



Agricultural Work Environment, Perceived Stress and Spiritual Well-Being among Farmers in Odisha, India: A Cross-Sectional Study

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ABSTRACT

Background: Farmers face multiple occupational stressors, including heavy workload, climatic uncertainty, crop failure, market fluctuations, and financial instability, which may adversely affect their mental and spiritual well-being. Understanding the relationship between the agricultural work environment, perceived stress, and spiritual well-being is important for promoting holistic health among farmers.

Objective: This study aimed to assess the agricultural work environment, perceived stress, and spiritual well-being among farmers and examine the relationships among these variables.

Methods: A quantitative cross-sectional correlational study was conducted among **74 farmers** in Odisha, India. Data were collected using a researcher-developed Agricultural Work Environment Scale, the Perceived Stress Scale (PSS-10), and the Spiritual Well-Being Scale (SWBS). Descriptive statistics, reliability analysis, Pearson's correlation, and simple linear regression were used for data analysis.

Results: Farmers reported moderately adverse agricultural work environments and moderate levels of perceived stress. The Agricultural Work Environment Scale demonstrated acceptable reliability (Cronbach's $\alpha = 0.737$), the PSS-10 showed acceptable reliability for exploratory research ($\alpha = 0.687$), and the SWBS demonstrated excellent reliability ($\alpha = 0.909$). Agricultural work environment was positively associated with perceived stress ($r = 0.529$, $p < 0.001$) and significantly predicted perceived stress, explaining **27.8%** of the variance. No statistically significant associations were found between agricultural work environment and spiritual well-being or between perceived stress and spiritual well-being.

Conclusion: Poorer agricultural work environments were associated with higher perceived stress among farmers. Although participants reported relatively high levels of spiritual well-being, it was not significantly associated with agricultural work environment or perceived stress in this sample. These findings suggest that improving agricultural working conditions and strengthening mental health support may help reduce stress among farmers. Further studies with larger and more diverse samples are recommended to confirm these findings.

KEYWORDS: Agricultural work environment; Perceived stress; Spiritual well-being; Farmers; Occupational health; Cross-sectional study; Odisha.

1. INTRODUCTION

1.1 Agriculture and Farmers' Occupational Health

Agriculture is one of the most important sectors of the Indian economy, contributing significantly to food security, employment, and rural livelihoods. According to the Food and Agriculture Organization (FAO, 2023), agriculture continues to be the primary source of income for millions of households worldwide, particularly in developing countries such as India. Despite technological advancements, farming remains a physically demanding and psychologically challenging occupation. Farmers are frequently exposed to long working hours, adverse weather conditions, pesticide exposure, heavy physical labour, fluctuating market prices, crop failure, indebtedness, and financial uncertainty. These occupational hazards not only affect their physical health but also contribute substantially to psychological stress and reduced quality of life (International Labour Organization [ILO], 2023; World Health Organization [WHO], 2022).

The farming profession has become increasingly vulnerable due to climate change, unpredictable rainfall, declining agricultural productivity, rising production costs, and economic instability. These challenges place considerable pressure on farmers, making occupational health an important public health concern. Consequently, understanding the factors affecting farmers' mental and psychological well-being has become a priority for researchers, healthcare professionals, and policymakers.

1.2 Agricultural Work Environment

The agricultural work environment refers to the physical, environmental, organizational, and psychosocial conditions under which agricultural activities are performed. It encompasses several dimensions, including physical workload, climatic conditions, occupational safety, availability of farming resources, economic pressures, social support, and access to agricultural services. A healthy work environment promotes productivity, job satisfaction, and overall well-being, whereas an adverse work environment may increase occupational injuries, chronic health conditions, fatigue, stress, and psychological distress (ILO, 2023).

Agricultural workers often perform strenuous tasks under extreme environmental conditions, including excessive heat, prolonged sun exposure, irregular working hours, and contact with hazardous chemicals. These occupational risks, combined with economic uncertainty and environmental challenges, contribute significantly to work-related stress. Therefore, assessing the agricultural work environment is essential for identifying occupational risk factors and developing interventions that improve farmers' overall health and productivity.

1.3 Perceived Stress among Farmers

Perceived stress refers to an individual's subjective evaluation of situations as stressful and reflects the extent to which life circumstances are perceived as unpredictable, uncontrollable, or overwhelming (Cohen, Kamarck, & Mermelstein, 1983). Unlike objective stressors, perceived stress represents the individual's psychological response to environmental demands.

Farmers experience multiple sources of stress, including crop failure, debt burden, fluctuating market prices, labour shortages, natural disasters, and uncertainty regarding agricultural income. These stressors can adversely affect emotional well-being, decision-making, productivity, and family life. Previous studies have reported that prolonged occupational stress among farmers is associated with anxiety, depression, sleep disturbances, burnout, and poorer overall mental health (WHO, 2022; American Psychological Association [APA], 2023). Assessing perceived stress among farmers is therefore

important for understanding their psychological health and designing appropriate mental health interventions.

1.4 Spiritual Well-Being

Spiritual well-being is considered an essential component of holistic health and reflects an individual's sense of meaning, purpose, peace, and connectedness with oneself, others, nature, or a higher power. Paloutzian and Ellison (1982) conceptualized spiritual well-being as comprising two dimensions: Religious Well-Being, which reflects one's relationship with God or a higher spiritual being, and Existential Well-Being, which refers to meaning, life satisfaction, and purpose in life.

Previous research has demonstrated that spiritual well-being contributes positively to psychological resilience, emotional stability, coping ability, and overall quality of life. Individuals with higher levels of spiritual well-being often report lower psychological distress and greater life satisfaction. Spirituality has also been identified as an important coping resource during periods of occupational stress and life adversity (Koenig, 2012; Puchalski et al., 2014). However, empirical findings regarding the relationship between spirituality and occupational stress among farmers remain limited and inconsistent.

1.5 Relationship among Agricultural Work Environment, Perceived Stress, and Spiritual Well-Being

The agricultural work environment plays a crucial role in influencing farmers' psychological well-being. Adverse working conditions, financial insecurity, environmental uncertainty, and occupational hazards may increase perceived stress, thereby affecting overall health and quality of life. Previous studies have consistently reported significant associations between unfavourable work environments and increased psychological stress among agricultural workers (FAO, 2023; WHO, 2022).

At the same time, spiritual well-being has been suggested as a protective psychological resource that may enhance resilience and improve coping with stressful life events. Individuals with stronger spiritual well-being often demonstrate better emotional adjustment and greater psychological stability (Koenig, 2012). Nevertheless, limited research has simultaneously examined agricultural work environment, perceived stress, and spiritual well-being among farmers, particularly in the Indian context. Investigating these relationships may contribute to a more comprehensive understanding of farmers' occupational and psychological health.

1.6 Research Gap

Although previous studies have examined occupational stress among farmers and the role of spirituality in promoting psychological well-being, most investigations have focused on these variables independently. Very few studies have simultaneously examined the relationships among agricultural work environment, perceived stress, and spiritual well-being within a single conceptual framework. Furthermore, limited empirical evidence is available from Odisha, India, despite agriculture being the primary livelihood for a large proportion of the rural population. This gap highlights the need for an integrated investigation of these variables to generate evidence that may support occupational health, mental health promotion, and agricultural policy development.

1.7 Rationale of the Study

A better understanding of the interaction between agricultural work environment, perceived stress, and spiritual well-being may assist policymakers, agricultural extension agencies, healthcare professionals, and mental health practitioners in developing comprehensive intervention programmes for farmers. The findings may also contribute to the existing body of knowledge in occupational health, agricultural psychology, and community mental health.

1.8 Objective of the Study

The present study aimed to:

1. assess the agricultural work environment among farmers in Odisha, India;
2. assess the perceived stress experienced by farmers;
3. assess the level of spiritual well-being among farmers;
4. examine the relationships among agricultural work environment, perceived stress, and spiritual well-being; and
5. Determine whether the agricultural work environment significantly predicts perceived stress and spiritual well-being.

1.9 Hypotheses of the Study

Research Hypotheses

H₁: There is a significant relationship between the agricultural work environment and perceived stress among farmers.

H₂: There is a significant relationship between the agricultural work environment and spiritual well-being among farmers.

H₃: There is a significant relationship between perceived stress and spiritual well-being among farmers.

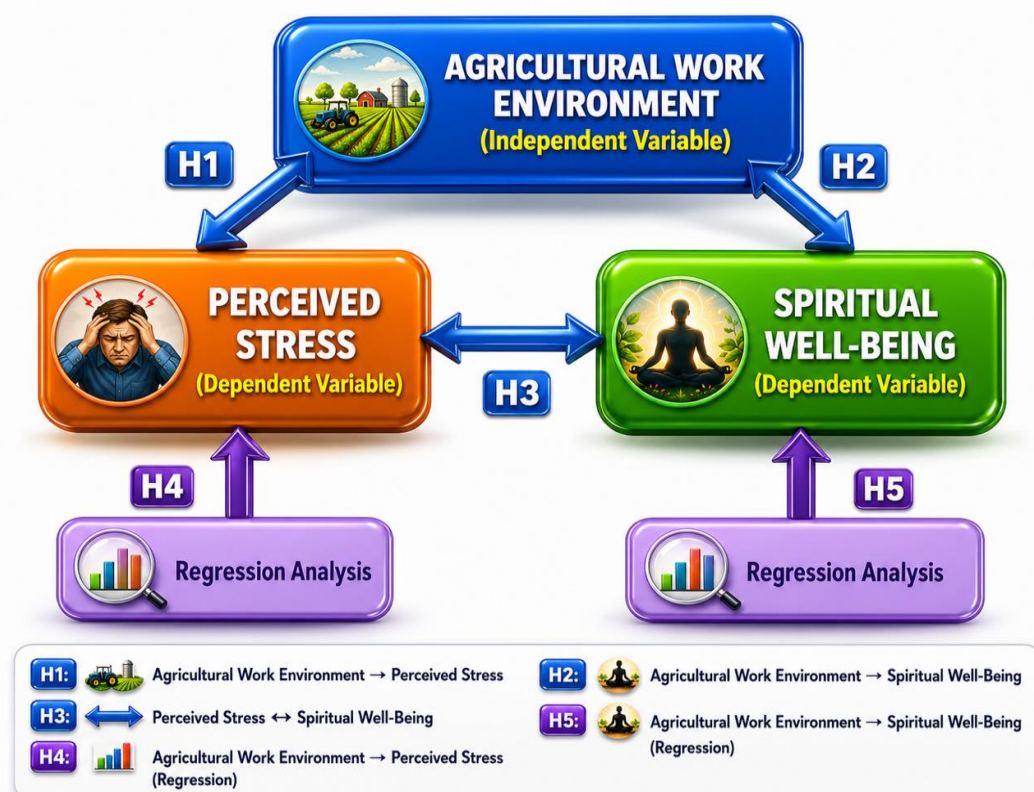
H₄: The agricultural work environment significantly predicts perceived stress among farmers.

H₅: The agricultural work environment significantly predicts spiritual well-being among farmers.

1.10 Conceptual Framework of the Study

The present study is based on the assumption that the agricultural work environment influences farmers' psychological well-being by affecting perceived stress and spiritual well-being. A favourable agricultural work environment may reduce stress levels and promote overall well-being, whereas an adverse work environment may increase perceived stress and negatively affect psychological functioning. The conceptual framework also assumes that perceived stress and spiritual well-being are interrelated. Accordingly, the proposed framework illustrates the hypothesized relationships among the study variables and forms the basis for empirical testing through correlation and regression analyses.

Figure1. Conceptual Framework of the Study



2. MATERIALS AND METHODS

2.1 Research Design

The present study employed a **quantitative, cross-sectional, correlational research design** to examine the relationships among agricultural work environment, perceived stress, and spiritual well-being among farmers. A cross-sectional design was considered appropriate because data were collected at a single point in time, while the correlational design facilitated the examination of associations among the study variables (Creswell & Creswell, 2018). Furthermore, **simple linear regression analysis** was performed to determine whether the agricultural work environment significantly predicted perceived stress and spiritual well-being.

2.2 Study Area

The study was conducted among farmers residing in **Dhenkanal District, Odisha, India**. Agriculture is the principal occupation in this district, with a substantial proportion of the rural population dependent on farming for their livelihood. Farmers in the region encounter diverse occupational challenges, including climatic variability, financial constraints, fluctuating market prices, and seasonal agricultural risks, making the area suitable for investigating agricultural work environment and psychological well-being.

2.3 Participants and Sampling Technique

The study included **74 farmers** who met the predefined eligibility criteria. Participants were selected using a **purposive sampling technique**, as only individuals actively engaged in farming activities were considered eligible for participation. Farmers were approached personally, informed about the objectives of the study, and invited to participate voluntarily.

2.4 Inclusion and Exclusion Criteria

Inclusion Criteria

Participants were included if they:

- were actively engaged in farming as their primary occupation;
- were residents of Dhenkanal District, Odisha;
- were **18 years of age or older**;
- were able to understand the study questions; and
- provided informed consent to participate.

Exclusion Criteria

Participants were excluded if they:

- Were not actively engaged in agricultural work;
- Were unwilling to participate; or
- Submitted incomplete questionnaires that could not be included in the final statistical analysis.

2.5 Research Instruments

Data were collected using a structured questionnaire consisting of four sections.

Part I: Socio-demographic Information

Information regarding age, gender, educational status, marital status, farming experience, landholding, annual income, type of farming, and other relevant demographic characteristics was collected.

Part II: Agricultural Work Environment Scale (AWES)

Agricultural work environment was assessed using a **researcher-developed Agricultural Work Environment Scale** comprising items related to physical working conditions, occupational safety, workload, climatic exposure, economic challenges, availability of agricultural resources, and psychosocial aspects of farming. Responses were recorded using a **five-point Likert scale**, with higher scores indicating a more adverse agricultural work environment.

Part III: Perceived Stress Scale (PSS-10)

Perceived stress was measured using the **10-item Perceived Stress Scale (PSS-10)** developed by **Cohen, Kamarck, and Mermelstein (1983)**. The instrument measures the degree to which individuals perceive their lives as unpredictable, uncontrollable, and stressful during the previous month. Items are rated on a five-point Likert scale ranging from **0 (Never)** to **4 (Very Often)**. Higher scores indicate higher levels of perceived stress.

Part IV: Spiritual Well-Being Scale (SWBS)

Spiritual well-being was assessed using the **20-item Spiritual Well-Being Scale (SWBS)** developed by **Paloutzian and Ellison (1982)**. The instrument comprises two subscales: **Religious Well-Being** and **Existential Well-Being**, each containing ten items. Responses are recorded on a six-point Likert scale, with higher scores indicating greater spiritual well-being.

2.6 Reliability of the Instruments

The internal consistency of the study instruments was assessed using **Cronbach's alpha coefficient**.

- Agricultural Work Environment Scale: $\alpha = 0.737$
- Perceived Stress Scale (PSS-10): $\alpha = 0.687$
- Spiritual Well-Being Scale (SWBS): $\alpha = 0.909$

These reliability coefficients indicated acceptable to excellent internal consistency for the instruments used in the study.

2.7 Data Collection Procedure

Prior to data collection, participants were informed about the objectives and purpose of the study. Participation was entirely voluntary, and written informed consent was obtained from all participants. Questionnaires were administered personally by the researcher, and respondents completed them in the local setting. Confidentiality and anonymity of the information provided were maintained throughout the research process.

2.8 Ethical Considerations

The study was conducted in accordance with accepted ethical principles for research involving human participants, consistent with the **Declaration of Helsinki** (World Medical Association, 2013). Participation was entirely voluntary, and informed consent was obtained from all respondents prior to data collection. Participants were informed about the purpose of the study and their right to withdraw from the study at any stage without any adverse consequences. To protect participants' privacy, no personal identifiers were collected, and all information was treated with strict confidentiality and used solely for academic and research purposes.

2.9 Statistical Analysis

The collected data were coded and analysed using the **Statistical Package for the Social Sciences (SPSS)**. Descriptive statistics (frequency, percentage, mean, and standard deviation) were used to summarise participant characteristics and study variables. The internal consistency of the instruments was assessed using Cronbach's alpha. Pearson's product-moment correlation coefficient was employed to examine the relationships among agricultural work environment, perceived stress, and spiritual well-being. Simple linear regression analysis was performed to determine whether agricultural work environment significantly predicted perceived stress and spiritual well-being. Statistical significance was determined at the **0.05 level**, with highly significant results reported at the **0.001 level** where applicable.

3.RESULTS

The results of the study are presented in the following sections. Descriptive statistics were used to summarize the demographic characteristics of the participants and the study variables. Pearson's product-moment correlation analysis was conducted to examine the relationships among agricultural work environment, perceived stress, and spiritual well-being. Furthermore, simple linear regression analysis was performed to determine whether agricultural work environment significantly predicted perceived stress and spiritual well-being among farmers.

Table 1. Summary of Research Methodology

Research Component	Description
 Research Design	Quantitative, Cross-sectional, Correlational Research Design
 Study Area	Dhenkanal District, Odisha, India
 Study Population	Farmers engaged in agricultural activities
 Sample Size	74 Farmers
 Sampling Technique	Purposive Sampling
 Data Collection Tool	Structured Questionnaire
 Study Variables	Agricultural Work Environment (Independent Variable), Perceived Stress and Spiritual Well-Being (Dependent Variables)
 Research Instruments	Agricultural Work Environment Scale (Researcher-developed), Perceived Stress Scale (PSS-10), Spiritual Well-Being Scale (SWBS)
 Reliability (Cronbach's α)	AWES = 0.737, PSS-10 = 0.687, SWBS = 0.909
 Data Collection Method	Face-to-face administration of questionnaires with informed consent
 Statistical Software	IBM SPSS Statistics
 Statistical Analysis	Descriptive Statistics, Cronbach's Alpha, Pearson's Correlation, Simple Linear Regression
 Level of Significance	$p < 0.05$ (Statistically Significant); $p < 0.001$ (Highly Significant)

3.1 DEMOGRAPHIC CHARACTERISTICS OF THE PARTICIPANTS

Present the demographic characteristics of the participants using frequencies and percentages.

Table 2. Demographic Characteristics of the Participants (N = 74)

Variable	Category	n	%
Age Group	18–30 years	3	4.1
	31–45 years	15	20.3
	46–60 years	35	47.3
	Above 60 years	21	28.4
Gender	Male	69	93.2
	Female	5	6.8
Education	Primary	44	59.5
	Middle	17	23.0
	High School	13	17.6
Farming Type	Rabi	16	21.6
	Kharif	8	10.8
	Both (Rabi & Kharif)	50	67.6

Results

A total of **74 farmers** participated in the final analysis. Nearly half of the participants (**47.3%**) were aged **46–60 years**, followed by **28.4%** who were above 60 years of age. The majority of respondents were **male (93.2%)**, while **6.8%** were female. Regarding educational status, **59.5%** had completed primary education, **23.0%** had middle school education, and **17.6%** had completed high school. With respect to farming type, **67.6%** practiced both Rabi and Kharif cultivation; whereas **21.6%** cultivated only Rabi crops and **10.8%** cultivated only Kharif crops.

3.2 DESCRIPTIVE STATISTICS OF THE STUDY VARIABLES

Table 3.Descriptive Statistics of the Study Variables (N = 74)

Variable	N	Mean	Standard Deviation (SD)	Interpretation
Agricultural Work Environment	74	3.42	0.66	Moderately adverse work environment
Perceived Stress	74	18.89	5.93	Moderate perceived stress
Spiritual Well-Being	74	85.79	16.16	Moderate to high spiritual well-being

Note. Higher scores on the **Agricultural Work Environment Scale** indicate a more adverse work environment. Perceived Stress was measured using the **Perceived Stress Scale (PSS-10)**, and Spiritual Well-Being was measured using the **Spiritual Well-Being Scale (SWBS)**. The values reported are based on the final sample of **74 participants**.

Results

Table 3 presents the descriptive statistics of the three principal study variables. The mean score for **Agricultural Work Environment** was **3.42 (SD = 0.66)**, indicating that the participants generally perceived their agricultural work environment as moderately adverse. The mean **Perceived Stress** score was **18.89 (SD = 5.93)**, suggesting a moderate level of stress among the farmers. The mean **Spiritual Well-Being** score was **85.79 (SD = 16.16)**, indicating a moderate to high level of spiritual well-being among the participants. These descriptive findings provide an overall profile of the respondents before the inferential analyses of correlations and regression were conducted.

3.3 CORRELATION ANALYSIS

Pearson's product-moment correlation analysis was conducted to examine the relationships among agricultural work environment, perceived stress, and spiritual well-being.

Table 4.Pearson Correlation Analysis among the Study Variables (N = 74)

Variables	1	2	3
1. Agricultural Work Environment	1		
2. Perceived Stress	0.529*	1	
3. Spiritual Well-Being	0.101	0.074	1

Note. Pearson's product-moment correlation coefficients are reported.

- * Correlation is statistically significant at $p < .001$.
- Agricultural Work Environment ↔ Spiritual Well-Being: $r = 0.101$, $p = .387$ (Not Significant).
- Perceived Stress ↔ Spiritual Well-Being: $r = 0.074$, $p = .530$ (Not Significant).

Results

A statistically significant **positive correlation** was observed between agricultural work environment and perceived stress ($r = .529$, $p < .001$), indicating that a more adverse agricultural work environment was associated with higher levels of perceived stress among farmers. However, no statistically significant relationship was found between agricultural work environment and spiritual well-being or between perceived stress and spiritual well-being.

3.4 REGRESSION ANALYSIS

3.4.1 Agricultural Work Environment Predicting Perceived Stress

Table 5. Simple Linear Regression Predicting Perceived Stress (N = 74)

Predictor	B	SE	β	t	p	R	R ²	Adjusted R ²	F
Agricultural Work Environment	0.468	0.088	0.529	5.287	< .001	0.529	0.280	0.270	27.954

Note. Dependent Variable = **Perceived Stress**.

B = Unstandardized regression coefficient; SE = Standard Error; β = Standardized regression coefficient. $F(1, 72) = 27.954$, $p < .001$. The model explained **28.0%** of the variance in perceived stress ($R^2 = .280$). A higher adverse agricultural work environment significantly predicted higher perceived stress among farmers.

3.4.2 Agricultural Work Environment Predicting Spiritual Well-Being

Table 6. Simple Linear Regression Predicting Spiritual Well-Being (N = 74)

Predictor	B	SE	β	t	p	R	R ²	Adjusted R ²	F
Agricultural Work Environment	0.123	0.141	0.101	0.870	.387	0.101	0.010	-0.003	0.757

Note. Dependent Variable = **Spiritual Well-Being**. B = Unstandardized regression coefficient; SE = Standard Error; β = Standardized regression coefficient.

3.5 SUMMARY OF HYPOTHESES TESTING

Table 7. Summary of Hypotheses Testing

Hypothesis	Statement	Result
H1	Agricultural work environment is significantly related to perceived stress.	Supported
H2	Agricultural work environment is significantly related to spiritual well-being.	Not Supported
H3	Perceived stress is significantly related to spiritual well-being.	Not Supported
H4	Agricultural work environment significantly predicts perceived stress.	Supported
H5	Agricultural work environment significantly predicts spiritual well-being.	Not Supported

Table 7 summarizes the results of the hypothesis testing conducted in the present study. Among the five proposed hypotheses, **two hypotheses (H1 and H4) were supported**, while **three hypotheses (H2, H3, and H5) were not supported**. The findings revealed that the agricultural work environment was significantly and positively associated with perceived stress and also emerged as a significant predictor of perceived stress among farmers. However, the agricultural work environment was not significantly related to spiritual well-being, nor did it significantly predict spiritual well-being. Likewise, perceived stress did not show a significant relationship with spiritual well-being. These findings suggest that while adverse agricultural work conditions contribute to higher levels of perceived stress, they do not appear to have a direct influence on the spiritual well-being of the farmers included in this study. Overall, the results partially supported the proposed conceptual framework and highlight the importance of addressing occupational stress in agricultural settings while indicating that spiritual well-being may be influenced by factors other than the work environment alone.

4. DISCUSSION

4.1 Discussion

The present study examined the relationship between the agricultural work environment, perceived stress, and spiritual well-being among farmers in Dhenkanal District, Odisha. In addition, it investigated whether the agricultural work environment significantly predicted perceived stress and spiritual well-being. The findings provide important insights into the psychological and spiritual dimensions of farmers' lives and contribute to the growing body of literature on occupational stress and well-being in agricultural communities.

The first objective of the study was to examine the relationship between the agricultural work environment and perceived stress. The results revealed a statistically significant positive relationship between these variables ($r = .529$, $p < .001$), thereby supporting the first hypothesis. Furthermore, the regression analysis demonstrated that the agricultural work environment significantly predicted perceived stress ($\beta = .529$, $p < .001$), accounting for **28% of the variance** in perceived stress. These findings indicate that farmers who experience more demanding or unfavorable agricultural working conditions are more likely to report higher levels of psychological stress. Farming is inherently associated with numerous occupational challenges such as unpredictable weather conditions, financial instability, rising cultivation costs, crop failure, pest infestations, market price fluctuations, and physically demanding work. The present findings are consistent with those of LunnerKolstrup et al. (2013) and Younker and Radunovich (2021), who reported that adverse agricultural working conditions are significant contributors to psychological stress among farmers. This agreement strengthens the evidence that occupational challenges remain a major determinant of mental health in agricultural populations. The findings are also consistent with the **Transactional Model of Stress and Coping**,

which suggests that individuals experience stress when environmental demands exceed their perceived coping resources (Lazarus & Folkman, 1984).

The second objective examined the relationship between the agricultural work environment and spiritual well-being. Contrary to the proposed hypothesis, no statistically significant relationship was observed ($r = .101$, $p = .387$). Similarly, the agricultural work environment did not significantly predict spiritual well-being ($\beta = .101$, $p = .387$). Therefore, the second and fifth hypotheses were not supported. These findings suggest that although occupational conditions strongly influence psychological stress, they may not directly affect an individual's spiritual well-being. Spiritual well-being is generally considered a relatively stable construct that develops through religious beliefs, personal values, family traditions, and cultural practices rather than through day-to-day occupational experiences (Ellison, 1983; Fisher, 2011). In rural Indian communities, spirituality often serves as a lifelong source of meaning, hope, and resilience. Consequently, adverse agricultural working conditions may increase stress without substantially diminishing spiritual well-being.

The third objective investigated the relationship between perceived stress and spiritual well-being. The analysis revealed no statistically significant relationship between these variables ($r = .074$, $p = .530$), leading to the rejection of the third hypothesis. Although several previous studies have reported that spirituality functions as a protective factor against stress and psychological distress (Koenig, 2012; Park, 2007), the present findings did not support this association. **The absence of a significant relationship in the present study may reflect the cultural and religious context of rural Odisha, where spirituality is deeply embedded in everyday life and may remain relatively stable despite occupational stress.** One possible explanation is that spirituality among the farmers in the present study represents a stable personal and cultural resource that is relatively unaffected by temporary fluctuations in perceived stress. Religious rituals, community participation, and traditional beliefs may continue to sustain spiritual well-being even during periods of occupational hardship.

Overall, the findings indicate that the agricultural work environment primarily influences farmers through increased psychological stress rather than through changes in spiritual well-being. The results support occupational stress theories, which emphasize that unfavorable work environments contribute directly to psychological distress (Lazarus & Folkman, 1984). However, the findings also suggest that spiritual well-being may depend on broader cultural, religious, and personal factors beyond occupational experiences. Therefore, interventions aimed at improving farmers' mental health should focus on reducing work-related stress through improved agricultural support systems, financial security, access to healthcare, and stress-management programs while simultaneously encouraging spiritual and community-based resources that promote resilience and overall well-being.

Overall, the present study demonstrates that the agricultural work environment plays a significant role in influencing perceived stress among farmers, whereas spiritual well-being appears to be relatively independent of occupational conditions. These findings contribute to the understanding of farmers' mental health by highlighting the importance of improving agricultural working conditions while recognizing the potential role of spirituality as a stable personal resource in rural communities.

4.2 Implications of the Study

The findings of the present study have important theoretical, practical, and policy implications. The significant relationship between the agricultural work environment and perceived stress highlights the need to improve working conditions and strengthen psychological support for farming communities. Since adverse agricultural conditions were found to significantly predict perceived stress, efforts to reduce occupational stress should become an integral component of agricultural development and rural welfare programmes.

From a practical perspective, agricultural extension services, government agencies, and non-governmental organizations should incorporate mental health awareness, stress management programmes, and psychological counselling into farmer welfare initiatives. Training programmes

focusing on stress management, resilience building, financial planning, and adaptive coping strategies may help farmers manage occupational stress more effectively (Lazarus & Folkman, 1984).

Although the present study did not find a significant relationship between the agricultural work environment and spiritual well-being, spirituality remains an important personal resource for many farmers. Community-based spiritual practices, religious participation, and value-based interventions may continue to promote emotional stability, hope, and resilience even under challenging agricultural conditions (Koenig, 2012; Fisher, 2011). Therefore, programmes aimed at enhancing farmers' overall well-being should consider integrating psychological support with culturally appropriate spiritual and community resources.

The findings also have implications for policymakers. Government initiatives should focus not only on improving agricultural productivity but also on addressing the mental health needs of farmers through accessible counselling services, financial security measures, crop insurance schemes, and awareness programmes. Strengthening social support systems and reducing occupational uncertainties may contribute to lower stress levels and improved quality of life among farming populations.

Finally, the study contributes to the existing literature by providing empirical evidence on the relationship between agricultural work environment, perceived stress, and spiritual well-being among farmers in Odisha. The findings may serve as a foundation for future research examining additional psychological and social factors that influence farmers' mental health and well-being.

5. LIMITATIONS AND FUTURE RESEARCH

5.1 Limitations of the Study

Despite providing valuable insights into the relationship between the agricultural work environment, perceived stress, and spiritual well-being among farmers, the present study has certain limitations that should be acknowledged. First, the study employed a **cross-sectional research design**, which limits the ability to establish causal relationships among the variables. The findings therefore represent associations observed at a single point in time rather than changes occurring over time.

Second, the study was conducted among **74 farmers from Dhenkanal District, Odisha**, using a **purposive sampling technique**. Although the sample was appropriate for the objectives of the study, the findings may not be generalizable to all farming populations across different regions of India due to variations in agricultural practices, socio-economic conditions, climatic factors, and cultural backgrounds.

Third, all data were collected using **self-report questionnaires**, which may be influenced by social desirability bias, response bias, and participants' subjective perceptions. Such factors may affect the accuracy of the responses and the interpretation of psychological constructs.

Fourth, the present study focused exclusively on the agricultural work environment, perceived stress, and spiritual well-being. Other important variables, such as resilience, coping strategies, social support, personality characteristics, financial security, mental health status, and quality of life, were not included and may also influence farmers' psychological well-being.

Finally, the study assessed spiritual well-being using a standardized self-report measure. While this instrument provides a reliable assessment of spirituality, it may not fully capture the diverse cultural, religious, and experiential dimensions of spirituality that exist within rural farming communities.

5.2 Future Research

Future research should employ **longitudinal and experimental research designs** to better understand the causal relationships between the agricultural work environment, perceived stress, and spiritual well-being over time. Such studies would provide stronger evidence regarding the long-term psychological impact of occupational conditions on farmers.

Researchers are also encouraged to include **larger and more geographically diverse samples** representing different states, farming systems, and socio-economic backgrounds to improve the generalizability of the findings. Comparative studies involving different categories of farmers, such as small-scale, marginal, and commercial farmers, may provide additional insights into occupational stress and well-being.

Future studies should examine the influence of additional psychological and social variables, including **resilience, coping strategies, emotional intelligence, social support, life satisfaction, optimism, financial security, and mental health outcomes**, to develop a more comprehensive understanding of farmers' well-being.

Given the importance of spirituality in rural communities, future research may also investigate the role of **religious practices, spiritual coping, meditation, yoga, mindfulness, and community-based spiritual interventions** in promoting psychological resilience and reducing stress among farmers. Both quantitative and qualitative research approaches could provide deeper insights into how spirituality contributes to overall well-being.

Finally, future studies may evaluate the effectiveness of **farmer mental health programmes, stress management interventions, agricultural counselling services, and community-based psychosocial support programmes** in reducing occupational stress and improving the quality of life of farming populations.

6. CONCLUSION

The present study examined the relationship between the agricultural work environment, perceived stress, and spiritual well-being among farmers in Dhenkanal District, Odisha. The findings revealed that the agricultural work environment was significantly and positively associated with perceived stress and also emerged as a significant predictor of perceived stress. These results indicate that unfavorable agricultural working conditions, including occupational demands and environmental challenges, contribute substantially to increased psychological stress among farmers.

In contrast, the study did not find significant relationships between the agricultural work environment and spiritual well-being or between perceived stress and spiritual well-being. Furthermore, the agricultural work environment did not significantly predict spiritual well-being. These findings suggest that although occupational stressors influence farmers' psychological well-being, spiritual well-being may remain relatively stable and may be shaped more by personal beliefs, religious practices, cultural traditions, and community values than by occupational experiences alone.

The study contributes to the existing literature by providing empirical evidence on the psychological effects of agricultural working conditions among farmers in Odisha. It emphasizes the importance of addressing occupational stress through improved agricultural policies, financial security, access to mental health services, and farmer support programmes. At the same time, the findings highlight the potential value of spirituality as a personal resource that may promote resilience and emotional well-being despite occupational challenges.

Overall, the findings underscore the need for a holistic approach to farmer well-being that combines improvements in agricultural working conditions with psychological support and culturally appropriate community-based interventions. Such integrated efforts may help reduce occupational stress, enhance mental health, and improve the overall quality of life among farming communities. In conclusion,

promoting healthy agricultural work environments together with accessible mental health support and culturally sensitive well-being initiatives can contribute to improving the psychological health and overall quality of life of farming communities in India.

7. CONFLICT OF INTEREST: No conflict of interest.

8. SOURCES OF SUPPORT: NIL

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10. REFERENCES

1. Alston, M. (2012). *Rural male suicide in Australia*. *Social Science & Medicine*, 74(4), 515–522.
2. American Psychological Association. (2023). *Stress effects on the body*. <https://www.apa.org>
3. Antonovsky, A. (1987). *Unraveling the mystery of health: How people manage stress and stay well*. Jossey-Bass.
4. Asem Memita Devi, & Nagesh, N. V. (2026). *Mechanisms of stress reduction: Effects of Rajyoga meditation on cognitive, emotional, and behavioural dimensions*. *International Journal of Creative Research Thoughts*, 14(5), f157–f169. <https://www.ijcrt.org/papers/IJCRT2605589.pdf>
5. Asem Memita Devi, & Nagesh, N. V. (2026). *Reducing psychological stress through Rajyoga meditation: Evidence from a quasi-experimental study in Imphal, Manipur*. *International Journal of Novel Research and Development*, 11(5), a806–a818. <https://ijnrd.org/papers/IJNRD2605088.pdf>
6. Babbie, E. (2020). *The practice of social research* (15th ed.). Cengage Learning.
7. Bakker, A. B., & Demerouti, E. (2007). *The job demands-resources model: State of the art*. *Journal of Managerial Psychology*, 22(3), 309–328.
8. Bakker, A. B., & Demerouti, E. (2017). *Job demands-resources theory: Taking stock and looking forward*. *Journal of Occupational Health Psychology*, 22(3), 273–285.
9. Berry, H. L., Bowen, K., & Kjellstrom, T. (2010). *Climate change and mental health: A causal pathways framework*. *International Journal of Public Health*, 55, 123–132.

10. Blake, D. M., et al. (2025). *The mental health of farmers and farmworkers impacted by flood and drought: A systematic review. International Journal of Environmental Research and Public Health.*
11. Boateng, G. O., Neilands, T. B., Frongillo, E. A., Melgar-Quinonez, H. R., & Young, S. L. (2018). *Best practices for developing and validating scales for health, social, and behavioral research: A primer. Frontiers in Public Health, 6,* 149.
12. Booth, N. J., & Lloyd, K. (2000). *Stress in farmers. International Journal of Social Psychiatry, 46*(1), 67–73.
13. Bufford, R. K., Paloutzian, R. F., & Ellison, C. W. (1991). *Norms for the Spiritual Well-Being Scale. Journal of Psychology and Theology, 19*(1), 56–70.
14. Burton, R. J. F. (2004). *Seeing through the good farmer's eyes: Towards developing an understanding of the social symbolic value of productivist behaviour. Sociologia Ruralis, 44*(2), 195–215.
15. Bryman, A. (2016). *Social research methods* (5th ed.). Oxford University Press.
16. Casey, H., et al. (2025). *Depression in farming families: A systematic review. Journal of Rural Studies.*
17. Chaudhary, B. N., & Nagesh, N. V. (2026). *Exploring the relationship between Rajyoga meditation practice and job satisfaction among faculty members: A conceptual and quantitative framework. International Journal of Creative Research Thoughts, 14*(6), g130–g151. <https://www.ijcrt.org/papers/IJCRT2606651.pdf>
18. Cohen, S., Kamarck, T., & Mermelstein, R. (1983). *A global measure of perceived stress. Journal of Health and Social Behavior, 24*(4), 385–396. <https://doi.org/10.2307/2136404>
19. Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.
20. Ellison, C. W. (1983). *Spiritual well-being: Conceptualization and measurement. Journal of Psychology and Theology, 11*(4), 330–340.
21. Food and Agriculture Organization of the United Nations. (2023). *The state of food and agriculture 2023.* FAO. <https://www.fao.org>
22. Fisher, J. W. (2011). *The four domains model: Connecting spirituality, health and well-being. Religions, 2*(1), 17–28. <https://doi.org/10.3390/rel2010017>
23. Ganster, D. C., & Rosen, C. C. (2013). *Work stress and employee health: A multidisciplinary review. Journal of Management, 39*(5), 1085–1122. <https://doi.org/10.1177/0149206313475815>
24. International Labour Organization. (2023). *Safety and health in agriculture.* <https://www.ilo.org>
25. Koenig, H. G. (2012). *Religion, spirituality, and health: The research and clinical implications. ISRN Psychiatry, 2012,* Article 278730. <https://doi.org/10.5402/2012/278730>
26. Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping.* Springer.
27. Lunner Kolstrup, C., Kallioniemi, M., Lundqvist, P., Kymäläinen, H. R., Stallones, L., & Brumby, S. (2013). *International perspectives on psychosocial working conditions, mental health, and stress of dairy farm operators. Journal of Agromedicine, 18*(3), 244–255. <https://doi.org/10.1080/1059924X.2013.796903>
28. Nagesh, N. V. (2023). *Navigating the path to inner harmony: Lessons from the Mount Abu Brahma Kumaris community. Journal of Emerging Technologies and Innovative Research, 10*(6), k427–k435.
29. Nagesh, N. V. (2023). *Revitalizing modern minds: Embracing Brahma Kumaris Raja Yoga meditation for modern challenges. Journal of Emerging Technologies and Innovative Research, 10*(7), 714–736. <http://www.jetir.org/papers/JETIR2307477.pdf>
30. Nagesh, N. V. (2023). *The transformative power of Brahma Kumaris Raja Yoga meditation: Emerging trends and future perspectives. International Journal of Innovative Science and Research Technology, 8*(5), 554–563.

31. Nagesh, N. V. (2025). *The light within: A journey into living liberation*. [Walnut Publication](#). ISBN 978-93-6926-651-7.
32. Nagesh, N. V. (2025). *Experiencing the divine self: Living in the light of inner freedom*. [Walnut Publication](#). ISBN 978-93-6926-749-1.
33. Nagesh, N. V. (2025). *The third light: Towards a new world of divine consciousness*. [Walnut Publication](#). ISBN 978-93-6926-120-8.
34. Nagesh, N. V. (2025). *Revitalising modern minds: The transformative power of Brahma Kumaris Rajyoga meditation for modern challenges: A practical guide to mental, emotional, and spiritual well-being*. [Walnut Publication](#). ISBN 978-93-6926-808-5.
35. Nagesh, N. V., & Devi, A. M. (2026). *Evaluating Rajyoga meditation as a structured intervention for stress reduction: A quasi-experimental study among college students*. *Journal of Emerging Technologies and Innovative Research*, 13(4), j715–j728. <https://www.jetir.org/papers/JETIR2604996.pdf>
36. Nagesh, N. V., & Devi, A. M. (2026). *Meditation-based interventions and occupational well-being of faculty members in private higher education institutions: A narrative review of empirical literature*. *Journal of Emerging Technologies and Innovative Research*, 13(4). <https://www.jetir.org/papers/JETIR2604982.pdf>
37. Nagesh, N. V. (2023). *Brahma Kumaris Raja Yoga Meditation in Modern Times: Addressing the Current Issues and Applications*. *Journal of Emerging Technologies and Innovative Research*, 10(6), b65–b77. <http://doi.one/10.1729/Journal.34607www.jetir.org>
38. Paloutzian, R. F., & Ellison, C. W. (1982). *Spiritual Well-Being Scale*. *Life Advance*.
39. Park, C. L. (2007). *Religiousness/spirituality and health: A meaning systems perspective*. *Journal of Behavioral Medicine*, 30(4), 319–328. <https://doi.org/10.1007/s10865-007-9111-x>
40. Puchalski, C. M., Vitillo, R., Hull, S. K., & Reller, N. (2014). *Improving the spiritual dimension of whole person care: Reaching national and international consensus*. *Journal of Palliative Medicine*, 17(6), 642–656. <https://doi.org/10.1089/jpm.2014.9427>
41. Quick, J. C., & Tetrick, L. E. (Eds.). (2011). *Handbook of occupational health psychology* (2nd ed.). American Psychological Association.
42. Schneiderman, N., Ironson, G., & Siegel, S. D. (2005). *Stress and health: Psychological, behavioral, and biological determinants*. *Annual Review of Clinical Psychology*, 1, 607–628.
43. World Health Organization. (2022). *World mental health report: Transforming mental health for all*. World Health Organization. <https://www.who.int/publications/i/item/9789240049338>
44. World Medical Association. (2013). *World Medical Association Declaration of Helsinki: Ethical principles for medical research involving human subjects*. *JAMA*, 310(20), 2191–2194. <https://doi.org/10.1001/jama.2013.281053>
45. Younker, T., & Radunovich, H. L. (2021). *Farmer mental health interventions: A systematic review*. *International Journal of Environmental Research and Public Health*, 18(24), 13392. <https://doi.org/10.3390/ijerph182413392>