

Implementation of Socio-Cultural Ergonomic Oriented Meklemiji Local Wisdom to Improve Health Quality and Community Care Attitude to Saving Water Resources

Ni Luh Putu Mia Lestari Devi¹, Anak Agung Ketut Sri Wiraswati², Ni Putu Sri Arnita³,
Edelina Leandro Maranresy⁴
Universitas Bali Dwipa, Indonesia
Email: *mialestaridevii@gmail.com¹, gswiraswati@gmail.com², sriarnita0803@gmail.com³,
leandromaranresy02@gmail.com⁴

ABSTRAK

Water resources in Sading Village are starting to experience a crisis due to the many land conversions. The majority of people in Sading Village have their own businesses which are generally done at home. The purpose of this study is to apply and prove that the implementation of local wisdom meklemiji oriented towards socio-cultural ergonomics through a participatory approach with socio-cultural ergonomic training combined with the provision of awareness programs can improve the quality of health and community concern for water resource rescue strategies. Experimental method with quasi-experimental research type with the same subject design (treatment by subject design) and randomized posttest only group design pattern, the assessment is carried out by conducting an assessment in the form of: (a) work stress questionnaire to determine indicators of work stress; (b) the rocksport method is used to record fitness indicators; and (c) a water resource rescue strategy questionnaire to determine indicators of community concern. The results of the study indicate that the implementation of local wisdom meklemiji oriented towards socio-cultural ergonomics improves the quality of public health as seen from the decrease in work-related stress by 32.02%, the increase in community fitness by 20.20%, and (c) increasing the community's caring attitude towards water resource rescue strategies by 35.95%. The conclusion of this study is that the implementation of local wisdom meklemiji oriented towards socio-cultural ergonomics improves the quality of health and community's caring attitude towards water resource rescue.

Kata Kunci: socio-cultural ergonomic, meklemiji, stress, fitness, caring attitude

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INTRODUCTION

Sading Village is currently experiencing drought due to the conversion of land into settlements. This is because Sading Village is privately owned land, not village land, so people can freely sell their land. In January 2023, banyan trees in *the Beji* and *Bulakan* areas collapsed due to strong winds so that there were no water retaining trees around *Beji* and *Bulkan*. This causes damage to environmental conditions in the aeral *beji* and *bulakan*. *Beji* and *bulakan* are used for religious activities with *beji* or *bulakan* as a place of purification of *Pratima*. *Meklemiji* is a process of purification of *pratima* or the form of *Ida Sang Hyang Widhi Wasa* which the process begins with the cultivation of *pratima* and then is taken to water resources in the form of *beji* and *bulakan* by walking. Based on the values of local wisdom, *Tri Hita Karana* synergizes with the values contained in *sad kerthi*, namely: purification of the soul (*atma kerthi*), purification of the sea (*segara kerthi*), purification of plants (*wana kerthi*), purification of human beings (*jana kerthi*), purification of water sources (*danu kerthi*), purification of the universe (*jagat kerthi*), society is obliged to maintain the six sources of welfare and happiness of life on a periodic and scale (Wiana, 2018).

Stress is caused by environmental, organizational and individual factors. Stress that occurs in the community is caused by: (a) socio-cultural activities such as *ngayah* that are carried out continuously; and (b) lack of public understanding in utilizing *beji* and *bulakan* as a means of refreshing. The increase in stress and decreased fitness is caused by the lack of public understanding of the importance of local wisdom in improving the quality of health and caring for the environment, especially water resources in Sading Village. The implementation of socio-cultural ergonomic-oriented local wisdom is carried out by: (1) *socio-cultural ergonomic* training combined with the provision of awareness programs; (2) assistance during *meklemiji activities* and (c) environmental arrangement in *the Beji and Bulakan* areas; (c) People who are used to having habits that support improvement efforts are expected to continue to carry out these activities regularly and continuously. This is done so that the quality of public health can be improved and the community's attitude of concern for water sources can be maintained so that it can create a comfortable, healthy and safe environment (Arnita et al., 2022; Devi et al., 2020; Manuaba, 2015a; Sutajaya et al., 2021b; Sutajaya et al., 2022; Tirta, 2017).

The formulation of the research problem is: (1) can the implementation of socio-cultural ergonomics oriented local wisdom improve the quality of health in view of the reduction of stress due to community work?; (2) can the implementation of socio-cultural ergonomics oriented local wisdom improve the quality of health in view of improving people's fitness?; (3) The implementation of socio-cultural ergonomics oriented local wisdom can increase the community's caring attitude towards saving water resources?

This research aims to fill the gap in the existing literature related to the application of local wisdom based on socio-cultural ergonomics in an effort to improve the quality of public health and concern for water resource conservation. Although there has been a lot of research on health interventions in the context of the community, there is still little research linking socio-cultural ergonomics to water resource conservation strategies in the context of Balinese culture. Most of the existing research tends to focus on reducing stress and improving health in the work environment or the general public, but not many explore the application of local wisdom as a tool to improve health while supporting environmental sustainability.

The urgency of this study is very clear, considering the high levels of stress and decreased fitness among the people of Sading Village caused by land conversion and lack of understanding of the importance of water resource conservation. Therefore, this research has become very relevant in providing solutions that not only improve the quality of public health, but also raise awareness of the importance of preserving water resources through an approach based on local wisdom.

The novelty of this study lies in the application of a method that combines socio-cultural ergonomics interventions with the practice of local wisdom in the context of villages, which aims to reduce stress due to work and improve community fitness while building awareness of the importance of water conservation. This study proposes that the combination of ergonomic interventions with local wisdom can make a significant contribution to public health and the environment.

The purpose of this study is to prove and apply local wisdom based on socio-cultural ergonomics that can improve the quality of public health, both through reducing work-related

stress and improving community fitness. In addition, this study aims to measure its impact on people's caring attitudes towards water resource saving strategies.

The benefit of this research is that it provides new insights for communities to participate in environmental conservation efforts, particularly in terms of water conservation, while improving their physical condition. For policymakers, the results of this research are expected to provide a framework for integrating local wisdom in public health and environmental policies, especially in areas that have cultural practices that can support future sustainability goals.

METHODS

This study was a quasi-experimental research with treatment by subject design and a randomized posttest only group design pattern which includes Period I carried out without intervention and Period II with intervention and interspersed with *a washing out period* for one month to eliminate the residual effects of Period I. Subjects will be given the opportunity to adapt by providing 1) training *socio-cultural ergonomics* combined with the provision of *awareness programs*; (2) assistance during *meklemiji* activities and (c) environmental arrangement in the *Beji* and *Bulakan* areas. The new findings in this study are in the form of a *socio-cultural ergonomics* oriented *meklemiji implementation strategy*. The implications of these findings on the one hand can improve the quality of health and people's caring attitudes towards the strategy of saving spring water sources. The subject of the study is the temple worshipper community in Sading Village, Mengwi, Badung. The population with a total of 25 people and the number of samples involved was 25 people using *the multistage random sampling method*. Health quality data, namely stress due to work was measured using a stress questionnaire due to work, fitness was measured using the Rockport method and community care attitudes were measured using a questionnaire on the strategy of saving spring water sources. The data obtained was continued by analyzing namely: (a) data on community characteristics and environmental conditions were analyzed descriptively; and (b) data on health quality and community concern for the strategy of saving spring water sources were analyzed using *the t-paired test* at a significance level of 5%.

RESULTS AND DISCUSSION

The results of the hypothesis test on work stress between Period I and Period II can be seen in Table 1.

Table 1. Results of Hypothesis Test on Health Quality (n=25)

Variabel	Period I		Period II		Value t	Value p	Remarks
	Rerata	SB	Rerata	SB			
Work-related stress	77,50	4,899	52,68	7,221	16,925	0,001	Signifikan

Source: (Sutajaya et al., 2021b) for similar research on stress reduction through ergonomic interventions

In this study, the implementation of local wisdom, namely *socio-cultural-ergonomic* oriented *meklemiji*, was carried out so that the community is always in a comfortable, healthy and safe condition, and free from stressful conditions so that it can improve people's fitness.

The implementation of *socio-cultural-ergonomic* oriented local wisdom in this study was able to reduce stress due to work by 32.03% between Period I and Period II. The reduction in stress complaints from the category of somewhat stressed to non-stressed is due to the implementation of *socio-cultural ergonomic oriented meklemiji* which is carried out by: (1) *socio-cultural ergonomic* training combined with the provision of *awareness* programs; and (2) assistance during *meklemiji* activities. Stress that occurs in the community is caused by: (a) *socio-cultural* activities such as *ngayah* that are carried out continuously; and (b) lack of public understanding in utilizing *beji* and *bulakan* as a means of refreshing; and (c) working conditions that are always under pressure due to many customer requests.

Socio-cultural activities carried out without knowing the meaning of these activities add to the mental burden of the community. One of the activities during religious ceremonies is the *meklemiji* process. The *meklemiji process* is carried out by walking to the spring source to carry out the purification process of *pratima*. The process of *meklemiji* is carried out by gathering at the temple and then upholding the ritual to the source of spring water, namely *beji* and *bulakan* to carry out the purification and purification process of *pratima*. The existence of this ceremony causes people to feel happy, because they can meet while participating in the *meklemiji* ceremony, so that they can release fatigue during activities at home. After training and providing *awareness programs* and assistance during the *meklemiji* process, it provides understanding to the community, that after doing activities at home, they can do other activities to relieve fatigue (Putri et al., 2021). The existence of green open space can be used to reduce stress while doing activities at home. (Novita, 2023).

Other findings regarding the reduction of stress due to work synergize with the findings: (a) the implementation of the implementation of Tri Datu based on Appropriate Technology oriented with *ergo-entrepreneurship* can improve the quality of health as seen from a 31.15% reduction in work stress in entrepreneurial attitudes (Sutajaya, Citrawathi, Arnita, et al., 2021); (b) The importance of implementing the principles of local wisdom in the effort to process community awareness can provide benefits as evidenced by improving the quality of public health as seen from the derivation of the value of stress due to work by 28.8% (Sutajaya, Citrawathi, Tirta, 2017; Warpala, et al., 2021b); (c) Workers who make upakar equipment experience a reduction in work-related stress by 26.88% after being given a *participatory* implementation of *ergo-entrepreneurship* (Arnita et al., 2022). The results of the hypothesis test on health quality seen from the fitness between Period I and Period II can be seen in Table 2.

Table 2. Results of Hypothesis Test on Community Fitness (n=25)

Variabel	Period I		Period II		Value t	Value p	Remarks
	Rerata	SB	Rerata	SB			
Fitness	30,48	1,851	36,68	1,819	12,656	0,001	Signifikan

Source: (Maulana & Bawono, 2021) for using fitness improvement tests such as brisk walking

In this study, the implementation of local wisdom through a *socio-cultural-cultural ergonomic* oriented *meklemiji process* was carried out which was able to improve community fitness by 20.20% between Period I and Period II. The community will walk together for 2,000 meters. After training and providing awareness programs and assistance during the *meklemiji* process, it provides understanding to the community, that after doing activities at home, doing

light sports activities by walking in the beji and *bulakan* airfields can release fatigue while at home so that it can reduce stress and improve people's fitness. The improvement in the quality of public health is due to the awareness of the community to carry out walking activities in the area in *Beji* and *Bulakan*. The activities carried out are by walking to increase immunity. The physical fitness test used by *the rockspot method* is with a brisk walking activity of 1,600 meters on a flat track/road (Maulana & Bawono, 2021). A flat track is a track leading to the *beji* or *bulakan* used for *the meklemiji* ceremony. Physical activities carried out by the community greatly affect all components of physical fitness such as exercising. Activities that are quite strenuous can cause people to experience muscle fatigue, and a decrease in energy, so that immunity is needed with the aim of increasing the efficiency of body functions which will have an impact on improving physical fitness (Rohmah & Kumaat, 2021).

Other findings regarding the reduction of stress due to work synergize with the findings: (a) The Misalin tradition which begins with the entire community walking to the riverside and then praying for the ancestors. This tradition has religious, mutual cooperation, art, and historical values so that it can be used to relieve fatigue and relieve stress (Ratih, 2019); (b) The physical fitness of the community in Bojong Koneng village increased by 72% by doing physical activities over a long period of time (Kuswahyudi et al., 2021). The results of the hypothesis test on the attitude of community concern towards the strategy to save water resources between Period I and Period II can be seen in Table 3.

Table 3. Results of Hypothesis Test of Caring Attitude to Community Care Attitude to Water Resources Rescue Strategy (n=25)

Variabel	Period I		Period II		Value t	Value p	Remarks
	Rerata	SB	Rerata	SB			
Caring Attitude	39,99	0,941	58,01	1,615	47,736	0,0001	Signifikan

Source: (Sutajaya et al., 2021) for similar interventions in improving environmental consciousness

In this study, the implementation of *socio-cultural-ergonomic* oriented local wisdom was able to increase the community's caring attitude towards the strategy of saving water resources, seen from an increase of 35.95% between Period I and Period II in the category of somewhat understanding to understanding. The increase states that training activities can cause the community to understand about maintaining and preserving water resources in the local environment. The problem in Sading Village is the decrease in water discharge in water resources that have been used for *mecllemiji* activities. There is an increase in public understanding and awareness about the function of green open space through efforts to increase water discharge in various spring water sources to be more saved and sustainable by planting various trees that can store water reserves in the soil. The role of the community in maintaining and preserving green open spaces leads to the rescue of water resources around their residences. In this study, trees that can maintain water discharge were planted, namely cempaka trees (*Michelia champaca*), durian (*Durio zibethinus*), ylang (*Cananga odorata*), mango (*Mangifera indica*), mangosteen (*Garcinia mangostana*), and puring plants (*Codiaeum variegatum*). In addition to maintaining water discharge, this tree can also be used by the community to help with religious activities. Water crises that can result in reduced water resources (Maridi, 2015).

The provision of training and *awareness* programs also provides an understanding that the role of *beji* and *bulakan* as a source of holy water to carry out religious activities, namely *meklemiji*, can be used as a means of recreation and fitness. Through this activity, a person's health and fitness as well as immunity because the capacity of the organs of lungs, nerves, muscles, and heart function will increase. Public health indicators can be seen from health, freshness and fitness are not difficult to achieve, if people have the intention to do sports activities.

Other findings regarding the decrease in people's caring attitudes towards synergizing with the findings: (a) personal awareness and social support training can improve students' fitness by doing regular physical activity (Syakur et al., 2023). Community empowerment about the importance of sports can reduce people's stress levels; (b) walking can be beneficial for the health of the body, both physical and mental health such as: (1) increasing energy; (2) burn calories; (3) strengthen the heart; (4) relieve pain on its own; (5) helps lower blood sugar; (6) improve mood; (7) facilitate digestion; (8) increase creativity; and improve sleep quality (Daulay & Priono, 2023).

CONCLUSION

The conclusion of this study shows that the implementation of local wisdom based on socio-cultural ergonomics through *meklemiji* can improve the quality of public health by reducing work stress by 32.02%, improving community fitness by 20.20%, and increasing community caring attitudes towards water resource saving strategies by 35.95%. Based on these findings, it is recommended that governments and relevant agencies integrate local wisdom-based approaches, such as *meklemiji*, in public health and environmental conservation programs. In addition, further efforts are needed to provide training and counseling to the community on the importance of sustainable use of natural resources through cultural practices that support physical and environmental well-being. Furthermore, it is important for authorities to strengthen policies that support community empowerment through a local culture-based approach, in order to accelerate behavioural change that is more concerned about the conservation of natural resources, especially water. The development and implementation of similar programs should also be continued in other areas facing similar problems, in order to create a wider impact in efforts to improve people's quality of life and environmental sustainability.

REFERENCES

- Arnita, N. P. S., Adiputra, N., Purnawati, S., Sucipta, I. N., Sutajaya, I. M., & Sundari, L. P. R. (2022). Improvement Mechanism of Work Oriented by Ergonomic Increase Health Quality and Productivity. *Jurnal Ergonomi Indonesia (The Indonesian Journal of Ergonomic)of Ergonomic*, 06(03), 86–95.
- Daulay, D. E., & Priono, J. (2023). Manfaat Olahraga Jalan Kaki di Jalan Tanjakan. *All Fields of Science J-LAS*, 3(2), 221–228.
- Devi, N.L.P.M.L., Indah, L. M. S. H. A., & Sutajaya, I. M. (2020). Giving Active Breaks and Snack Reduced Fatigue and Improved Motivation of Work and Productivity of Jaja Gipang Employee. *The Indonesian Journal of Ergonomic*, 06, No. 02, 124–131.
- Devi, Ni Luh Putu Mia Lestari Devi; Arnita, Ni Putu Sri; Muryanifa, M. (2023). Analisis Faktor Risiko Ergonomi Pada Pekerja Pembuat Jaja Sengait Di Desa Sading Mengwi Badung.

Jurnal Riset Ilmu Farmasi Dan Kesehatan, 1(6), 89–96.

- Devi, Ni Luh Putu Mia Lestari Devi; Arnita, Ni Putu Sri; Sutajaya, I Made; Wiraswati, A. A. K. S. (2024). Socio-Culture Ergonomic Berbasis TTG Untuk Menunjang Kualitas Kesehatan Dan Produktivitas Pekerja Pembuat Jaja Sengait di Desa Sading. *Proceeding Seminar Nasional Perhimpunan Ergonomi Indonesia*, 485–492.
- Kuswahyudi, Nuraini, S., & Setiakarnawijaya, Y. (2021). Sosialisasi Teknis Pengukuran Kebugaran Jasmani Masyarakat Desa Bojong Koneng Kabupaten Bogor. *Prosiding Seminar Nasional Pengabdian Kepada Masyarakat*, 104–110.
- Manuaba, A. (2015a). Total Ergonomic Approach to Anticipate Multidimensional Development Problems. *Ergonomic Seminar*.
- Manuaba, A. (2015b). Total Ergonomic Approach to Anticipate Multidimensional Development Problems. *Ergonomic Seminar 2015. Bali Udayana University*.
- Maridi. (2015). Mengangkat Budaya dan Kearifan Lokal dalam Sistem Konservasi Tanah dan Air. *Seminar Nasional XII Pendidikan Biologi FKIP UNS*, 20–39.
- Maulana, G. W., & Bawono, M. N. (2021). Peningkatan Imunitas Tubuh Lansia melalui Olahraga pada saat Pandemi Covid-19. *Jurnal Kesehatan Olahraga*, 09(03), 211–220.
- Novita, R. (2023). Mengelola Stres Pada Masyarakat di Desa Jayabaya. *Abdimas Jurnal Pengabdian Mahasiswa*, 2(1), 421–425.
- Putri, F., Nazhira, F., & Handayani, L. M. I. S. (2021). Analisis Ergonomi Di Lingkungan Kerja Industri Rumah Tangga Kerupuk Udang di Desa Bitera Gianyar. *Journal of Innovation Research and Knowledge*, 1(3), 213–218.
- Ratih, D. (2019). Nilai-Nilai Kearifan Lokal Dalam Tradisi Misalin Di Kecamatan Cimaragas Kabupaten Ciamis. *Jurnal Pendidikan Dan Sejarah*, 15(1), 15–22.
- Rohmah, U. R., & Kumaat, N. A. (2021). Profil Kebugaran Jasmani Lansia Dalam Menghadapi Masa New Normal Akibat Pandemi Covid-19 Dusun Domot Barat Rt:02 Rw:06 Desa Purwokerto Kecamatan Srengat Kabupaten Blitar. *Jurnal Kesehatan Olahraga*, 09(02), 37–46.
- Sutajaya, I. ., & Citrawathi, D. . (2021). The Implementation of the Tri Datu Concept of Socio-Cultural Ergonomic Oriented to Maintain Entrepreneurial Attitude of Workers on The Covid-19 Pandemic. *Proceedings of the Second Asia Pacific International Conference on Industrial Engineering and Operations Management*, 14–16.
- Sutajaya, I. M., Arnita, N. P. S., & Devi, N. L. P. M. L. (2022). *Ergonomi Sosial Budaya*. Suluh Media.
- Sutajaya, I. M., Citrawathi, D. M., Arnita, N. P. S., Devi, N. L. P. M. L., & Aryani, N. M. C. (2021). The Implementation of the Tri Datu Concept of Socio-Cultural Ergonomic Oriented to Maintain Entrepreneurial Attitude of Workers on The Covid-19 Pandemic. *Proceedings of the Second Asia Pacific International Conference on Industrial Engineering and Operations Management*, 3420–3427.
- Sutajaya, I. M., Citrawathi, D. M., Warpala, I. M. S., Arnita, N. P. S., Devi, N. L. P. M. L., & Aryani, N. M. C. (2021a). Nyangling Berorientasi Socio-Cultural Ergonomic Meningkatkan Pemahaman Masyarakat Terhadap Penyelamatan Sumber Daya Air dan Kesehatan. *SENADIMAS Undiksha*, 215–226.
- Sutajaya, I. M., Citrawathi, D. M., Warpala, I. W. S., Arnita, N. P. S., Devi, N. L. P. M. L., & Aryani, N. M. C. (2021b). Nyangling Berorientasi Socio-Cultural Ergonomic

- Meningkatkan Pemahaman Masyarakat Terhadap Penyelamatan Sumber Daya Air Dan Kesehatan. *Proceeding Senadimas Undiksha 2021*, 215–226.
- Syakur, M., Aswara, A. Y., & Bekti, S. (2023). Personal Awareness, Group Norms, Social Support and Active Participation in Sport for Madrasah Tsanawiyah Students. *Jurnal Pendidikan Jasmani, Olahraga Dan Kesehatan*, 6(249–263).
- Tirta, D. G. K. (2017). Upacara Nyangling Di Pura Tirta Empul Banjar Kediri Desa Singapadu Kaler Kecamatan Sukawati Kabupaten Gianar (Persepektif Filosofi). *Jurnal Penelitian Agama Hindu*, 1(2), 505–512.
- Wiana, I. K. (2018). Sad Kertih: Sastra Agama, Filosofi, dan Aktualisasinya. *Jurnal Bappeda Litbang*, 1(3), 159–180.