



Original Research

The Phenomenon of Sleeping in Sand Based On Culture In Elderly With Osteoarthritis

Syaifurrahman Hidayat^{1*}, Mujib Hannan², Emdat Suprayitno³, Domingos Soares⁴, Apriyani Puji Hastuti⁵, Ratna Indriyani⁶, Yulia Wardita⁷, Manuela Maria Fernandes Amaral⁸

^{1,2,3,6,7} Faculty of Health Science, Universitas Wiraraja, Indonesia

⁴ Associação Dos Enfermeiros De Timor-Leste

⁵ Faculty of Health Science, Institut Teknologi Science and Health RS. dr. Soepraoen, Indonesia

⁸ Faculty of Health Science, Institut Dom Boaventura De Timor Leste

Background: Pain in the elderly with osteoarthritis requires alternative therapy to fulfill their comfort. The purpose of this study was to explore the culture of sleeping on the sand among the coastal elderly with osteoarthritis pain.

Methods: This research method used a qualitative research approach with phenomenological research design and data collection techniques using in-depth interviews, participant observation, and documentation. The time of the research is from April to May 2023, located in Legung Village, Batang-Batang District, Sumenep Regency. The technique was judgment sampling, with nurses as key informants, the elderly as main informants, and traditional and community leaders as supporting informants, so the informants in this study were 18 participants. Data analysis uses thematic analysis based on values, activities, and artifacts.

Results: 1. Cultural elements in the form of values and ideas in the culture of sleeping on the sand include sleep history, belief in sleeping on the sand, and concepts or values in society. 2. The form of activity can be seen in several sand extraction activities or the implementation procedure of preparing sand to be used as the basic material for bedding. 3. The form of the artifacts is related to the tools and materials used in this case, which are related to sleep culture.

Conclusion: The culture of sleeping on the sand has a comforting effect on older people based on three forms of culture, including ideas and values, activities, and artifacts. The culture of sleeping on the sand can be used as a daily activity to overcome the problem of osteoarthritis in older people. This research can be developed regarding the implementation of culture-based transcultural nursing care.

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CONTACT

Syaifurrahman Hidayat



dayat.fik@wiraraja.ac.id

Faculty of Health Science,
Universitas Wiraraja Jl. Raya
Pamekasan - Sumenep No.KM. 05,
North Committee, Patean, District.
Batuan, Sumenep Regency, East
Java, Indonesia 69451.

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INTRODUCTION

The elderly are a natural stage of human life that is often associated with a decrease in body functions such as joint pain (Syaifurrahman Hidayat et al., 2021). Pain in the elderly with osteoarthritis is generally chronic pain, and patients often seek alternative therapies to reduce pain (Soonger, 2005). A person who feels pain means that his comfort needs are not being met (Varndell et al., 2020).

Untreated pain can cause emotional distress and trigger disease recurrence, so nurses need to provide interventions to meet the comfort needs of the elderly in dealing with pain (Ali & Abdulkareem, 2020; S. Hidayat, 2014). The coastal elderly generally feel comfortable sleeping on the sand, and based on the results of the analysis studied through emic, sleeping on the sand can help provide comfort (Regnani, 2014), but there has been no previous research on the effect of the tradition of sleeping on the sand on the comfort and pain of osteoarthritis.

In general, osteoarthritis is pain that is often experienced by the elderly, especially in the joints (Bhattarai et al., 2020; Imagama et al., 2019). Regarding osteoarthritis pain, the elderly in coastal areas have their own uniqueness, based on data from the Sumenep District Health Office in 2020, showing that osteoarthritis is more common in the elderly in dryland areas than in coastal areas. This is possible because the elderly in coastal areas use sand in their daily lives. Days are like sleeping in the sand (Mulyadi & DIP, 2021).

The world's population is currently in the aging population era, where the number of people aged more than 60 years exceeds 7 percent, while in Indonesia, the percentage of the elderly from the total population is 9.92%, with 26.82 million elderly people. In 2045, Indonesia is projected to be in the aging phase of the population (BPS, 2020; Tadjoeidin et al., 2017). According to BPS data, Susenas 2020 shows that the province of East Java has the third highest percentage of elderly people (13.38%), after the Special Region of Yogyakarta (14.71%) and Central Java (13.8%). Based on data on the elderly in East Java, it shows that East Java is an area with an aging population structure with as many as 62.09 young elderly people, 28.33 percent middle elderly people, and 9.59 old elderly people (BPS, 2020).

Based on the results of Riskesdas (2022), osteoarthritis in Indonesia is still a common non-communicable disease in the elderly. Osteoarthritis is a disease that ranks first among the elderly in Sumenep Regency with an incidence of 29.09%, while in Legung Village, Batang-Batang sub-district, it is also the highest non-communicable disease in the elderly at 27.29% (Sumenep Regency Office, 2020). These data indicate that osteoarthritis is a major problem among the elderly, especially at the Legung Health Center. The prevention method is carried out through a health promotion strategy approach in the form of joint pain health education so that there is a need for independent prevention and control efforts in the elderly in an effort to improve their health status.

One way to improve the health status of the elderly is through cultural schemes, cultural norms, and normative thinking that play an important role in treatment behavior and the use of complementary therapies (Osokpo & Riegel, 2021). Indonesia is one of the countries that still maintains its culture of maintaining public health. Efforts to maintain and develop culture require local strength to support national forces capable of bringing Indonesia's name to the international scene, but still with the noble values that have been built by the community's ancestors (Syaifurrahman Hidayat et al., 2020, 2022).

The development of this local culture is one of the steps to support the cultural, health, economic, and socio-cultural development of the Indonesian nation (Sabri et al., 2019). In the field of health, nurses carrying out nursing care for the elderly need to pay attention to the culture of the client so that they can provide care and welfare for the elderly according to culture while meeting the basic needs of the elderly (Mirabelle, 2013; Sabri et al., 2019).

The culture that is still maintained and believed by the people of coastal areas in Legung Village, Batang-Batang District, Sumenep Regency is the tradition of sleeping on sand, which can improve the health status of the community. Sleeping on the sand is part of the culture of the Madurese coastal community, where, according to Regnani (2014), the tradition of sleeping on the sand is enjoyable, feels comfortable, and does not endanger health. Kim & Kim-Godwin, (2019) stated that the elderly's sleep activity was influenced by a culture-based expectation intervention.

Sleeping on a stretch of sand is believed to be beneficial for health by coastal communities and is used as a culture for the elderly. According to Regnani, warm conditions increase the elasticity of the collagen tissue due to the increased viscous flow of the matrix and collagen fibers. A warm environment promotes blood circulation and muscle relaxation, which reduces pain (Shehata & Fareed, 2013; Silvia et al., 2018).

On the northern coast of Batang-Batang Sumenep Syaifullah, (2012) states that the life of the elderly in Legung Village is identical to the habit of using sand, meaning that since ancient times until now, the community has considered sand to be a part of life. In the daily behaviors carried out by the elderly, such as resting, relaxing, grouping together, working, drying fish, giving birth, and sleeping in the sand, they assume that these behaviors give them a sense of fatigue and that body aches will disappear so that their bodies feel fresh (Regnani, 2014). According to (2011), nursing intervention for clients must pay attention to cultural values and sick health contexts, where everyone from each culture knows and can define ways according to their experiences and perceptions of the world of nursing and can connect experiences and their perceptions of healthy beliefs in general with their practice.

Based on the phenomena described in the background, the culture of sleeping on the sand is believed to reduce fatigue and pain, which has the potential to reduce the incidence of osteoarthritis in the elderly. So it needs to be proven in research so that it can be accepted as a condition of a knowledge concept, namely the culture of sleeping on the sand based on transcultural nursing in coastal elderly who experience osteoarthritis pain in increasing comfort. The purpose of this study is to explore the culture of sleeping on the sand among the coastal elderly with osteoarthritis pain.

MATERIALS AND METHOD

This research has received approval from the health research ethics committee of the Faculty of Nursing, Universitas Airlangga, through a statement that passed the ethical review "ethical approval" No. 2565-KEPK in June 2022. This research method used a qualitative research approach with a qualitative research approach. Phenomenological research design, whereas this research involves rigorous and thorough examination where the main concept is meaning, which is the essential content of human conscious experience, is carried out in-depth to identify essential qualities (Moleong, 2014).

Data collection techniques used in-depth interviews, participant observations, and documentation about sleeping in the sand and the quality and benefits of sand in the culture of sleeping on sand passed down from generation to generation on the coast. old.

The qualitative research design is as follows:

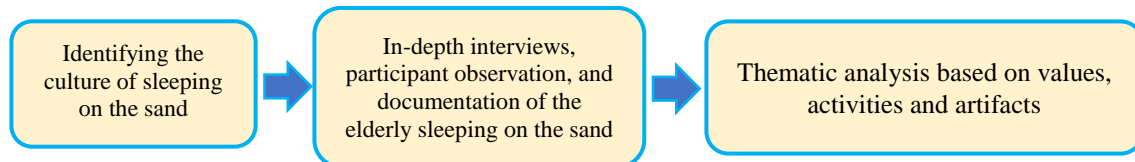


Figure 1. Qualitative Research Design

The technique was purposeful sampling, also known as judgmental sampling, based on participant characteristics. The informants in this study were 18 participants, including nurses as key informants, the elderly as main informants, and traditional and community leaders as supporting informants. Here are the following informant criteria: 1) Elderly, as many as 9 participants aged 60–74 years, experiencing osteoarthritis based on data from the Legung Health Center and domiciled in Legung Village for more than 1 year. from 20 years, 2). There were 3 participants who were traditional figures, namely someone who has a traditional position and has lived in Legung Village for more than 20 years. There were 3 participating nurses, namely someone who has been in charge of providing nursing services in Legung Village for more than 10 years and has a minimum of formal nursing education Diploma III in Nursing Education 3). The community of 3 participants, who are individuals who live together in one place and interact with the elderly who sleep on the sand and have lived in Legung Village for more than 20 years, consisted of three forms of culture, including values and ideas, actions and activities, and objects and artifacts.

Data collection on phenomenological approaches used in-depth interviews with the help of interview guides, participant observation, and documentation. This instrument used interview guidance based on a qualitative approach focused on three forms of culture, namely values/ideas, actions/activities, and objects/artifacts. Qualitative approach analysis uses thematic analysis, which is a method to identify, analyze, and report patterns or themes based on data.

RESULTS

The results of the study show that cultural elements in the form of values and ideas in the culture of sleeping on the sand include sleep history, belief in sleeping in the sand, and concepts or values in society.

"I've been sleeping on the sand since I was little; when it comes to the specifics of the time aspect, I don't understand because this has been passed down from generation to generation." (IH2306MSY02)

"I've been sleeping on the sand since I was born. Yes, since I was little, I've slept on the sand. Therefore, I'm not comfortable sleeping on a mattress until now; even though I have a mattress, the mattress at home is used as jewelry instead" (NM0306LS01).

The results of in-depth interviews with the elderly showed that the history of the emergence of sleep culture was not explained in detail; all informants stated that the culture had existed since they were small, and their ancestral parents previously also did the same thing without knowing the exact reason, and it was carried out from generation to generation. Up to now and is the same as the statement made by the leaders,

community, and nurses in the village that the habit of sleeping with sand has been around for a long time; even when they first lived in Legung village, there was already a culture of sleeping on the grounds of sand following the statement. That sleeping with sand has been around for a long time and feels comfortable sleeping on sand, which is done in daily activities.

"I'm still more comfortable in the sand, sir because my body feels warm when I sleep in the sand; in the rainy season, it's even more comfortable to sleep in the sand, and part of my body goes into the sand" (AY1506LS02).

"When I sleep on the sand, my body feels comfortable with the warmth of the sand, and my body immediately merges with the sand; moving in the sand is also comfortable; I don't feel any limits; and if it hurts my whole body, sir, sleeping on the sand can reduce the pain" (TN1506LS03).

According to the ethical view (outsiders' point of view), this culture causes the body to be dirty, not beneficial for health, and so on, which is different from an emic point of view. The emic approach in this case does offer something more objective because cultural behavior is studied and categorized according to the views of the people or informants themselves, where the results of interviews with informants say that sleeping on the sand provides many benefits by making you feel comfortable and sleeping faster. Sand with a warm body makes the body fresh after waking up. People's beliefs regarding the comfort of sleeping in the sand are also described in the results below:

"So far, I have never had a ban from health workers, so it seems that there is no problem because I have never had any health problems when I sleep on the sand" (ST0207LS09).

According to the results of in-depth interviews from the perspective of health workers and leaders, there are no rules forbidding sleeping in the sand, and most community leaders recommend sleeping in the sand because it is beneficial for the elderly, but for health workers, it is recommended not to sleep in the sand if there are infectious wounds in the elderly; they are worried that infection will occur. It's getting worse, even though there are still many elderly people who still sleep in the sand. For this reason, we humans come from the ground and are always in contact with the ground, so our daily activities, including sleeping, are always under the sand.

In this study, the cultural activity of sleeping on the sand can be seen in several activities. The first is the activity of taking sand or the implementation procedure of preparing sand, which will be used as the basic material for the bed.

"The way to take the sand is the same; yes, take it on the beach, which is white. That's right, just take it with a small hole, and it's quite easy to pick it up because the color of the sand is the smoothest and the color is the whitest. How to clean it first in the area you want to pick up so that the dirt is not mixed, it is sifted using a sand sieve." (TN1506LS03)

The results of the interview above show the implementation procedure for preparing sand, namely that the process of taking sand is determined by a distance between 100 - 150 m from the beach, cleaning the sand that has been collected by inviting or separating it from dirt, and sand that has been collected and is already clean will be included into sacks to be moved home; the sand that is ready in the sack will be transported and brought to their respective homes. In the process of transporting, according to the informant, if you have your means of transportation.

The results of the research are in the form of the second sand-based sleeping culture activity, namely sleeping activities that are usually carried out by informants.

"If I usually sleep on my back, sir, but when I have a good night's sleep, there is no limit if I sleep at night above 10 p.m. and wake up at 4 a.m. all ready to cook and go to the market." (AR1806LS06)

"If you change your sleeping position, sir, yes, if you sleep on your stomach, your head still has a pillow; if you sleep for about 6-7 hours at night, sir." (MD3006LS07)

The results of the interview can be obtained, indicating that the informant's bedtime does not have a specific time or certain hour, namely sleep time according to sleep needs with a duration of about 6-7 hours a day, and the sleeping position is not determined with certainty; there are no standard rules stating the sleeping position on the sand. The most comfortable position is with your feet buried in sand; this is believed to provide comfort and warmth and reduce the pain you feel. The shape of the artifact is related to the shape of the sand-bed mattress, and the tools and materials used in this regard are related to sleep habits.

"White sand, sir, only like this if the one in the room is smoother, sir, and not dusty, sir, because when we sleep on the sand we don't sneeze; even though the sand is fine, it doesn't fly, so it doesn't interfere with breathing." (AR1806LS06)

"The shape of the mattress is the same, sir, a box like this, about 25 cm thick; the better, the thicker, the better to sleep on." (SY0207LS08)

"Sand cleaning tools, namely broomsticks, sieves, trash cans, and small spoons, sand cleaning tools." (LS-02/16/VII/2022)

The results of observations and interviews showed that the tools and materials used to prepare were hoes, plates or sieves, sieves or sieves, broomsticks, transportation equipment, sacks, and pillows. While the other equipment used is a bed, in general, this is a room of a certain size. Most of them are 3x3m or 3x4m. The sand is placed about 20–30 cm; this size is ideal and provides comfort while sleeping.

It's more comfortable, the ceramic one, sir, of course... it's still possible, sir, just what needs to be modified by giving a carpet or body cleaner, sir... yes, sir, if you add it, it's better so that after waking up you can clean it immediately." (AY1506LS02)

Maintaining local culture by paying attention to ways or negotiating with local culture, in this case the culture of sleeping in the sand, can be modified on the artifact aspect, namely the design of a sand-based mattress that aims to add comfort to the elderly, including by adding artifacts in the form of carpets and body cleaning towels, as well as the design and bed mattress.

DISCUSSION

According to informants, there are various beliefs about the benefits of sleeping on the sand. Sleeping in the sand has more benefits, but the main thing is that they feel comfortable when they sleep in the sand. Most of the informants stated that sleeping on the sand provides a sense of comfort and warmth to the body and can reduce rheumatic pain in the joints. joints, and while feeling sleepless in the sand can make you fall asleep faster, this is a cultural adaptation that has occurred since time immemorial, where cultural adaptation is effective in promoting many health behaviors and increasing health disparities in various health conditions (Choi et al., 2019). The local value of the Legung Village community is a high sense of trust and obedience to their ancestral heritage. This form of culture lies in the minds of citizens (Koentjaraningrat, 2011).

From the perspective of the community as cultural actors and from the perspective of health workers, in principle, health workers do not prohibit or encourage the culture. What needs to be considered is that when an injury occurs, it is better not to sleep on the sand because it can cause infection. Meanwhile, from the community perspective, there is an interesting thing, namely the existence of a religious concept that states that humans come from the land and will return to the land (die), so it is better for the community to interact with the land. Community support is very effective, including satisfying relationships with spiritual and environmental aspects (McConatha et al., 2020).

Cultural norms and practices can be used to interpret and manage illness, the cultural connotations of health behaviors, and the structural challenges that affect self-care (Henry Osokpo et al., 2021). In addition, cultural differences have had an impact on the adaptation and professional experience of internationally educated nurses (Balante et al., 2021). The level of self-efficacy in nursing culture has a consequent capacity to provide culturally competent nursing care (Herrero-Hahn et al., 2019).

The cultural action or activity of sleeping on the sand is shown through the maintenance of the sand-bed mattress that is used for the daily needs of the elderly and has an impact on healthy living behavior, namely feeling comfortable and warm, thereby reducing pain. During sleep, many adrenaline hormones are released in waves in the bloodstream, which will have a refreshing effect, stimulate body growth, stimulate tissue formation, accelerate healing, help the metabolic process, and maintain health and endurance, which in turn will have an impact on the body an increase in the elderly's energy both physically and psychologically (Arendt, 2006; Hines & Marschall, 2017).

The activity of sleeping on the sand for the elderly in Legung Village in a supine position, right side and left side without limitation of movement, is the potential point of the body touching the sand by submerging part of the lower extremities into the sand, whose sleep duration is between 6-7 hours (short sleep) per day (Štefan et al., 2018). Provides a physiological effect of dry warm therapy; this therapy works to increase molecular (cell) activity with the method of energy flow through conduction (flow through a solid medium), namely on a sand-bed mattress. The therapeutic effects of warm/heat therapy on sand include increasing the elasticity of collagen tissue, reducing joint stiffness, reducing pain, reducing muscle tension, reducing edema and swelling in the chronic phase, and increasing blood flow (Arovah, 2010). Warming can work by increasing circulation and muscle relaxation, thereby reducing pain (Shehata & Fareed, 2013).

The characteristics of white sand, soft, dense, and warm, with sleeping conditions on the elderly body always supporting or holding the joints, will provide strong tension on the skin, as is the case with Kinesio taping therapy and knee braces (Cudejko et al., 2019; Haris & Beng Chye Tan, 2021). Can be beneficial for muscle contraction, assist muscles in carrying out their functions, stimulate mechanoreceptors in the skin, and increase proprioceptive feedback so as to produce the correct body position. This is a very basic thing to do to restore the function of the extremities, resulting in a fresh body condition after waking up from sleep (Guilherme, 2013; Lu et al., 2018; Melese et al., 2020). The American Academy of Orthopaedic Surgeons, (2021) states that there is moderate-strength clinical evidence that the use of braces can improve function, pain, and quality of life in OA patients. The support can also provide a subjective feeling of normality in the tibiofemoral joint, thereby reducing excessive stress on the joint.

The results of the Geology Center Laboratory Test based on the petrography description test and X-ray diffraction (X-RD) stated that loose sand in Legung Village has a very fine size (<0.1 mm–0.4 mm), good sorting, and a very angular to rounded responsibility (angular–subrounded). The composition of the sand consists of quartz, calcite, k-feldspar (potassium feldspar), hematite, and clay minerals. The mineral calcite is found in the form of carbonate skeletal fragments. The composition of quartz in the sand of Legung Village is 57%, where the quartz sand, known as white sand, is the result of the weathering of sedimentary rocks, which contain a lot of main minerals, namely silica and feldspar minerals. Quartz sand from the weathering process is washed by water and carried by the wind, which is then deposited on the seashore (Sukandarrumidi, 2018).

Sand is one of the materials in the form of porous grains that have the potential to be used as a medium that can conduct heat (Nirwana et al., 2017). The physical properties of quartz sand are clear white or other colors depending on the content of the impurity compounds; for example, red contains Cu oxide and yellow contains Fe oxide; the hardness of quartz sand is 7 (Mohs scale) and heat conductivity is 12-100°C, quartz sand is found with a purity that is high varies depending on the formation process in addition to the presence of other materials that participated during the deposition process, quartz sand is found with varying grain sizes in wide distribution, ranging from a fine fraction of 0.06 mm to a coarse size of 2 mm (Wicaksono, 2009).

The results of in-depth interviews with elderly informants and leaders show that in carrying out the treatment of artifacts, they use homemade tools to make the sand clean and not dirty, such as a sifter or sieve (pangajegen) to make the sand suitable for their bedding. Sifting is the separation of various mixtures of solid particles that have various sizes of materials using a sieve. The sieving process is also used as a cleaning tool and a contaminant separator. Sifting makes it easier for us to get sand with a uniform size; the sieving method in this method is used by moving horizontally (horizontally) on the sieve surface (Zulfikar, 2010).

CONCLUSION

The culture of sleeping on the sand must be nurtured and preserved, including the maintenance and preservation of a culture that has been proven to continue to support a culture that will be passed on to descendants. Based on the need to enjoy the benefits of sand beds as part of the treatment of elderly people with osteoarthritis, modifications to the culture of sleeping on sand beds can be realized in the form of standardized sand bed-shaped artifacts. The activity of sleeping on the sand for older people in Legung Village is in a supine position, tilted right and tilted left without limitation of motion, the potential point of the body touching the sand, which will provide a physiological effect of dry, warm therapy. This therapy increases molecular (cell) activity with the energy flow method through conduction (flow through a solid medium).

The weakness of this research is that the scope of the research is too small and needs to be expanded to cover all the sand on Madura Island. To better understand culture, methods for ethnographic research have been developed.

REFERENCES

- Ali, M. R., & Abdulkareem, E. H. (2020). Efficiency of BTX-A in the alleviation of hemifacial pain. *Journal of International Dental and Medical Research*, 13(1), 321–326.

- American Academy of Orthopaedic Surgeons. (2021). *Management of osteoarthritis of the knee (non-arthroplasty) evidence-based clinical practice guideline*.
- Arendt, J. (2006). Melatonin and Human Rhythms. *Chronobiology International*, 23(1–2), 21–37. <https://doi.org/10.1080/07420520500464361>
- Arovah, N. I. (2010). *Fundamentals of Physiotherapy in Sports Injuries*. UNY.
- Balante, J., Broek, D. van den, & White, K. (2021). How does culture influence work experience in a foreign country? An umbrella review of the cultural challenges faced by internationally educated nurses. *International Journal of Nursing Studies*, 118, 103930. <https://doi.org/10.1016/j.ijnurstu.2021.103930>
- Bhattarai, P., Newton-John, T. R. O., & Phillips, J. L. (2020). Apps for pain self-management of older people's arthritic pain, one size doesn't fit all: A qualitative study. *Archives of Gerontology and Geriatrics*, 89(March), 104062. <https://doi.org/10.1016/j.archger.2020.104062>
- BPS. (2020). *Senior Population Statistics 2020*. Badan Pusat Statistik. Jakarta.
- Choi, J. S., Shim, K. S., Shin, N. E., Nieman, C. L., Mamo, S. K., Han, H. R., & Lin, F. R. (2019). Cultural Adaptation of a Community-Based Hearing Health Intervention for Korean American Older Adults with Hearing Loss. *Journal of Cross-Cultural Gerontology*, 34(3), 223–243. <https://doi.org/10.1007/s10823-019-09376-6>
- Cudejko, T., Esch, M., Noort, J. C., Rijnhart, J. J. M., Leeden, M., Roorda, L. D., Lems, W., Waddington, G., Harlaar, J., & Dekker, J. (2019). Decreased Pain and Improved Dynamic Knee Instability Mediate the Beneficial Effect of Wearing a Soft Knee Brace on Activity Limitations in Patients With Knee Osteoarthritis. *Arthritis Care & Research*, 71(8), 1036–1043. <https://doi.org/10.1002/acr.23722>
- Guilherme, S. (2013). *The Use of Kinesio Taping able to Rest an Injury*.
- Habibzadeh, H., Jasemi, M., & Hosseinzadegan, F. (2021). Social justice in health system; a neglected component of academic nursing education: a qualitative study. *BMC Nursing*, 20(1), 16. <https://doi.org/10.1186/s12912-021-00534-1>
- Haris, A., & Beng Chye Tan, V. (2021). Effectiveness of bilateral single-hinged knee bracing in osteoarthritis: A finite element study. *Proceedings of the Institution of Mechanical Engineers, Part H: Journal of Engineering in Medicine*, 235(8), 873–882. <https://doi.org/10.1177/09544119211012493>
- Henry Osokpo, O., James, R., & Riegel, B. (2021). Maintaining cultural identity: A systematic mixed studies review of cultural influences on the self-care of African immigrants living with non-communicable disease. *Journal of Advanced Nursing*, 77(9), 3600–3617. <https://doi.org/10.1111/jan.14804>

- Herrero-Hahn, R., Rojas, J. G., Montoya-Juárez, R., García-Caro, M. P., & Hueso-Montoro, C. (2019). Level of Cultural Self-Efficacy of Colombian Nursing Professionals and Related Factors. *Journal of Transcultural Nursing*, 30(2), 137–145. <https://doi.org/10.1177/1043659618777047>
- Hidayat, S. (2014). Dhikr Khafi to Reduce Osteoarthritis Pain Scale in the Elderly. *Journal Of Health Science*, 1(1), 13–22. <https://doi.org/doi.org/10.24929/jik.v1i1.119>
- Hidayat, Syaifurrahman, Arief, Y. S., Hannan, M., Mumpuningtias, E. D., & Indriyani, R. (2022). Spiritual Distraction Therapy on Chronic Joint Pain Among Elderly in Coastal Area. *Azerbaijan Medical Journal*, 62(2), 911–922.
- Hidayat, Syaifurrahman, Kusnanto, & Hannan, M. (2021). Elderly Sleep Quality in Crosscultural Perspective. *Journal of International Dental and Medical Research*, 14(3), 1279–1295.
- Hidayat, Syaifurrahman, Mumpuningtias, E. D., & Indriyani, R. (2020). The Combination Therapy of Self-Surrender Exercise and Distraction Against Osteoarthritis Pain Scale of Elderly In Coastal Area. *STRADA Jurnal Ilmiah Kesehatan*, 9(2), 1212–1222. <https://doi.org/10.30994/sjik.v9i2.425>
- Hidayat, S., Arief, Y. S., Effendi, F., Hannan, M., & Huzaimah, N. (2023). The Context of Nursing Intervention of Sand Bed Culture in Reducing Osteoarthritis Pain Scale. *Journal of Medicinal and Chemical Sciences*, 6(10), 2387–2396.
- Hines, R. L., & Marschall, K. E. (2017). *Stoelting's Handbook for Stoelting's anesthesia and coexisting disease*. 7th ed. Elsevier/Saunders.
- Imagama, S., Ando, K., Kobayashi, K., Seki, T., Ishizuka, S., Machino, M., Tanaka, S., Morozumi, M., Kanbara, S., Ito, S., Inoue, T., Nakashima, H., Ishiguro, N., & Hasegawa, Y. (2019). Musculoskeletal Factors and Geriatric Syndromes Related to the Absence of Musculoskeletal Degenerative Disease in Elderly People Aged over 70 Years. *BioMed Research International*, 2019. <https://doi.org/10.1155/2019/7097652>
- INFODATIN. (2016). Elderly Situation (ELDERLY) in Indonesia. *Republic Ministry of Indonesia Center for Data and Information*.
- Kim, S. S., & Kim-Godwin, Y. S. (2019). Cultural Context of Family Religiosity/Spirituality among Korean-American Elderly Families. *Journal of Cross-Cultural Gerontology*, 34(1), 51–65. <https://doi.org/10.1007/s10823-019-09363-x>
- Koentjaraningrat. (2011). *Introduction to Anthropology I*. Rineka Cipta.
- Lea, S., Taylor, R., & Gibson, F. (2022). Developing, Nurturing, and Sustaining an Adolescent and Young Adult-Centered Culture of Care. *Qualitative Health*

Research, 32(6), 956–969. <https://doi.org/10.1177/10497323221084910>

- Lee, S. E., & Dahinten, V. S. (2020). The Enabling, Enacting, and Elaborating Factors of Safety Culture Associated With Patient Safety: A Multilevel Analysis. *Journal of Nursing Scholarship*, 52(5), 544–552. <https://doi.org/10.1111/jnu.12585>
- Leininger, M. (2011). Transcultural Nursing Society Membership Form. *Journal of Transcultural Nursing*, 22(2), 207–207. <https://doi.org/10.1177/10436596110220021601>
- Lu, Z., Li, X., Chen, R., & Guo, C. (2018). Kinesio taping improves pain and function in patients with knee osteoarthritis: A meta-analysis of randomized controlled trials. *International Journal of Surgery*, 59, 27–35. <https://doi.org/10.1016/j.ijssu.2018.09.015>
- Markey, K., & Ibejaero, M. (2022). Double jeopardy: The importance of nurturing culturally responsive perinatal mental healthcare. *Nurse Education Today*, 116, 105446.
- Martsolf, G. R., Gordon, T., Warren May, L., Mason, D., Sullivan, C., & Villarruel, A. (2016). Innovative nursing care models and culture of health: Early evidence. *Nursing Outlook*, 64(4), 367–376. <https://doi.org/10.1016/j.outlook.2016.02.009>
- McConatha, J. T., Kumar, V. K., Raymond, E., & Akwarandu, A. (2020). Cultural Dimensions of Diabetes Management: a Qualitative Study of Middle Eastern Immigrants in the U.S. *Journal of Cross-Cultural Gerontology*, 35(1), 85–98. <https://doi.org/10.1007/s10823-019-09383-7>
- Melese, H., Alamer, A., Hailu Temesgen, M., & Nigussie, F. (2020). Effectiveness of Kinesio Taping on the Management of Knee Osteoarthritis: A Systematic Review of Randomized Controlled Trials. *Journal of Pain Research, Volume 13*, 1267–1276. <https://doi.org/10.2147/JPR.S249567>
- Mirabelle, F. (2013). Cultural Differences In Elderly care. *Cultural Differences in Elderly Care A Literature Review, Kustaankartano Center for the Elderly Abstract*:
- Moleong, L. (2014). *Metode Penelitian Kualitatif Edisi Revisi*. Remaja Rosda Karya.
- Mulyadi, E., & DIP. (2021). Behavior, Support System, and Daily Habits of the Kampung Pasir Indigenous People. *Kendal College of Health Sciences Journal of Nursing*, 13(1), 183–190. <https://doi.org/https://doi.org/10.32583/keperawatan.v13i1.1149>
- Nirwana, L., Rais, M., & Jamaluddin, J. (2017). Thermal Conductivity of Kali Sand as a Heat Conducting Media in Cracker Roasting Process. *Jurnal Pendidikan Teknologi Pertanian*, 3, S182–S196.

- Osokpo, O., & Riegel, B. (2021). Cultural factors influencing self-care by persons with cardiovascular disease: An integrative review. *International Journal of Nursing Studies*, 116, 103383. <https://doi.org/10.1016/j.ijnurstu.2019.06.014>
- Regnani, D. (2014). *The Tradition of Sleeping on the Sand in the Healthy Concept of the Leggung Coastal Community, Batang-Batang District, Sumenep Regency*. Universitas Airlangga.
- Rutagumirwa, S. K., Hutter, I., & Bailey, A. (2020). “We Never Graduate from Care Giving Roles”; Cultural Schemas for Intergenerational Care Role Among Older Adults in Tanzania. *Journal of Cross-Cultural Gerontology*, 35(4), 409–431. <https://doi.org/10.1007/s10823-020-09412-w>
- Sabri, R., Hamid, A. Y. S., Sahar, J., & Besral. (2019). The effect of culture-based interventions on satisfaction and quality of life of elderly at social welfare institution in West Sumatera. *Enfermeria Clinica*, 29, 619–624. <https://doi.org/10.1016/j.enfcli.2019.06.010>
- Shehata, A. E., & Fareed, M. E. (2013). Effect of cold, warm or contrast therapy on controlling knee osteoarthritis associated problems. *International Journal of Medical and Health Sciences*, 7(9), 518–524.
- Silvia, L., Zainuri, M., Suasmoro, Subagyo, B. A., Sukamto, H., Mashuri, & Purwaningsih, S. Y. (2018). Analysis of Mineral Content of Beach Sand in Pacitan Regency with the Extraction Method. Education National Seminar on Science and Technology. *Seminar Nasional Edusainstek*, 16–20.
- Soonger. (2005). *Psychoterapiutic approach in the treatment of pain*. Wright State University School of Medicine.
- Štefan, L., Vrgoč, G., Rupčić, T., Sporiš, G., & Sekulić, D. (2018). Sleep Duration and Sleep Quality Are Associated with Physical Activity in Elderly People Living in Nursing Homes. *International Journal of Environmental Research and Public Health*, 15(11), 2512. <https://doi.org/10.3390/ijerph15112512>
- Sukandarrumidi. (2018). *Industrial Minerals*. Gajah Mada University Press.
- Sumenep Regency Office. (2020). *Data from the Sumenep District Health Office*.
- Syaifullah, M. (2012). *Unraveling the Circumstances of the Sand in Lebbak Hamlet*.
- Tadjoedin, F. M., Indonesia, U., Indonesia, U., Indonesia, U., Sciences, H., & Indonesia, U. (2017). *Journal of International Dental and Medical Research ISSN 1309-100X* <http://www.jidmr.com> *Periodontal Parameters in Indonesian Elderly Fatimah Maria Tadjoedin and et al.* 13(3), 1009–1012.
- Tong, A., Sainsbury, P., & Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*, 19(6), 349–357.

<https://doi.org/10.1093/intqhc/mzm042>

Varndell, W., Fry, M., & Elliott, D. (2020). Pain assessment and interventions by nurses in the emergency department: A national survey. *Journal of Clinical Nursing*, 29(13–14), 2352–2362. <https://doi.org/10.1111/jocn.15247>

Wicaksono, N. (2009). Survey on the Potential of Quartz Sand in the Ketapang Region, West Kalimantan Province. *Jurnal Sains Dan Teknologi Indonesia*, 11(2).

Zulfikar. (2010). *Chemical separation and sieving analysis*. CV habsa jaya.