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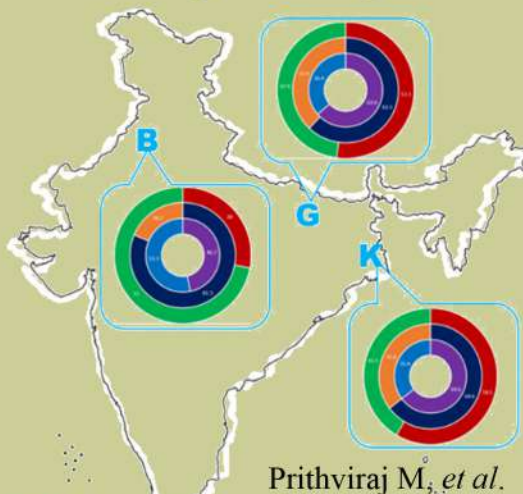
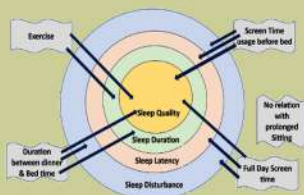
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Unseen efforts, untold stress: Associations of workload and mental health among ASHA workers in rural West Bengal

Trina Paul Das^{1*}, Upasana Chowdhury², Tamal Das², Somnath Gangopadhyay¹

ABSTRACT

Background: Health workers face continuous emotional pressure. The ASHA workers are not exempt from this and have to face high work-related stress while serving the community, and this can influence their mental health. The aim of this study is to assess the association of work nature, work-related physical strain, and psychological stress on the health status of ASHA workers in rural areas of West Bengal. **Method:** In this study, a total of 200 ASHA workers were initially approached, and 180 participants met the eligibility criteria and were included in the final analysis from the Kultali Block in South 24 Parganas, West Bengal. Parameters such as BMI, heart rate, and blood pressure were measured. Psychological stress was assessed using the DASS-42 questionnaire, and insomnia was checked by the Insomnia Severity Index (ISI) questionnaire. **Results:** Depression, anxiety, and stress were found to be moderately high to severely high in most participants. Severe anxiety was found to be present in 67.2% of the participants, while stress was moderate in more than 50% of them. **Conclusion:** ASHA workers suffer not only physically but emotionally as well, and hence, there is a dire need to give special attention to their psychological health.

Keywords: Community health workers, Mental health, Insomnia, Occupational health, Women's health

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INTRODUCTION

Healthcare workers work in high-pressure settings where emotional strain is persistent and often unspoken. Continuous exposure to suffering, loss, and responsibility can be associated with deep emotional exhaustion, influencing both physical and mental well-being and quality of care.¹⁻⁵ In India, the National Rural Health Mission (NRHM) came into force in the year 2005, intending to improve the quality of life of the rural people with an emphasis on women, children, and the economically deprived segment, particularly those residing in the remotest of places all over the country. The induction of Accredited Social Health Activists (ASHA) was conceptualized by the NRHM way back in 2006 to ensure that every village in the country has a trained female community health activist. The ASHAs are selected from the village itself and are accountable to it. They are trained to work as an interface between the community and the public health system. They are an integral component of the Community Health Workers. ASHA workers are usually women from the same village, preferably aged 25 to 45 years, and are expected to be literate, with preference given to those educated up to at least the 10th standard. Their selection is done thoroughly, involving community groups, health officials, and the Gram Sabha to ensure local acceptance. After selection, they are then trained to develop their skills, knowledge, and confidence. Women appointed as ASHA face numerous demanding tasks. It involves managing heavy workloads, meeting strict deadlines, handling sensitive issues, and convincing traditional rural communities. They are the vital links between the community's people and healthcare services. Their responsibilities include promoting immunization, maternal and child health, and health education, as well as making referrals. These duties involve

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physical effort, emotional stress, and time constraints. Besides the physical exertion, they must remain mentally alert, make quick decisions, and navigate complex social situations. Over time, these demands can disturb their psychological well-being, leading to stress, fatigue, and emotional exhaustion.^{6,7} Since ASHA workers regularly undertake demanding duties that involve extensive travel on foot or by bicycle and must complete multiple tasks within strict timeframes, they often experience tiredness and fatigue. Despite the common belief that physically exhausting work promotes better sleep, this does not fully apply to these female workers. They need to stay alert at night too, ready to respond immediately to any emergencies and address issues promptly. For that, ASHA workers are prone to poor quality of sleep and insomnia.⁸⁻¹⁰ Unfortunately, the mental health of ASHA workers often remains overlooked. It is crucial to evaluate their working conditions and assess their psychological health, as these directly impact their performance and efficiency at work,

as well as the quality of care they deliver to the community. This study aims to assess the work responsibilities of the ASHA workers and their psychological well-being in rural West Bengal, India.

MATERIALS AND METHOD

Ethical clearance(CUIEC/15/4/2025) of the research was obtained from the Institutional Human Ethical Committee(IHEC) of the Department of Physiology, University College of Science and Technology, University of Calcutta, India. Additional details on informed consent have also been included to ensure voluntary participation and confidentiality. Participants were informed of their right to withdraw at any stage and given a clear explanation of the study objectives before consent. A total of 200 ASHA workers were randomly selected from different gram panchayats in the Kultali Block of South 24 Parganas, West Bengal. After maintaining the inclusion and exclusion criteria, 180 participants were included in the study. The inclusion criteria are registered ASHA with at least 3 years of work experience. The exclusion criteria are ASHA participants with the presence of any chronic or acute musculoskeletal symptoms, occurrence of recent major accidents, and participants having a history of previous major accidents or any psychological disorders. In case of the sample size, the minimum sample size was estimated using Cochran's formula for a single population proportion: $n_0 = Z^2 pq / e^2$

where Z is the standard normal value for the chosen confidence level, p is the anticipated proportion, $q = (1-p)$, and e is the desired margin of error. As no reliable prior estimate was available for the key outcome in this population, a conservative assumption of $p = 0.50$ was used, which gives the largest required sample size. With a 99% confidence level(probability level, $\alpha = 0.01$) and $Z = 2.58$, $p = 0.50$, $q = 0.50$, and a 10% margin of error, $e = 0.10$, the calculation yielded, $n_0 = (2.58^2 * 0.50 * 0.50) / 0.10^2 = 166.41$

which was rounded up to 167 participants. To allow for possible ineligibility and refusals, 200 ASHA workers were initially approached:180 met the predefined eligibility criteria and were included in the final analysis. Thus, the final sample of 180 exceeded the minimum calculated requirement of 167 participants. The calculation was based on Cochran's sampling method (Figure 1).

Measurements of Physical and Physiological Parameters

The Height(cm) and Weight(kg) of all subjects were measured using an anthropometer and a weighing scale, respectively. The Body Mass Index(BMI) of the participants is calculated using the following formula.¹¹

Body Mass Index(BMI) in $\text{kg} / \text{m}^2 = \text{Weight in kg} / \text{height in m}^2$

The evaluation of physiological parameters is imperative for assessing whether physiological stress is generated during

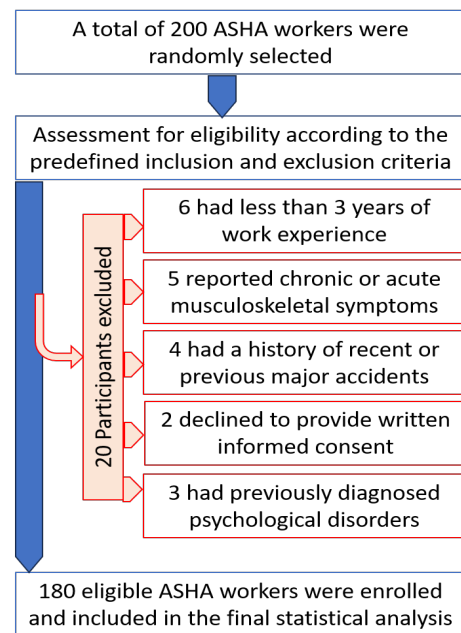


Figure 1: Participant Recruitment and Selection Flow

work. Physiological parameters such as pulse rate(beats/min) and blood pressure are recorded immediately after task completion using a stopwatch and a sphygmomanometer, respectively.

Analysis of Psychological Factors

The DASS is a 42-item questionnaire¹² which includes three self-report scales designed to measure the negative emotional states of depression, anxiety, and stress, and was used in the study. Each of the three scales contains 14 items, divided into subscales of 2 to 5 items with similar content. The depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia. The Anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The stress scale (items) is sensitive to levels of chronic non-specific arousal. It assesses difficulty relaxing, nervous arousal, and being easily upset/agitated, irritable/over-reactive, and impatient. Participants were asked to use 4-point severity/frequency scales to rate the extent to which they have experienced each state over the past week.

Assessment of Insomnia

The presence and severity of insomnia were assessed using the insomnia severity index (ISI).¹³ The ISI is a 7-item self-report questionnaire assessing the nature, severity, and impact of insomnia experienced in the last month. A 5-point Likert scale is used to rate each item(0 = no problem:4 = very severe problem), yielding a total score ranging from 0 to 28. The ISI total score is interpreted as follows: absence of insomnia (0–7):sub-threshold insomnia(8–14):moderate insomnia(15–21):and severe insomnia (22–28).

Statistical Analysis

The data obtained were analyzed using Microsoft Excel, SPSS 23, and Origin 9 Pro. The primary objective of the present study was to provide an initial observational assessment of the workload, physiological profile, and psychological well-being of ASHA workers in a rural community setting. In accordance with these objectives and the study's cross-sectional design, appropriate descriptive statistics and Spearman's rank correlation were employed to examine relationships among the key study variables. Significant associations between work experience, working hours, age, and psychological outcomes have been presented and interpreted in greater detail in the revised manuscript.

RESULTS

The physiological and work-related details of the participants are mentioned in Table 1.

The type of tasks and the actual activities performed by ASHA workers are depicted in Table 2.

In Table 3, the scores from the DASS-42 and ISI were reported, and subsequently, the percentages of participants in each category of the questionnaires were presented in Tables 4 and 5, respectively.

Figure 2 visually presents the distribution of DASS-42 and ISI scores, allowing a clearer understanding of the frequency and severity of psychological distress and insomnia among the participants. Around 61.7% of participants reported having night duties in the last week. The evaluation using Spearman's correlation showed a significant association between insomnia and working hours ($r_s = 0.198, p = 0.008$). Anxiety is found to be negatively associated with work experience ($r_s = -0.183, p = 0.014$), and stress is found to be negatively associated with experience ($r_s = -0.211, p = 0.004$) and age ($r_s = -0.155, p = 0.038$).

Table 2: Task category and key activities of ASHA workers

Sl. No.	Task category	Key activities of ASHA workers
1	Community Awareness & Mobilization	Promote universal immunization:create awareness on health, hygiene, sanitation, and social determinants of health:mobilize community participation in health programs.
2	Primary Health Contact	Act as the first point of contact for health needs, especially for women, children, and vulnerable groups
3	Health Education	Provide information on nutrition, sanitation, hygiene, healthy lifestyle, and available health services.
4	Maternal & Child Health Support	Counsel women on antenatal care, safe delivery, postnatal care, breastfeeding, complementary feeding, and child care
5	Family Planning & Disease Prevention	Educate on contraception:prevent and spread awareness about RTIs/STIs and common infections.
6	Referral & Escort Services	Facilitate referrals and accompany patients to RCH and other health facilities for services.
7	Facilitation of Health Services	Help the community access services like immunization, ANC, PNC, supplementary nutrition, and sanitation schemes.
8	Promotion of Healthy Practices	Encourage good health behaviors and ensure timely referrals to sub-centers and health facilities.
9	Distribution of Essential Supplies	Provide ORS, IFA tablets, chloroquine, contraceptives(oral pills, condoms), and disposable delivery kits.
10	Support for Sanitation Initiatives	Encourage the construction and use of household toilets

Table 1: Demography of the participants

Factors	Minimum	Maximum	Mean(SD)
Age (years)	28	40	34.27(±3.47)
Experience (Years)	3	14	7.99(±3.07)
Body height (cm)	127.00	165.50	148.31(±8.64)
Body Weight (kg)	40.10	72.50	54.08(±9.74)
BMI (kg/m ²)	16.02	37.20	24.88(±5.17)
Heart rate (Beats/min)	60	84	74.02(±6.52)
Systolic blood pressure (mm Hg)	90	150	117.61(±14.73)
Diastolic blood pressure (mm Hg)	60	110	74.39(±9.68)
Last week working hours (hours)	9	70	51.34(±17.53)

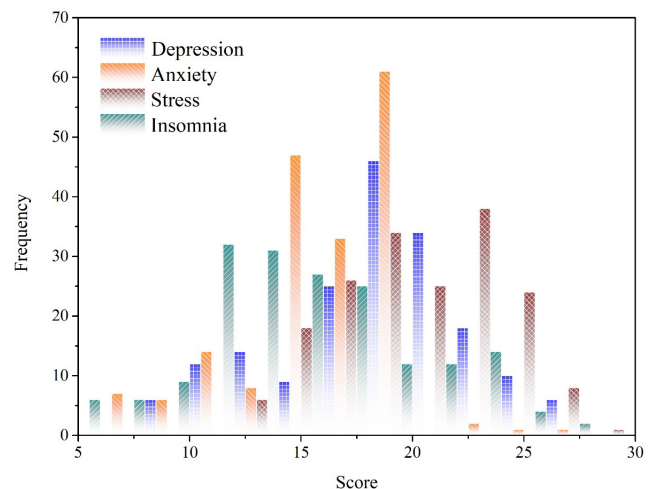


Figure 2: Graphical representation of the scores and frequencies in DASS 42 and ISI

Table 3: Assessment of psychological conditions and insomnia

Factors	Minimum score	Maximum score	Mean (SD)
Depression	8	27	17.99(±4.21)
Anxiety	7	26	15.52(±3.48)
Stress	12	28	19.88(±3.82)
Insomnia	5	26	14.33(± 4.82)

Table 4: Categorization of severity of depression, anxiety, and stress from DASS 42 questionnaire

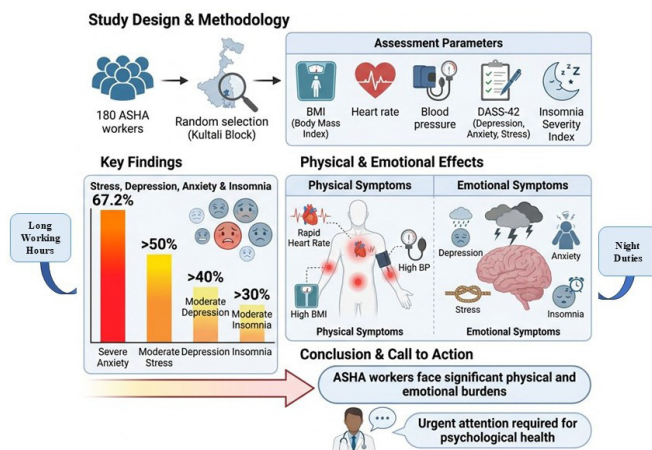
Category	Depression (%)	Anxiety (%)	Stress (%)
Normal	3.3	3.9	7.8
Mild	14.4	3.3	31.1
Moderate	52.8	23.3	55.6
Severe	29.4	67.2	5.6
Extremely severe	0	2.2	0

Table 5: Percentage of participants with insomnia

Category	Percentage (%)
No clinically significant insomnia	7.2
Subthreshold insomnia	46.1
Clinical insomnia (moderate severity)	35.6
Clinical insomnia (severe)	11.1

get any day off. They work throughout the week and all year. Even when working 6 to 7 hours a day, emergencies may require night calls, hospital accompaniment, and overnight stays, followed by regular duties the next morning without any rest or leave. Thus, their work is often continuous, with no fixed shifts or guaranteed duty breaks. In this context, Figure 3 provides a schematic overview of the study process, from participant selection and assessment to the evaluation of physical, physiological, and psychological factors among ASHA workers. It presents the overall study flow simply and clearly, showing how the different aspects of the study were connected. In this present study, the mean age of the ASHA workers was around 34 years, with a mean BMI of 24.82 kg/m². Recent evidence suggests that both underweight and overweight status may contribute to occupational stress and reduced work performance through altered physical endurance, metabolic health, and overall quality of life.^{17,18} However, no significant association was observed between BMI and the psychological outcomes assessed in the present study. Additionally, elevated blood pressure in a few participants may indicate an increased cardiovascular risk profile; however, single-occasion measurements from this cross-sectional study are insufficient for the diagnosis of hypertension. Participants with elevated readings were therefore advised to seek confirmatory clinical evaluation.¹⁷⁻²⁰

Furthermore, the present study showed that almost 53% reported moderate depression, followed by 29.4% with severe depression and 14.4% with mild depression. In the case of anxiety assessment, strikingly, 67.2% of participants reported severe anxiety, followed by 23.3% with moderate anxiety. Participants showed moderate stress at 55.6, and 31.1% showed mild stress. This study aligns with the work of Pulagam *et al.*²¹ on ASHA workers, who identified several important factors, including low pay, long working hours, and long travel distances. They also reported mild to moderate stress and anxiety.²¹ Another research study delved into the situation among ASHA workers during the COVID-19 pandemic, and it also depicted a significant percentage of workers with symptoms of depression and anxiety.²² Mitchell *et al.*²³ found that burnout, low motivation, and poor job satisfaction among community health workers negatively affect them and their patients. The study by Mynam *et al.*²⁴ also researched the correlation between burnout and the quality of life of ASHA workers. In this study, during the questionnaire analysis, participants expressed their feelings in detail. They elaborated on how they have been reacting to things recently, what they believe, and how they struggle day to day. This helped the research portray the conditions of ASHA workers in detail. Selected responses are presented in Table 6 for the statements in the DASS 42 questionnaire. Here, representative quotations were included solely to illustrate recurring experiences: no formal qualitative analysis was performed. Participants' voluntary narrative responses were recorded in Bengali during questionnaire administration, translated into English by the

**Figure 3:** Schematic representation of the study among ASHA workers

DISCUSSION

Due to the demanding nature of the job, healthcare workers all over the world are exposed to significant mental stress, apart from the physical exhaustion they face every day. In India, the high population makes their responsibilities more crucial, as they must make rapid, high-stakes decisions, often with limited resources.¹⁴⁻¹⁶ Repeated involvement in critical care adds emotional burden. During the COVID-19 pandemic, studies showed that the stressors intensified, and over time, the cumulative effect of these factors can contribute to burnout, anxiety, and depression.¹⁴⁻¹⁶ ASHA workers do not

Table 6: Responses of the participants on the statements of the DASS-42 questionnaire

<i>I found it difficult to relax</i>	"I feel like work is always in my head, no break at all" "After coming back from visits, I feel tired, but my mind keeps thinking about patients"
<i>I felt sad and depressed.</i>	"I feel unappreciated for the work I do" "Even after working so much, I feel like it's not enough, and for that, I feel mentally tired all the time"
<i>I felt that I had lost interest in just about everything</i>	"Recently, I just want to lie down, not do anything extra" "I feel bored even when I have time for myself"
<i>I found that I was very irritable</i>	"I really feel irritated when people don't cooperate during my visits" "I get frustrated, and sometimes angry also, when I have to repeat the same work"
<i>I found it difficult to work up the initiative to do things</i>	"Sometimes I don't feel like stepping out for duty" "I struggle to manage both home and work responsibilities every single day"

first author, and verified by the remaining bilingual authors. Apart from this, various studies have also found that healthcare workers often experience reduced sleep duration and quality due to extensive workloads, physical exhaustion, and emotional burdens. Insomnia is quite common among them, and various factors contribute to it.^{25,26} Among female healthcare workers, the problem is much more intense, as they are still exposed to societal pressure to handle household work, children, and elders single-handedly. These unequal work roles impose psychological stress and can be linked to poor sleep. Along with this, inequality in workplace hierarchy, less control over schedules, and lower recognition are strongly related to stress and insomnia.^{27,28} In this study, 46.1 and 35.6% of participants reported subthreshold insomnia and clinical insomnia (moderate severity), respectively, which can create a point of concern as ASHA workers have to attend night calls and deal with sensitive and critical conditions of patients.

Night duties are a common aspect of ASHA workers' jobs. The majority of participants reported being on night duty last week. No significant associations were observed between depression, anxiety, and stress and working hours or night duty. However, a positive relationship was found between working hours and insomnia, indicating that increased workload is often associated with a higher likelihood of poor sleep. In addition, anxiety and stress were found to be negatively associated with work experience, and stress was also negatively associated with age. These findings suggest that greater experience and increasing age may be linked with better coping mechanisms and reduced psychological distress. The high percentage of responses to the presence of psychological symptoms is alarming^{29,30}, and if ignored, these issues may reduce their ability to deliver care and affect public health services in the future.^{31,32}

As already discussed, the important findings of this present study were the significant negative association of anxiety and stress with work experience, while stress also demonstrated a negative association with age. Gradually developing adaptive coping strategies, greater confidence in decision-making, and greater familiarity with community health responsibilities are among the probable causes in this case, which help reduce

perceived psychological distress despite ongoing occupational demands.⁷ Conversely, no significant association was observed between working hours and depression, anxiety, or stress, indicating that the psychological burden experienced by ASHA workers may not depend solely on the duration of work, and possibly there are other important factors, such as financial insecurity, inadequate incentives, emotional labor, role ambiguity, community expectations, and limited institutional support, which may collectively contribute.²³ In contrast, insomnia showed a significant positive association with working hours, which is biologically plausible because prolonged work schedules, frequent night duties, staying alert for night duty calls, and inadequate recovery time directly disrupt normal sleep patterns. Since 61.7% of the participants reported attending night duties during the week preceding the assessment, sleep disruption may represent an immediate consequence of extended work demands, whereas depression, anxiety, and stress are more likely to arise from cumulative psychosocial and occupational factors.²⁴⁻²⁶

The present study provides an initial understanding of the relationships between occupational demands, physiological characteristics, and psychological well-being among ASHA workers. Future research involving larger, more diverse populations is warranted to further strengthen and validate these findings and provide a more comprehensive understanding of these complex relationships.

Overall, the associations observed in the present study should be interpreted with attention, as the cross-sectional design precludes conclusions regarding temporal or causal relationships: prospective longitudinal studies are required to confirm these findings. After that, small, practical changes can help ease the daily burden and protect the well-being of ASHA workers.³³⁻³⁸

CONCLUSION

This research showed that ASHA workers carry a demanding role that goes far beyond the basic health duties. Working long hours, commuting to remote areas, night calls and duties, and managing sensitive situations are only some of the tasks in their work. The exhaustion is not only physical,

but the work can drain them mentally, too. This often may lead to tiredness, disturbed sleep, and increased levels of stress, anxiety, and emotional exhaustion. Even though they play a key part in connecting the community with the health system, their own health and well-being often remain unnoticed. Understanding their needs and the physical and psychological stress they face is extremely important for the rural healthcare sector, as ASHA workers are the primary bridge between the common people and the health sector. India is burdened by overpopulation, and in rural areas, the situation is more complicated, as the ratio of the general population to healthcare workers is extremely high. Providing strict attention to the well-being of ASHA workers is not just for their benefit, but also for improving the quality of healthcare in the community.

Based on the findings of the present study, the following practical suggestions can be presented for improving the working conditions and the psychological well-being of ASHA workers: The most important strategy for adequate rest and to reduce the cumulative load of work should be workload distribution. Allowing ASHA workers to have flexible working hours the next day or scheduled rest periods after night calls may help them recover from sleep loss and reduce fatigue. Short naps during the day, where possible, could be a simple way to enhance recovery after long or night shifts. Promotion of healthy sleep practices such as a quiet and dark environment for daytime rest for at least a few hours may improve sleep quality and overall recovery. Simple relaxation methods such as deep breathing exercises, light stretching, yoga or short walks can help ease psychological stress and improve mental well-being. To improve psychological resilience and encourage timely help-seeking, basic counselling support and regular mental health awareness programs can be provided. Regular peer support meetings should be encouraged where ASHA workers can share their experiences and discuss the challenges they face openly, and also coordinate with other health care workers for peer support. ASHA workers function at the grassroots level, so these low-cost, practical, and easily implementable interventions are likely to be more feasible and sustainable than complex organizational programs.

This study can serve as a cornerstone in building an image of the physical and psychological strain on ASHA workers. Here, self-reported working hours were cross-checked against routine workload responsibilities to improve consistency; therefore, some degree of recall bias cannot be excluded. In the future, larger studies covering multiple districts and states can provide a more comprehensive picture of the challenges they face. Exploring work organization, policy-level changes, and stronger support systems can further improve their overall well-being.

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CONFLICT OF INTEREST

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REFERENCES

1. Chowdhury U, Das T, Gangopadhyay S. Prevalence and predictors of musculoskeletal discomfort in relation to physical activity and working postures among female nurses in West Bengal. *Nurs Midwifery Res J*. 2026;22(1):45-59. DOI: 10.1177/0974150X251386604.
2. Chowdhury U, Das T, Mazumder S, Gangopadhyay S. Mitigation of work challenges and musculoskeletal risk among maternity ward nurses: A case report from a rural hospital in West Bengal, India. *WORK*. 2026;84(4):1181-95. DOI: 10.1177/10519815261421572.
3. Chowdhury U, Das T, Mazumder S, Gangopadhyay S. Low back pain among hospital nurses: the interplay of underlying factors. *Indian J Physiol Allied Sci*. 2024;76(3):66-74. DOI: 10.55184/ijpas.v76i03.297.
4. Sahu S, Dey M. Changes in food intake pattern of nurses working in rapidly rotating shift. *Al Ameen J Med Sci*. 2011;4(1):14-22. ISSN 0974 -1143.
5. Krishna NR. Empowering or exhausting? COVID-19 experiences of accredited social health activists(ASHA) in Kerala. *Int J Community Soc Dev*. 2024;6(4):399-417. DOI: 10.1177/25166026241290671.
6. Pandey N. Exploring the factors affecting the work-life balance of ASHA's health workers and their impact on performance in rural Uttarakhand. *Int J Sci Res Eng Manag*. 2023;7:150-5. DOI: 10.55041/IJSREM20217.
7. Shrivastava R, Sharma L, Jolly M, Ahuja R, Sharma R, Naslund JA, Agrawal J, Shidhaye R, Mehrotra S, Hollon SD, Patel V. We are everyone's ASHAs but who's there for us? A qualitative exploration of perceptions of work stress and coping among rural frontline workers in Madhya Pradesh, India. *Soc Sci Med*. 2023;336:116234. DOI: 10.1016/j.socscimed.2023.116234.
8. Saprii L, Richards E, Kokho P, Theobald S. Community health workers in rural India: analysing the opportunities and challenges Accredited Social Health Activists(ASHAs) face in realising their multiple roles. *Hum Resour Health*. 2015;13(1):95. DOI: 10.1186/s12960-015-0094-3.
9. Kalne PS, Kalne PS, Mehendale AM, Kalne P. Acknowledging the role of community health workers in providing essential healthcare services in rural India - A review. *Cureus*. 2022;14(9). e29372 DOI: 10.7759/cureus.29372.
10. Marik S, Sarkar D. Empowerment of ASHA workers: A study from rural Bengal. In: *Proceedings of the Indo-Bhutan Social Science Conference 2025(IBSSC 2025)*. Springer Nature:2026. p. 108.
11. Poskitt EM. Body mass index and child obesity: Are we nearing a definition? *Acta Paediatr*. 2000;89(5):507-9. DOI: 10.1111/j.1651-2227.2000.tb00327.x
12. Lovibond PF, Lovibond SH. The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales(DASS) with the Beck Depression and Anxiety Inventories. *Behav Res Ther*. 1995;33(3):335-43. DOI: 10.1016/0005-7967(94)00075-U.

13. Bastien CH, Vallières A, Morin CM. Validation of the Insomnia Severity Index as an outcome measure for insomnia research. *Sleep Med.* 2001;2(4):297-307. DOI: 10.1016/S1389-9457(00)00065-4.
14. Chowdhury U, Das T, Mazumder S, Gangopadhyay S. Work-related musculoskeletal disorders and mental health among nursing personnel in the context of COVID-19 pandemic in West Bengal, India. *Int J Occup Saf Health.* 2023;13(2):234-44. DOI: 10.3126/ijosh.v13i2.47775.
15. Chowdhury U, Das T, Mazumder S, Gangopadhyay S. Musculoskeletal disorders and psychosocial stress at work: a comprehensive study on Indian nurses. *Nurs Midwifery Res J.* 2024;20(2):82-95. DOI: 10.1177/0974150X241248006.
16. Chowdhury U, Das T, Mazumder S, Gangopadhyay S. A study on the interrelationship of musculoskeletal symptoms with job demands and job content: a cross-sectional study on nurses. *J Hum Ergol.* 2023;52(1-2):14-22. DOI: 10.11183/jhe.52.1-2_14.
17. Avila C, Holloway AC, Hahn MK, et al. An overview of links between obesity and mental health. *Curr Obes Rep.* 2015;4(3):303-10. DOI: 10.1007/s13679-015-0164-9.
18. Steptoe A, Frank P. Obesity and psychological distress. *Philos Trans R Soc B Biol Sci.* 2023;378(1888):20220225. Doi: 10.1098/rstb.2022.0225.
19. Ibrahim N, Amit N, Shahar S, et al. Do depression literacy, mental illness beliefs and stigma influence mental health help-seeking attitude? A cross-sectional study of secondary school and university students from B40 households in Malaysia. *BMC Public Health.* 2019;19:544. DOI: 10.1186/s12889-019-6862-6.
20. Hruby A, Manson JE, Qi L, Malik VS, Rimm EB, Sun Q, Willett WC, Hu FB. Determinants and consequences of obesity. *Am J Public Health.* 2016;106(9):1656-62. DOI: 10.2105/AJPH.2016.303326.
21. Pulagam P, Satyanarayana PT. Stress, anxiety, work-related burnout among primary health care worker: A community based cross sectional study in Kolar. *J Family Med Prim Care.* 2021;10(5):1845-51. DOI: 10.4103/jfmpc.jfmpc_2059_20.
22. Gowda V, Rani S, Chandrika C, Anupama A, Shalini S. Depression, anxiety, stress among ASHA workers, in selected primary health centres in Southern Bengaluru. *Int J Community Med Public Health.* 2021;8(12):5856. DOI:10.18203/2394-6040.ijcmph20214579.
23. Mitchell LM, Anand A, Muke S, et al. Burnout, motivation and job satisfaction among community health workers recruited for a depression training in Madhya Pradesh, India: a cross-sectional study. *BMJ Public Health.* 2024;2(2):e001257 DOI: 10.1136/bmjph-2024-001257.
24. Mynam V, Kumar MS, Jonnala R, Swain P. A cross-sectional study on the influence of stress and burnout on the quality of life of accredited social health activists(ASHA) in Telangana. *Indian J Forensic Community Med.* 2025;12(2):109-18. DOI: 10.18231/j.ijfcm.2025.019.
25. Roncero C, Bravo-Grande J, Remón-Gallo D, Andrés-Olivera P, Payo-Rodríguez C, Fernández-Parra A, et al. The relevance of insomnia among healthcare workers: a post-pandemic COVID-19 analysis. *J Clin Med.* 2025;14(5):1663. DOI: 10.3390/jcm14051663.
26. Bouchou Y, Giffard-Quillon L, Fontana L, Roche F, Péliissier C, Berger M. Sleep habits and disturbances in healthcare workers: a cross-sectional survey in French public hospitals. *Nat Sci Sleep.* 2024;1687-98. DOI: 10.2147/NSS.S461993.
27. Tsou MT. Gender differences in insomnia and role of work characteristics and family responsibilities among healthcare workers in Taiwanese tertiary hospitals. *Front Psychiatry.* 2022;13:831075. DOI: 10.3389/fpsy.2022.831075.
28. Rahman F, Dalal K, Hasan M, et al. Insomnia and job stressors among healthcare workers who served COVID-19 patients in Bangladesh. *BMC Health Serv Res.* 2023;23(1):523. DOI: 10.1186/s12913-023-09464-x.
29. Van Someren EJ. Brain mechanisms of insomnia: new perspectives on causes and consequences. *Physiol Rev.* 2021;101(3):995-1046. DOI: 10.1152/physrev.00046.2019
30. Lee S, Gonzalez BD, Small BJ. My job impacts my sleep: Signs and symptoms of insomnia among healthcare workers. *Ind Health.* 2021;59(2):86-98. DOI: 10.2486/indhealth.2020-0191.
31. Estryn-Behar M, Kaminski M, Peigne E, et al. Stress at work and mental health status among female hospital workers. *Occup Environ Med.* 1990;47(1):20-8. DOI: 10.1136/oem.47.1.20.
32. Koinis A, Giannou V, Drantaki V, Angelaina S, Stratou E, Saridi M. The impact of healthcare workers job environment on their mental-emotional health. Coping strategies: the case of a local general hospital. *Health Psychol Res.* 2015;3(1):1984. PMID: 26973958.
33. Bondre AP, Singh S, Singh A, Ranjan A, Khan A, Sharma L, Bari D, Teja GS, Verma L, Jolly M, Pandit P. Evaluation of a positive psychological intervention to reduce work stress among rural community health workers in India: results from a randomized pilot study. *J Happiness Stud.* 2025;26(3):27. DOI: 10.1007/s10902-024-00852-6.
34. Lee J, Kim H, Lim S. An integrative review of job stress and mental health intervention programs for experienced nurses. *J Korean Acad Psychiatr Ment Health Nurs.* 2019;28(2):190-204. DOI: 10.12934/jkpmhn.2019.28.2.190.
35. Lee M, Cha C. Interventions to reduce burnout among clinical nurses: systematic review and meta-analysis. *Sci Rep.* 2023;13(1):10971. DOI: 10.1038/s41598-023-38169-8.
36. Demeke AD, Gessesse AD, Auddo EB, Tamir T, Bayable A, Demeke A. A systematic review and meta-analysis on the epidemiology of work-related musculoskeletal disorders among nurses in Ethiopia. *PLoS One.* 2026;21(7):e0354484. DOI: 10.1371/journal.pone.0354484.
37. Sarmadi S, Sanaie N, Boozari Pour M, Zare-Kaseb A. Physical workload and musculoskeletal disorders among hospital health workers in Tehran, Iran: a cross-sectional study. *Sci Rep.* 2026;16:19890. DOI: 10.1038/s41598-026-50921-4.
38. Vieira EMDA, Silva JMND, Leite WKDS, Araújo GDL. Work complexity and musculoskeletal symptoms in healthcare workers. *Healthcare (Basel).* 2026;14(1):135. DOI: 10.3390/healthcare14010135.

PEER-REVIEWED CERTIFICATION

During the review of this manuscript, a double-blind peer-review policy has been followed. The author(s) of this manuscript received review comments from a minimum of two peer-reviewers. Author(s) submitted revised manuscript as per the comments of the assigned reviewers. On the basis of revision(s) done by the author(s) and compliance to the Reviewers' comments on the manuscript, Editor(s) has approved the revised manuscript for final publication.

Gymguard-SCD Clinical Decision Support System

GYM GUARD-SCD: THE FUTURE OF SPORTS CARDIOLOGY AND PREVENTIVE CARDIOLOGY



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SYSTEM AND METHOD FOR PRE-EXERCISE DYNAMIC ELECTRO-AUTONOMIC INSTABILITY DETECTION

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MISSION IS ATMANIRBHAR BHARAT & VIKSIT BHARAT

* GymGuard-SCD is an advanced clinical support system designed for multi-parametric sudden cardiac death risk stratification. This innovative device performs pre-exercise electro-autonomic instability detection, representing the future of sports cardiology and supporting the vision of Atmanirbhar Bharat.