

Occupational Safety Practices and Resilience among Health Workers in Provincial and District Hospitals in Abra: A Basis for Policy Formulation

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ABSTRACT

This study determined the occupational safety practices and resilience of health workers in the Provincial and District Hospitals in Abra and examined reported associations involving selected demographic characteristics and the dimensions of occupational safety and resilience as a basis for policy formulation. A quantitative descriptive-correlational design was employed among 171 health workers from one provincial and three district hospitals. Respondents included nurses, physicians, medical technologists, radiologic technologists, pharmacists, midwives, allied health personnel, and support workers who had rendered at least six months of service. Data were collected through a researcher-developed, expert-reviewed, pilot-tested structured questionnaire and analyzed using

frequency, percentage, weighted mean, standard deviation, and inferential procedures at the .05 level of significance. Most respondents were 30-39 years old, female, married, bachelor's degree holders, had 6-10 years of service, and were nurses; representation from provincial and district hospitals was almost equal. Occupational safety practices were strongest in ergonomics and physical safety (GM = 4.43, Always) and incident reporting and compliance (GM = 4.35, Always). Workplace hazard prevention (GM = 4.11), PPE and infection control (GM = 3.74), and safety training and preparedness (GM = 3.54) were rated Often, with regular training attendance and consistent PPE use remaining areas for improvement. Occupational safety resilience was very high across adaptive capacity (GM = 4.59), commitment to safety (GM = 4.59), psychological resilience (GM = 4.58), and social and organizational support (GM = 4.50). The reported inferential analysis indicated significant relationships between one or more safety or resilience dimensions and gender, educational attainment, occupation or profession, area of assignment, years of service, and hospital type, whereas age and civil status were generally not significant. The findings show a positive safety culture and a highly resilient workforce, while underscoring the need for continuous competency-based safety education, reliable PPE management, stronger supervisory support, and sustained monitoring. An Occupational Safety and Resilience Enhancement Policy were proposed to strengthen workforce protection, well-being, emergency preparedness, and evidence-based safety governance in the hospitals of Abra.

Keywords: *occupational safety practices, healthcare worker resilience, hospital safety culture, personal protective equipment, emergency preparedness, policy formulation*

INTRODUCTION

Health workers provide essential clinical and support services while facing persistent exposure to biological, chemical, ergonomic, physical, and psychosocial hazards. In hospital environments, these risks include infection, sharps injuries, unsafe equipment, physical strain, violence, fatigue, and emotional distress. The World Health Organization (2022c) emphasized that protecting health workers is fundamental to safe and sustainable health services, while Faller et al. (2018) documented the range of occupational hazards experienced by healthcare personnel in the Philippines. Effective occupational safety practices are therefore necessary not only for employee protection but also for continuity and quality of patient care.

The COVID-19 pandemic further demonstrated that workplace safety and workforce resilience are inseparable. Infection prevention, adequate personal protective equipment (PPE), clear emergency procedures, and psychological support became critical to maintaining health-service operations. Evidence indicates that healthcare workers' adherence to infection-control guidance is influenced by equipment availability, workload, organizational support, and confidence in safety systems (Houghton et al., 2020; Tabah et al., 2020). At the same time, prolonged exposure to stress and uncertainty increases the risk of burnout and psychological distress (Lai et al., 2020; Ulfa et al., 2022), making adaptive capacity and organizational support central features of a resilient workforce.

These concerns are especially important in provincial and district hospitals, where resource availability, staffing, infrastructure, and access to continuing training may differ from those in large urban medical centers. Rural healthcare delivery in the Philippines continues to face limitations involving supplies, workforce distribution, institutional capacity, and service accessibility (Dondonayos et al., 2023). In such settings, the consistent use of PPE, participation in safety training, timely incident reporting, ergonomic protection, and supportive supervision may determine whether workers can respond safely and recover effectively from routine and emergency demands.

Resilience does not refer merely to individual endurance. It also reflects the resources and relationships that allow workers to remain calm, adjust to changing protocols, solve problems, seek assistance, and maintain commitment to safety. Systematic evidence has linked coping, social support, psychologically safe workplaces, and supportive leadership with healthcare worker well-being and performance (Hebles et al., 2022; Labrague, 2021; McFadden et al., 2021). Consequently, safety policies should address both physical protection and the organizational conditions that enable adaptation and recovery.

Although occupational safety and resilience have been widely discussed, localized evidence from rural government hospitals in Abra remains limited. This study therefore assessed the demographic profile of health workers, their level of occupational safety practices across five dimensions, and their resilience across four dimensions. It also retained the thesis-reported inferential findings concerning demographic relationships and used the evidence to formulate an Occupational Safety and Resilience Enhancement Policy for the Provincial and District Hospitals in Abra.

Literature Review

Occupational Safety Practices in Healthcare

Occupational safety practices comprise the policies, procedures, resources, and daily behaviors used to prevent work-related injury and illness. PPE use, hand hygiene, isolation precautions, safe handling of sharps and chemicals, and hazard identification are fundamental in healthcare. George et al. (2023) identified risk perception, availability, training, and organizational support as factors influencing PPE compliance. Similarly, Houghton et al. (2020) showed that adherence to infection-prevention guidelines depends on clear protocols, adequate supplies, manageable workloads, and confidence in the recommendations provided to workers.

Safety also requires attention to ergonomic and physical demands. Patient handling, repetitive movements, prolonged standing, and poorly designed workspaces may contribute to musculoskeletal strain. Regular equipment inspection, proper body mechanics, assistive devices, and rest breaks reduce avoidable risk.

Beyond physical protection, incident and near-miss reporting allow hospitals to identify recurring hazards and improve systems before more serious events occur. The World Health Organization (2021) framed reporting, organizational learning, and workforce engagement as important components of a strong patient- and worker-safety culture.

Training and preparedness connect written policies with effective performance. Workers require repeated opportunities to practice infection-control procedures, emergency response, disaster readiness, and the safe use of equipment. Trivedi et al. (2022) emphasized preparedness as a multidimensional requirement involving knowledge, resources, and organizational coordination. In rural facilities, however, limited staffing and material resources may restrict access to regular training and safety monitoring (Dondonayos et al., 2023; Faller et al., 2018). This makes continuous, context-specific competency development essential.

Healthcare Worker Resilience

Healthcare worker resilience is the capacity to maintain or regain effective functioning when confronted with occupational stress, emergencies, and rapidly changing demands. Psychological resilience includes emotional regulation, focused decision-making, and recovery after difficult events. Research during the pandemic found that coping behaviors and resilience were associated with better well-being and work-related quality of life among health and social-care workers (Labrague, 2021; McFadden et al., 2021). Greenberg et al. (2020) further stressed the need for proactive mental-health support in institutions employing frontline personnel.

Adaptive capacity reflects the ability to adjust to new protocols, workloads, technologies, and emergency conditions. It is strengthened through training, clear communication, teamwork, and opportunities to solve problems collectively. Kelly et al. (2021) demonstrated that structured resilience and well-being interventions can support healthcare workers, while Haldane et al. (2022) showed that health-system resilience depends on relationships among frontline workers, institutions, and communities. Adaptation is therefore both an individual capability and an organizational outcome.

Social and organizational support provides the relational foundation of resilience. Workers are more likely to report hazards, request assistance, and sustain safe practices when supervisors respond constructively and when colleagues cooperate. Adekanmbi et al. (2022) linked perceived organizational support with safety performance, and Hebles et al. (2022) identified psychological safety and supervisor support as important in reducing stress and turnover intentions. Hirvikallio et al. (2024) likewise associated social support and psychological safety with commitment among nurse managers.

Safety Culture, Organizational Resources, and Resilience

The Job Demands-Resources framework explains how demanding work conditions may produce strain when workers lack sufficient resources, while supportive resources can sustain motivation, performance, and well-being (Bakker & Demerouti, 2017). Within hospitals, PPE, staffing, training, communication, supervisory support, and incident-learning systems function as resources that can reduce exposure and strengthen workers' perceived ability to manage risk. This perspective supports the expectation that occupational safety practices and resilience should be addressed together.

Safety culture reflects the shared values and practices through which an organization prioritizes employee and patient protection. A culture that encourages reporting, audits, open communication, and non-punitive learning can improve compliance and adaptation. Hesgrove et al. (2024) found associations between patient-safety culture and workplace-safety culture in hospitals, illustrating that organizational approaches to safety often operate across multiple outcomes. Conversely, inconsistent supplies, weak follow-up, and limited participation may undermine otherwise strong individual commitment.

Workers' experiences of safety may also vary according to professional role, educational preparation, assignment, tenure, and institutional context. Exposure patterns differ between clinical and non-clinical workers and among units such as emergency rooms, wards, laboratories, pharmacies, and support services. Khunti et al. (2021) emphasized the importance of context-sensitive risk assessment for healthcare workers, while Rink et al.

(2023) documented diverse stressors across the healthcare workforce. Policies should therefore combine universal standards with role- and unit-specific interventions.

Policy Development for Provincial and District Hospitals

Evidence-based occupational-safety policy translates assessment findings into institutional responsibilities, resource allocation, monitoring arrangements, and measurable standards. International guidance emphasizes integrated infection prevention, worker protection, mental-health support, and participatory safety management (International Labour Organization, 2019; World Health Organization, 2022a; World Health Organization & International Labour Organization, 2022). For rural hospitals, policy should also account for supply continuity, referral limitations, staffing constraints, and the need to maintain services during disasters and outbreaks.

The present study was guided by a framework in which demographic characteristics and occupational safety practices were examined in relation to the resilience of health workers. The occupational-safety dimensions were PPE and infection control, workplace hazard prevention, ergonomics and physical safety, incident reporting and compliance, and safety training and preparedness. Resilience was represented by psychological resilience, adaptive capacity, social and organizational support, and commitment to safety.

The framework positioned policy formulation as the practical output of the assessment. Strong areas were intended to be sustained, while lower-rated practices and reported group differences were used to identify priorities for training, PPE management, emergency preparation, wellness support, reporting, supervision, and evaluation. Figure 1 presents this relationship and preserves the original study's movement from worker profile and safety practices to resilience and policy development.

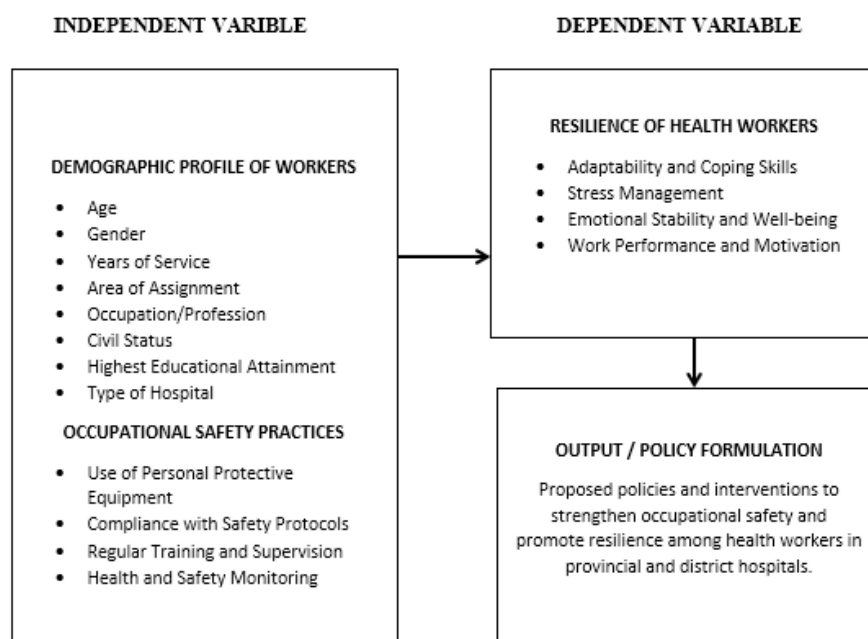


Figure 1. Conceptual framework linking worker profile, occupational safety practices, resilience, and policy formulation

METHODS

Research Design

The study employed a quantitative descriptive-correlational research design. The descriptive component characterized the respondents and measured the level of occupational safety practices and occupational safety resilience. The correlational component examined the reported statistical relationships involving selected demographic characteristics and the study dimensions. The findings served as the empirical basis for the proposed occupational safety and resilience policy.

Research Locale

The study was conducted in government hospitals in Abra, Northern Luzon, Philippines. The locale comprised one provincial hospital and three district hospitals. These facilities provide essential services to a predominantly rural population and differ in capacity, workload, and available resources, allowing the study to include both provincial- and district-level workplace contexts.

Participants and Sampling Technique

The respondents were 171 health workers employed in the participating hospitals. They included nurses, physicians, medical technologists, radiologic technologists, pharmacists, midwives, nursing aides, institutional workers, guards, porters, food-service personnel, and other allied health workers from clinical and non-clinical areas. Purposive sampling was used. Eligible respondents were currently employed in a participating hospital, had at least six months of service, and voluntarily provided informed consent. Interns, trainees, outsourced personnel, workers with less than six months of service, those on extended leave, and incomplete respondents were excluded.

Research Instrument

Data were collected using a researcher-developed, self-administered structured questionnaire with three parts: demographic profile, occupational safety practices, and occupational safety resilience. The safety-practice section covered PPE and infection control, workplace hazard prevention, ergonomics and physical safety, incident reporting and compliance, and safety training and preparedness. The resilience section covered psychological resilience, adaptive capacity, social and organizational support, and commitment to safety. Responses were recorded on five-point rating scales.

Three experts in occupational safety, psychology, and research methodology reviewed the instrument for relevance, clarity, and alignment. It was pilot-tested with 10-15 health workers from hospitals not included in the main study. The manuscript reported the use of Cronbach's alpha to evaluate internal consistency and revisions based on expert and pilot feedback; however, the numerical alpha coefficients were not included in the supplied manuscript and are therefore not reproduced.

Data Gathering Procedure

The researcher secured ethical and administrative approval before data collection and submitted formal requests to the hospital administrators. Eligible participants received an explanation of the study and an informed-consent form. Questionnaires were distributed and retrieved personally to promote a high response rate and to address procedural questions. Completed questionnaires were checked, coded, anonymized, and stored in secured hard-copy and encrypted electronic formats.

Data Analysis

Frequency and percentage described the demographic profile. Weighted means and standard deviations were used to summarize occupational safety practices and resilience. Inferential procedures were applied at the .05 level of significance to examine reported relationships involving selected profile variables and the study dimensions. The methodology specified Pearson's product-moment correlation for the direct relationship between occupational safety practices and resilience. Because the supplied results did not provide coefficient-level values for this direct test or for each reported demographic association, no unreported statistics were reconstructed in this article.

Ethical Considerations

The study observed autonomy, justice, beneficence, non-maleficence, and data privacy. Participation was voluntary, and respondents could refuse or withdraw without penalty. Qualified workers were treated equitably regardless of position or background. The survey was designed to minimize physical, psychological, and emotional risk. Names were replaced with identification codes, access to data was restricted to the researcher, and records were managed in accordance with the Philippine Data Privacy Act of 2012.

RESULTS AND DISCUSSION

Demographic Profile of the Respondents

Table 1. *Predominant demographic characteristics of the 171 health workers*

Profile Variable	Predominant Category	Frequency	Percentage
Age	30-39 years	65	38.0%
Gender	Female	96	56.1%
Civil status	Married	89	52.0%
Educational attainment	Bachelor's degree	92	53.8%
Years of service	6-10 years	59	34.5%
Type of hospital	Provincial hospital	86	50.3%
Area of assignment	Other or mixed areas	84	49.1%
Occupation or profession	Nurse	61	35.7%

The respondent group was diverse but was predominantly composed of middle-adult, female, married, bachelor's-degree holders with six to ten years of service. Nurses constituted the largest professional group, although clinical, allied, and support occupations were represented. The near-equal distribution between the provincial hospital (50.3%) and district hospitals (49.7%) provided a balanced institutional profile. This diversity is important because occupational exposure and access to safety resources vary across professions, work areas, and hospital levels.

The concentration of respondents in the 30-49 age range and with one to ten years of service suggests a workforce with substantial operational experience. At the same time, the broad distribution across emergency, operating, ward, laboratory, pharmacy, outpatient, and other assignments indicates that safety policy should not be limited to direct clinical care. Risk assessment should cover non-clinical and support workers whose tasks may involve chemical exposure, patient transport, security, food service, environmental hazards, and emergency support (Khunti et al., 2021; Rink et al., 2023).

Level of Occupational Safety Practices

Table 2. *Occupational safety practices by dimension*

Dimension	Grand Mean	Rating	Rank
Ergonomics and physical safety	4.43	Always	1
Incident reporting and compliance	4.35	Always	2
Workplace hazard prevention	4.11	Often	3
PPE and infection control	3.74	Often	4
Safety training and preparedness	3.54	Often	5

Ergonomics and physical safety obtained the highest grand mean (4.43), followed by incident reporting and compliance (4.35), both rated Always. The results indicate that workers consistently adjusted workspaces, took breaks to reduce strain, used body mechanics and assistive devices, complied with hospital policies, and

reported accidents and near misses. These strengths reflect a workplace culture in which visible safety procedures and reporting expectations are well established. Such practices support organizational learning and can reduce preventable harm (World Health Organization, 2021).

Workplace hazard prevention was rated Often (4.11). Equipment inspection, safety signage, violence protection, and hazard identification were strong, but handling of chemicals, medications, sharps, and needles was less consistently practiced. These are high-risk processes requiring recurring competency assessment and monitoring. PPE and infection control also received an Often rating (3.74). Hand hygiene and isolation compliance were strong, but the consistent use and immediate replacement of PPE did not reach the highest category. The pattern is consistent with evidence that availability, workload, risk perception, and institutional support affect PPE adherence (George et al., 2023; Houghton et al., 2020).

Table 3. *Selected strengths and improvement priorities in occupational safety practices*

Classification	Indicator	Mean	Rating
Strength	Ensures equipment is safe before use	4.80	Always
Strength	Complies with hospital safety policies	4.78	Always
Strength	Follows safety signage and warning labels	4.65	Always
Strength	Takes short breaks to avoid physical strain	4.65	Always
Priority	Consistently uses appropriate PPE during patient care	3.78	Often
Priority	Applies lessons from safety training	3.67	Often
Priority	Is trained to respond to disasters or outbreaks	3.63	Often
Priority	Attends occupational safety training regularly	3.18	Sometimes

Safety training and preparedness was the lowest dimension (3.54, Often), and regular attendance in occupational safety training was rated only Sometimes (3.18). This is the clearest institutional improvement priority. Workers reported knowledge of emergency procedures and the application of training, but inconsistent attendance may lead to uneven competence across roles and shifts. Continuous refresher training, simulation exercises, protected attendance time, and documentation of competency can strengthen emergency readiness (Trivedi et al., 2022; World Health Organization & International Labour Organization, 2022).

Level of Occupational Safety Resilience

Table 4. *Occupational safety resilience by dimension*

Dimension	Grand Mean	Interpretation	Rank
Adaptive capacity	4.59	Strongly Agree	1.5
Commitment to safety	4.59	Strongly Agree	1.5
Psychological resilience	4.58	Strongly Agree	3
Social and organizational support	4.50	Strongly Agree	4

All four resilience dimensions were rated very highly. Adaptive capacity and commitment to safety obtained the highest grand means (4.59), closely followed by psychological resilience (4.58). Respondents indicated that they adapted to new protocols, worked effectively under pressure, found solutions to safety-related problems, remained calm during stressful situations, recovered after incidents, and maintained focus during emergencies. These findings are consistent with research identifying adaptability, coping, and emotional regulation as central to healthcare worker resilience (Labrague, 2021; McFadden et al., 2021).

Social and organizational support obtained the lowest resilience mean, although it remained very high (4.50). Workers strongly agreed that they could seek help, felt psychologically safe, and perceived institutional concern for well-being. Supervisory support for safety concerns received the lowest item mean within the dimension (4.34), indicating a relative opportunity for stronger leader visibility and follow-through. Supportive supervision and psychological safety encourage communication, reduce stress, and reinforce safety performance (Adekanmbi et al., 2022; Hebles et al., 2022).

Table 5. *Leading indicators within the resilience dimensions*

Dimension	Highest-Rated Indicator	Mean
Psychological resilience	Remains calm during stressful work situations	4.64
Adaptive capacity	Adapts well to new safety protocols	4.61
Social and organizational support	Seeks help from colleagues when needed	4.64
Commitment to safety	Takes responsibility for personal safety	4.66

The pattern suggests that resilience was sustained by both personal agency and collective support. Responsibility for personal safety, willingness to seek help, and adaptability to new protocols indicate a workforce capable of maintaining performance despite changing conditions. From a Job Demands-Resources perspective, these capacities are more likely to remain sustainable when institutions protect workers through dependable supplies, training, communication, and supervisory support rather than relying on individual endurance alone (Bakker & Demerouti, 2017).

Reported Inferential Relationships

Table 6. *Summary of demographic variables reported as related to safety or resilience dimensions*

Profile Variable	Reported Result
Gender	Significant with one or more dimensions
Highest educational attainment	Significant with one or more dimensions
Occupation or profession	Significant with one or more dimensions
Area of assignment	Significant with one or more dimensions
Years of service	Significant with one or more dimensions
Type of hospital	Significant with one or more dimensions
Age	Generally, not significant
Civil status	Generally, not significant

The thesis reported that gender, educational attainment, occupation or profession, area of assignment, years of service, and type of hospital were significantly related to one or more dimensions of occupational safety practices or resilience. Age and civil status were generally not significant. These findings support differentiated programming based on professional preparation, task exposure, unit context, experience, and institutional level rather than assuming that all workers encounter the same hazards and resources.

The supplied results presented these inferential findings narratively and did not include the individual test statistics, coefficients, p-values, affected dimensions, or the reported Pearson coefficient for the direct overall relationship between safety practices and resilience. In keeping with the study's original evidence and the requirement not to fabricate data, the article retains the reported significance classifications without constructing missing numerical values. Future reporting should provide complete coefficient-level tables to support reproducibility and precise policy targeting.

CONCLUSION

Health workers in the Provincial and District Hospitals in Abra demonstrated strong occupational safety practices and very high occupational safety resilience. Ergonomics and physical safety and incident reporting and compliance were the most consistently practiced areas. Workers also showed high psychological resilience, adaptive capacity, social support, and commitment to safety, indicating a positive workplace culture capable of supporting service continuity and quality healthcare delivery.

Nevertheless, the results identified important gaps in regular occupational safety training, consistent PPE use, chemical and sharps safety, participation in audits, and supervisory support. The reported demographic associations further indicate that safety and resilience interventions should be sensitive to professional role, education, assignment, experience, and hospital context. The study contributes localized evidence for rural

hospital management and supports an integrated policy that protects workers physically, strengthens their capacity to adapt, and institutionalizes continuous monitoring and organizational support.

Recommendation

The Provincial and District Hospitals in Abra should adopt and operationalize the proposed Occupational Safety and Resilience Enhancement Policy. Hospital administrators should ensure protected time and mandatory participation in competency-based safety training, uninterrupted access to appropriate PPE, regular drills, non-punitive incident reporting, employee wellness and psychological first aid, active supervisory engagement, and periodic safety audits. Interventions should be tailored to professional roles, assignment areas, years of service, and hospital type. Local government units and the Department of Health should support implementation through funding, technical assistance, capacity building, and evaluation.

Table 7. *Proposed Occupational Safety and Resilience Enhancement Policy matrix*

Policy Area	Core Action	Monitoring Indicator	Frequency
Occupational safety training	Mandatory orientation and annual refresher courses for all health workers	Training coverage and competency records	Annual/Quarterly
Emergency preparedness	Conduct drills for disasters, outbreaks, and workplace emergencies	Number of drills and after-action reports	Quarterly
PPE management	Maintain uninterrupted supply and monitor correct use and replacement	PPE availability and compliance rate	Monthly
Psychological wellness	Provide stress-management activities, counseling, resilience workshops, and psychological first aid	Wellness activities and utilization records	Semi-annually
Incident reporting	Maintain a confidential, non-punitive system for hazards, accidents, and near misses	Number and resolution of reports	Quarterly
Organizational support	Strengthen supervisor communication, teamwork, psychological safety, and employee recognition	Support climate and resilience assessment	Annually
Monitoring and evaluation	Conduct safety audits and annual policy evaluation using established indicators	Occupational safety compliance score	Quarterly/Annual

Future researchers should validate the findings in other provinces and healthcare settings, examine the direct relationship between occupational safety practices and resilience using complete coefficient-level reporting, and consider qualitative or mixed-methods approaches to explain how workers experience training access, PPE availability, supervisory support, and safety culture. Longitudinal evaluation of the proposed policy would also determine whether improvements are sustained over time.

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