule determined in the study. Not currently undergoing therapy or special treatment for sleep disorders or anxiety within the last three months. Willing to follow all stages of intervention and evaluation required by the study. Have sufficient communication and comprehension skills to follow the study instructions.

3. RESULTS AND DISCUSSION

3.1 Research Results

The research was successfully conducted by testing the effectiveness of hangasa juice administration on a sample of 40 prisoners in class 2B Banjar City prison. The results showed that based on the level of anxiety of the WBP based on the results of the SAS/SRAS which were divided into non-anxious and mildly anxious groups. The number of WBPs who belong to the non-anxious group is 30 people and mild anxiety is 10 people. However, after being given the hangasa juice therapy intervention, it can be seen that there is a change in anxiety levels, which is characterised by 3 WBPs experiencing relief of anxiety levels to become not anxious (Figure 1).

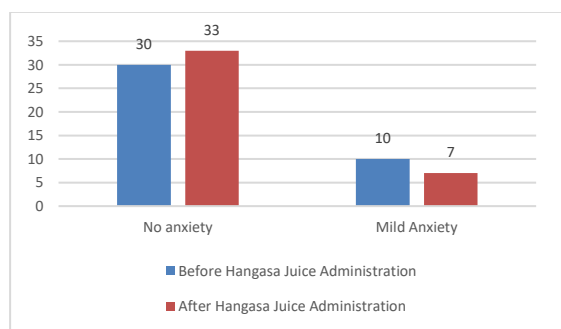


Figure 1. Anxiety levels of prisoners in class 2B Banjar City before and after the intervention

Furthermore, this study also examined sleep quality based on PSQI results which were divided into groups of WBP with good and poor sleep quality. The number of WBP who belonged to the group with good sleep quality was 12 people and 28 people with poor sleep quality. However, after being given the hangasa juice therapy intervention, it can be seen that there is a change in sleep quality, which is characterised by 3 WBPs experiencing an increase in sleep quality for the better (Figure 2).

Then, to see the effectiveness of hangasa juice, the significance of the results from before the intervention and after the intervention of hangasa juice was examined. The results showed that the significance of the pre-test and post-test results on anxiety level was $0.331 > 0.05$ (Table 1). This indicates that statistically, there is no significant difference between the proportion of prisoners who

experienced changes in anxiety levels after consuming hangasa juice. In other words, the administration of hangasa juice has not been proven to significantly reduce the level of anxiety among prisoners in Class 2B Banjar City.

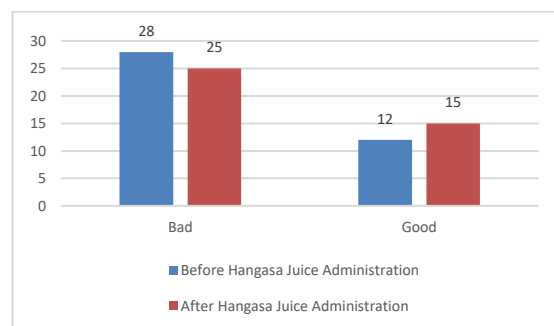


Figure 2. Sleep quality of prisoners in class 2B Banjar City before and after the intervention.

Table 1. Significance of Changes in Anxiety Level Before and After Giving Hangasa Juice

Group	t	df	Sig.
Pre-test	2.000	1	.331
Post-test	1.538	1	

Furthermore, the effectiveness of hangasa juice administration on changes in the quality of sleep of WBP was tested. The results showed that the significance of the pre-test and post-test results was $0.199 > 0.05$ (Table 2.). This indicates that statistically, there is no significant difference between the proportion of prisoners who experienced changes in sleep quality after consuming hangasa juice. In other words, the administration of hangasa juice has not been proven to significantly improve the sleep quality of prisoners in Class 2B Banjar City.

Table 2. Significance of Changes in Sleep Quality Before and After Hangasa Juice Administration

Group	t	df	Sig.
Pre-test	2.500	1	.199
Post-test	4.000	1	

Although the statistical test results did not show significance, it is important to note that

this study has limitations, such as a relatively small sample size. Further research with larger samples and a more robust research design may be needed to provide more definitive conclusions regarding the effectiveness of hangasa juice in reducing anxiety in prisoners.

3.2 Research Discussion

Mental health can be related in a number of ways, including by the way a person lives and thinks about their daily life; the way they value themselves and those around them; and the way they assess different solution options and choose decisions in dealing with a problem (Lerman et al., 2022). An individual with good mental health is someone who is filled with feelings of calm, peace, and security. In another context, mental health can be defined as the achievement of strong harmony related to psychological functions in the mind, and also the achievement of harmonious adaptation between individuals and themselves and their environment, based on faith and piety, with the aim of achieving a meaningful and full life of happiness in this world and the hereafter (Malik & Sovitriana, 2021).

Correctional institutions, commonly abbreviated as prisons, are unique social environments where a group of individuals with various emotional, cognitive, and mental health problems gather. Research conducted by Liebling (2017), shows that 10% of all prisoners in the world show symptoms of mental instability and 1,081 of them were rushed to mental hospitals because their symptoms could no longer be controlled (Liebling, 2017). There are studies that reveal that the high rate of mental disorders such as bipolar disorder, major depression, schizophrenia, high stress levels, and anxiety disorders among prisoners, is due to the harsh prison environment and unavoidable stressors, in addition to the characteristics of each individual prisoner (Al-Rousan et al., 2017).

High anxiety can also affect sleep patterns, worsen physical health conditions, and reduce their quality of life in prison. Therefore, an in-depth understanding of the amelioration of anxiety disorders in prisoners and efforts to provide appropriate interventions is essential to support their well-being in the prison environment. This study aimed to evaluate the effectiveness of hangasa juice on anxiety levels

and sleep quality of prisoners in Class 2B Banjar City prison. The results showed a positive change in both variables after the intervention, although it did not reach statistical significance.

There was a decrease in the number of prisoners in the mild anxiety category after the hangasa juice intervention. Although this change was not statistically significant ($p > 0.05$), this result still shows the potential of hangasa juice in reducing anxiety symptoms. This is in line with previous research which shows that since ancient times, Chinese and Indian people have widely used hangasa plants to help reduce anxiety in the elderly (Parkash, Prasad, Shahnaz, & Dev, 2018; Saudah, Zumaidar, Darusman, Roslim, & Ernilasari, 2022). Improved sleep quality in some WBPs after the hangasa juice intervention was also an interesting finding. Although not statistically significant ($p > 0.05$), this result indicates the potential of hangasa juice in improving sleep quality, especially in individuals with poor sleep quality. There has not been much research on the mechanism of hangasa in improving sleep quality, but this study could be an opening study in conducting such studies

Based on previous studies, we found that using extraction revealed the phytochemical composition of hangasa. Through observation of the use of the plant by the community, it was confirmed that hangasa is not only used as a traditional medicine, but also has the potential to be developed in modern pharmacology. The active compounds contained in this plant, such as flavonoids, alkaloids, tannins, and essential oils, have promising biological activities (Rohimah, et al, 2024). For example, the volatile oil from *Engelhardia spicata* has been shown to have strong antioxidant properties, while *Vatica scortechinii* shows potential as an effective antimicrobial agent (Rohimah, et al, 2024). By combining the natural properties of these hangasa, it is hoped that this research can provide an effective and easy alternative solution in overcoming mental health problems often experienced by WBP, especially anxiety and sleep disorders.

The non-significant results in both tests, for both anxiety level and sleep quality, could be due to several factors. Firstly, the dose of hangasa juice given may not have been optimal

to produce significant effects. Further research needs to be conducted to determine the appropriate and effective dosage. Secondly, the duration of the intervention may not have been long enough to have a meaningful impact. Given that hangasa is a naturally occurring herbal intervention, its effects may take longer compared to chemical medications (Parkash et al., 2018). In addition, other factors such as the characteristics of individual prisoners, environmental conditions in prisons, and interactions with other interventions they may be receiving may also influence the results of the study. Therefore, future research needs to consider these factors and design a more comprehensive research design.

This study has several limitations that need to be considered. Firstly, the relatively small sample size (40 WBP) may limit the ability to detect statistically significant differences. Therefore, further research with a larger sample and a more robust research design, such as a randomised controlled trial (RCT), is recommended. Future studies may also consider measuring other relevant variables, such as stress and depression levels, to gain a more comprehensive understanding of the effects of hangasa juice on the mental health of WBPs.

CONCLUSIONS

This study shows that hangasa juice has the potential to reduce anxiety and improve sleep quality in prisoners in Class 2B Banjar City, although it is not statistically significant. These results are in line with the traditional use of hangasa to reduce anxiety and improve sleep quality. The non-significance of the results may be due to the suboptimal dose and duration of the intervention, as well as the limited sample size.

ADVICE

The researchers suggest that further research with a more robust design and a larger sample is needed to confirm these findings. Future studies may also consider measuring other variables such as stress and depression levels, as well as exploring the mechanism of action of hangasa on sleep quality. Nonetheless, this study provides promising preliminary evidence

on the potential of hangasa juice as a complementary therapy in improving the mental health of prisoners.

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