

The Relationship Between Work Length and Work Position with the Rate of Low Back Pain among Rice Farmers

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Abstract: Low back pain (LBP) is defined as pain that appears between the costal margin and inferior gluteal folds for more than one day, which can be accompanied by leg pain or numbness. Often, this pain is acute and radiates to the buttocks or thighs. LBP is caused by a farmer's poor body position when working, so it can affect performance and results. A working duration that is too long and exceeds the body's capacity can also increase the risk of LBP in farmers. This think about points to decide the relationship between over-the-top work term and non-ergonomic working positions in rice ranchers with lower back pain. The literature search process in this literature review uses three databases: Google Scholar, Scient Direct, and Pubmed, with a publication year range of 2017–2023. The search was carried out using several keywords in English and Indonesian. From all the search results, ten articles match the research criteria and can be continued to the analysis stage. The study's findings found a relationship between work term, work position, and the rate of LBP in farmers.

Keyword: farmers; low back pain; duration of work; working position

1. Introduction

Agronursing is the management of care and management nursing services that focus on clients (individuals, families, groups, and communities) that are holistic (biological, psychological, social, spiritual, and cultural) and comprehensive (promotive, preventive, curative, and rehabilitative) within the scope of agriculture (agriculture, plantations, fisheries, animal husbandry, and agro-industry) (Kurniyawan et al. 2023). Farmers generally live in rural areas and rely on farming for their livelihood using simple agricultural tools. This causes their agricultural production to tend to be low. Farmers often feel tired due to the workload and long working hours, which affects the quality of their sleep and their physical and mental health (Dakoir 2023).

Farmers are residents who devote their time and thoughts to farming (Sukayat et al. 2019). Based on data from the Badan Pusat Statistik (BPS), in 2022, as many as 38.7 million Indonesians worked in the agricultural sector (BPS 2022). In 2019, the number of Indonesians working as farmers reached 33.4 million people; of that number, around 91% or 30.4 million farmers were aged over 40 years, most of whom were close to 50-60. Meanwhile, young farmers aged 20-39 years are around 8% or 2.7 million people (BPS 2018). Farmers face various challenges impacting their productivity, including heavy workloads, unpredictable weather, and better working conditions (Kurniyawan et al. 2023). Farmers depend on the agricultural sector to meet their daily needs. However, the agricultural sector is a hazardous job because this work is physically related, which can

lead to musculoskeletal diseases. Musculoskeletal diseases that farmers can suffer in their work are low back pain (Aseng and Sekeon 2021). Farmers can be vulnerable to various diseases from different areas, including the environment, mental health, occupational safety, infectious diseases, and encounters with hazardous animals (Dakoir 2023).

Low Back Pain (LBP) is a torment that's felt in the lower back. LBP is a musculoskeletal disorder caused by wrong ergonomics. LBP is characterized as torment that shows up between the costal edge and second rate gluteal folds for more than one day which can be caused by leg pain or numbness, and often this pain is acute and radiates to the buttocks or thighs (Rahmawati 2021). The prevalence of low back pain globally reaches 15-45% annually (Kumbea, Asrifuddin, and Sumampouw 2021). According to WHO Anggraika (2019), shows that 33% of the population in developing countries experience persistent pain. In Indonesia, LBP may be a normal wellbeing issue with a predominance coming to 34.4 million people (Kemenkes RI 2018).

LBP is caused by a farmer's poor body position when working, so it can affect the performance and productivity of farmers. A working position could be a pose shaped normally by the worker's body related to work propensities or the facilities used in a job (Joseph and Sumampouw 2022). As for the body positions of farmers, they can cause low back pain, namely bending, sitting, standing, squatting, carrying, and lifting for an extended period, causing injury (Aseng and Sekeon 2021).

The another cause of LBP is the duration of work. The duration of work is the time needed to complete the work, which can be done during the day or night (Utami, Karimuna, and Jufri 2017). Duration (length) of work is the amount of time exposed to risk factors. Farmers often work for a long duration because it depends on the area of land being worked on, meaning that the larger the land area, the longer the working time is required (Yunita, Hanani, and Lucki 2018). In addition, the incidence of work duration is also related to the farmer's working position, for example, bending over for a long time, which will cause complaints of pain in that part. WHO declared that a sensible length of work for ranchers is 5 hours per day or 30 hours per week. On the off chance that working hours surpass these arrangements, the longer the body will be tired, and a feeling of soreness or pain will arise in the lower back area. This think about points to distinguish the relationship between position and term of work with the event of LBP in rice farmers, which is expected to add information and assist health workers in carrying out efforts to prevent LBP so that farmers can work according to an ergonomic working position.

2. Material and Method

The literature search process carried out in this literature review uses three databases: Google Scholar, Scient Direct, and Pubmed, with a publication year range of 2017-2023. The search was carried out using several keywords in English and Indonesian. In English language literature, search using the keywords "Low Back Pain" OR "LBP" AND "Farmer" AND "Duration of work" OR "Length of work" AND "Working position". Meanwhile, in the Indonesian language literature search using the keywords, "Nyeri

Punggung Bawah" OR "LBP" AND "Petani" AND "Durasi Kerja" OR "Lama Kerja" AND "Posisi Kerja."

The article search process started with the identification of predefined keywords. At the identification step, 17.069 articles are suitable for the keywords. The next stage is to do a screening by selecting the title of the articles and the publication year that matches the research criteria. At the screening stage, 6.613 articles are suitable for the research criteria. Afterward, the articles are adjusted to the inclusion and exclusion research criteria. Four hundred and fifteen articles are suitable for inclusion and exclusion research criteria. The next step is to filter articles against abstracts to focus the articles according to the research criteria. In this step, 25 articles are suitable for the research criteria. Then, from the 25 selected articles, they were re-screened on language, research design, outcomes, and several other predetermined criteria. Finally, ten articles were determined that matched the research criteria and could proceed to the analysis step.

3. Result

A few variables cause low back pain. Research conducted by Sutami, Laksmi, and Darmawan (2021), states that the variables that cause moo back torment in agriculturists are work term and work position. The data obtained in this study were 16 respondents not at risk because they worked at most 8 hours. However, the majority of respondents are at risk, with a percentage of 57.9% of respondents working for more than 8 hours. The term of work in a person's day is by and large ideal around 6-8 hours. Usually in line with investigate conducted by Prayogo et al. (2022), which states that nine respondents work more than 8 hours a day and the larger part encounter complaints of low back pain (77.8%).

Based on the comes about of inquire about conducted by Sutami, Laksmi, and Darmawan (2021), work position is another calculate causing low back pain. The information gotten in this consider were 16 respondents, the majority of whom had a risk with a percentage of 42.1%. Many farmers, when working, ignore occupational health and safety. Typically in line with inquire about conducted by Purnawinadi and Rumegang (2019), which states that ranchers in Pinasungkulan Town out of 80 respondents studied, ten people (12.5%) were at moderate risk, 63 people (78.8%) were at high risk, and seven people (8.8%) were at very high risk.

Table 1. Result of Literature Review

ID Number	Author and Journal Identity	Journal Title	Objective	Population and Sample	Method	Summary of Results
A1	Ni Kadek Dian Sutami, et.al/ Journal of Borneo Holistic Health / 2021	The relationship between work duration and work position with the rate of lower back pain in farmers.	Respondents understand that low back pain is caused by a less ergonomic work position and work duration exceeding the body's maximum work.	A sample of 38 people (farmers)	Sampling using a non-probability technique	The results of the Spearman rank correlation statistical test showed a significant relationship between work term and moo back torment ($p = 0.003$) and a noteworthy relationship between work position and low back pain ($p = 0.002$).
A2	I Gede Purnawinandi and Andrew Rumegang / Journal Skolastik Nursing / 2019	Assessment of work state of mind as a hazard of low back pain artikel penelitian	Recognized work states of mind as a chance concerning the frequency of low back pain	40 rice farmers	Observational analytic cross-sectional	The working demeanor of agriculturists was 77.4% at tall hazard, and 93.7% of ranchers complained of direct torment. A noteworthy relationship exists between work state of mind and lower back torment in ranchers with a positive and strong direction.
A3	Dadan Prayogo et al. / Journal of Innovation Research and Knowledge / 2022	Risk factors for non-specific LBP among farmers in Banyu Hirang	Identify risk factors for LBP among farmers in Banyu Hirang Village.	Farmers in Banyu Hirang village over 30 years old	Cross-sectional research design and chi-square data analysis.	The results showed that most respondents reported complaints of low back pain (75%). The factor that affects complaints of low back pain is excessive work time, with a P-value of 0.04.
A4	Ucik Utami, et. al / Jurnal Ilmiah Mahasiswa Kesehatan Masyarakat / 2017	The relationship between length of work, work demeanor, and workload with Musculoskeletal Clutters (MSDs) among Rice Agriculturists in Ahuhu Town, Meluhu Area, Konawe Regency, 2017.	To determine the correlation between work attitude and LBP of farmers in Kupang city and regency.	174 farmers	Analytic observational with cross-sectional study design	The comes about appeared that there was a critical relationship ($\rho < 0.008$) between length of work ($\rho = 0.005$) and work demeanor ($\rho < 0.018$) factors with Musculoskeletal Disarranges, particularly LBP complaints among agriculturists in Ahuhu Town, Meluhu District, Conawe Regency.

A5	Hyun Jung Lee et al. / Security and Wellbeing at Work Journal / 2021	Predominance of Moo Back Torment and Related Chance Variables among Farmers in Jeju	To explore the predominance of LBP and its related agrarian work-related biomechanical components among this population.	1.209 farmers	Cross-sectional analysis from survey data	The comes about of the multivariate investigation demonstrated that three rural work-related biomechanical variables were altogether related with LBP: 1) monotonous utilize of body parts, such as hands, wrists, elbows, and shoulders ($p \leq 0.002$), 2) bowing, turning, or leaning back the lower back by more than 30 degrees ($p \leq 0.003$) and 3) neck flexion or neck revolution by more than 20 degrees ($p \leq 0.049$)
A6	I Gede Purnawina di, et.al / Cogito Smart Journal/ 2022	Assessment of Rancher Working Pose Based on Computerized Photographs Fast Whole Body Evaluation (REBA) and Age with Complaints of Lower Back Pain	To decide the relationship between work pose and age with the frequency of LBP in farmers.	80 farmers	Expositoy observational inquire about plan with a cross-sectional approach.	The comes about appear no critical relationship between work pose and the frequency of back torment underneath the agriculturists ($p > 0.05$). Be that as it may, there's a noteworthy relationship in a positive heading between ages and the frequency of farmer's moo back torment ($p < 0.05$) with a relationship coefficient of 0.548.
A7	Angelina Caroline Amalo and Dewi Indah Lestari / Jurnal Darma Agung / 2022	The Relationship Between Work Demeanors and Complaints of Lower Back Torment among Ranchers within the City and Regency of Kupang	To decide the relationship between work demeanor and LBP complaints of farmers	104 farmers	Cross-sectional analytic method	The comes about appear a important relationship between work states of mind and moo back torment complaints of ranchers in Kupang City and Regency. Of the 104 farmers, 61 (58.7%) have a high-risk work attitude, and 43 (41.3%) have a medium-risk work attitude. 79 (76%) farmers experienced complaints of low back pain, and 25 (24%) farmers did not complain of low back pain.

A8	Author: Eka Suryaning Tyas / Medical Journal of Al-Qodiri	The Relationship between Working Positions of Elderly Ranchers and the Hazard of Moo Back Torment in Cangkring Village, Jenggawah District, Jember Regency	To analyze the relationship between the working position of elderly farmers and the risk of low back pa in	40 elderly farmers	Comparat ive research methods	The comes about appear a relationship between the working position of elderly agriculturists and the hazard of moo back torment in Cangkring Town, Jenggawah District, Jember Regency
A9	Rasyidah AZ, et al / REAL in Nursing Journal (RNJ)	Working Period, Work Attitude, and Gender with Complaints of Low Back Pain	To determine the relationship between work period, work attitude, and gender with LBP complaints	425 patients	Cross- sectional method	The results show that there was a meaningful relationship between work period, work attitude, and gender with low back pain complaints. Most experienced moderate pain, as many as 45 (57.7%) patients, had a long working period of 54 (69.2%) patients, and had a high-risk work attitude, as many as 46 (59.0%) patients.
A10	Muhamma d Farras Hadyan & Fitria Saftarina / Medula Journal / 2017	The Relationship between Age, Length of Work, A long time of Benefit and Body Mass File (BMI) on the Rate of Moo Back Torment (LBP) in Ranchers in Munca Town, Pesawaran Regency	To decide the relationship between age and length work, a long time of benefit, and body mass file (BMI) on the rate of LBP in farmers	204 agriculturi sts in Munca Town, Pesawaran Area	Consecuti ve sampling. The method of data collection in this study is to deploy a questionn aire to responde nts	There was a important relationship between term of work and time of work respondents with LBP complaints. There's 56,8% of patients with LBP, and the overwhelming researched variables distribution could be a length of work ≤ 8 hours of work > 5 a long time. Within the bivariate investigation, term of work ($p=0,044$) and time of work ($p=0,042$) are significantly related to LBP

4. Discussion

In a ponder conducted by Sutami, Laksmi, and Darmawan (2021), researchers found that work duration exceeding 8 hours and non-ergonomic positions cause low back pain in farmers. Research by Utami, Karimuna, and Jufri (2017), states that there's a relationship between work term and work demeanor in ranchers in Ahuhu town with the rate of low back pain (Malonda et al. 2016).

Purnawinadi et al.'s research (2019) appears a solid relationship with a positive course between work states of mind and complaints of back torment in rice field ranchers in Karowa Village (Purnawinadi and Rumegang 2019). The comes about of this think about are in line with research conducted by Evadarianto, Nurdian Dwiyantri (2017), that work states of mind can influence the rate of moo back torment gotten the comes about of the coefficient of spearmen correlation of 0.770, which implies that there's a solid relationship between work states of mind and complaints of low back pain.

Reasearh found that a significant factor causing low back pain complaints in Banyu Hirang Village was working time exceeding 8 hours with a p-value of 0.04, which implies it appears a noteworthy relationship (Prayogo et al. 2022). There's a critical relationship between work demeanors and the rate of moo back torment in farmers in Kupang City and Regency obtained a p-value of 0.030 (Amalo and Lestari 2022). In a study by Tyas (2016), there's a relationship between the working position of elderly agriculturists and the hazard of low back pain. Based on the percentage of LBP occurrence, 88% with a p-value of 0.000 (Tyas 2016).

In the research of Rasyidah, Dayani, and Maulani (2019), with the title of residency, work demeanor, and sex with moo back pain complaints, the p-value is 0.000, which implies there's a critical relationship between work demeanor and moo back pain complaints. Then, in the research of Hadyan and Saftarina (2017), several factors cause low back pain in farmers, to be specific the length of work of agriculturists with a p-value of 0.044).

Based on the research results from several journals above, it is stated that low back pain in farmers is caused by work duration and work position. For the most part, the ideal time a individual works in a day is around 6 - 8 hours. Amplifying the working time past this capacity causes a decrease in productivity, namely fatigue conditions, work mischances, and word related maladies. The condition of work duration in farmers is also related to work position.

Ranchers basically work in a hunching down position, which can result within the exchange of the support to the lower back, so complaints of torment as a rule arise in this section. The pathophysiology causes this condition because when there is a change in the body's fulcrum, the muscle structure will be stretched and stimulate the surrounding pain receptors. Then, over a long period, there will be deformity of the intervertebral disc and an increase in the stress of the posterior annulus pulposus, resulting in pressure on the nucleus pulposus.

Based on the comes about of a few considers, it is found that there's a relationship between work length and work position and the rate of LBP in farmers. The position and duration of work that does not pay attention to occupational health and safety puts

farmers at risk of experiencing pain in the lower back. The position of farmers while working is standing, bending, squatting, lifting, pushing, and carrying loads; these positions are carried out repeatedly and for a long duration. If the non-ergonomic position is carried out continuously, it will cause musculoskeletal problems, reduced muscle elasticity, increased muscle stress, and pain.

Conclusion

Ranchers, particularly rice ranchers, are at critical risk of low back torment due to over-the-top working length and non-ergonomic positions. Intemperate work terms and non-ergonomic work positions essentially connect with the frequency of LBP in rice farmers. In general, the duration a person can work optimally in a day is 6–8 hours. Extending working time beyond this capacity causes a decrease in farmer productivity, which in turn is related to work positions. The positions of the farmers that were mostly carried out while working were standing, bending, squatting, lifting, pushing, and carrying loads. This position is repeated for a long time. The duration and non-ergonomic working position cause low back pain in rice farmers.

Acknowledgement

Thanks to all FKEP UNEJ students who were involved in this literature study.

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