Examining the Impact of Ergonomic Practices on Physical Work Performance of Medical Workers in Public Hospitals Within Metro Manila: A Qualitative Study on Medical Personnel's Perspectives

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ABSTRACT

The research examines the influence of ergonomic practices on the physical performance of medical staff in public hospitals in Metro Manila. The study aims to analyze the working conditions using an ergonomic approach, exploring the impact of ergonomics on healthcare workers' performance; their awareness of their ergonomic environment, and the challenges of implementing ergonomic practices. Informants of the study were healthcare professionals through open-ended questionnaires and interviews. Findings revealed that despite a high level of awareness, many participants lacked health education on ergonomics, and some hospital administrators were not implementing ergonomic practices. Factors contributing to poor performance included physical stress, inadequate ergonomic facilities, and a lack of knowledge about good ergonomic practices. The study concluded that effective ergonomic interventions require collaboration and commitment from various stakeholders. By fostering a culture that values ergonomic well-being, hospitals can create a healthy work environment that supports the physical and emotional health of medical staff. The research also highlighted the need for increased investment in technological innovation and adequate budget allocation to support ergonomic workplace design.

Keywords: Ergonomic practices, Physical performance, Healthcare workers, Public hospitals, Metro Manila, Workplace environment

INTRODUCTION

In the past ten years, many organizations increasingly used ergonomics approaches to improve healthcare delivery (Hignett et al., 2013). Since the beginning of the profession, ergonomics had been acknowledged as significant, although advancement and expansion had been sluggish. Building safe workplaces necessitated the incorporation of a variety of essential worker qualities and competencies. The delivery of healthcare was a very multidisciplinary industry that was constantly evolving, which made it more challenging and, to be honest, confusing. The number of studies on ergonomics in the healthcare sector dramatically expanded during the past 50 years (Keebler et al., 2022). In light of this, the workers' physical health was in danger due to the stress of consistently producing effective outcomes and the demanding work environment. According to the World Health Organization (WHO), the healthcare system served as "any organizations, people, or actions whose primary aim was to develop, regenerate, or protect health" (WHO, 2007, p. 2). Therefore, it included measures to change health factors and much more supervising activities to improve health. Employees were a crucial component of healthcare systems; they were the motor that kept the system running, increasing the ergonomic design's significance. Working in the medical field required health workers to treat patients around the facility, especially when the Covid-19 pandemic came into the

scene. The pandemic significantly affected all medical workers. They were forced to work overtime due to the influx of patients that entered their medical facility. With the current situation in the Philippines, they were still required to take extra precautions when handling their patients, especially those with symptoms of Covid-19. When the rise of the pandemic started, these people were required to work double shifts; some also suffered and died from the virus. With that, they also had to endure the heat from wearing personal protective equipment (PPE) together with the high temperature of the country. They needed to have a robust immune system to serve their patients.

Moreover, the study of Ulfa et al., (2022) stated, "Physical workloads are essential factors in the workload of health professionals." Workers with excessive workloads or poor physical health may develop disorders or illnesses like burnout syndrome. A common problem with healthcare workers in hospitals is that they are constantly overworked and understaffed. Most of them work 12-hour shifts with little to no breaks, which may jeopardize their safety and health. Currently, more healthcare workers choose to go abroad for a better life. Compared to their lives in the Philippines, they are well-compensated for work in other countries. Even before the pandemic started, they were constantly exposed to working overtime, which is not compensated enough.

In fact, public hospitals in the Philippines were one of the most active facilities in the country. These facilities charged less than private hospitals and could accommodate more patients. The National Kidney and Transplant Institute was a government-owned hospital in the Philippines. It was located along East Avenue in Quezon City and had a 382-bed capacity for its patients. In the interview with Dr. Rose Liquete, she mentioned, "We have many personnel who go on duty overtime. We make do because this is our work really" (Manila Standard, 2022). It was seen that their employees needed to be more relaxed due to the lack of a workforce. With that situation, more personnel were forced to resign due to poor compensation. People, regardless of the nature of their work, also needed rest.

Workplace ergonomics dealt with making work more accessible and more comfortable for employees, which boosted their overall productivity. It helped employees be less fatigued, improved work quality, and increased employee engagement. Ergonomics comprised five components: safety, comfort, ease of use, effectiveness or productivity, and aesthetics. Regarding integrating the work of the employees, experts focused on these factors. "Workplace ergonomics is fundamentally about creating a better workplace. Jobs created to fit people's abilities provide better work and a better experience for the worker" (Middlesworth, 2022). Medical personnel were tasked to do many things every shift. In their situation, ergonomics was only partially applied in their field.

Some medical personnel were required to carry patients or act fast under challenging situations. They could not prioritize ergonomics in times of urgent patient care. "Evidence supports workplace ergonomics investments to realize performance improvement, improved worker satisfaction, favorable effects on recruiting and retention, and improved patient care quality" (Springer, 2017). In their study, ergonomics had a positive effect on the way their workers performed. Health workers needed to deliver quality care to their patients. It correlated to their satisfaction as they worked in their field. Thus, the researchers came up with this study to know the impact of workplace ergonomics on healthcare workers.

The principles of work known as ergonomics can optimize the efficiency of the current work system by tweaking particular aspects of each employee's employment. The interactions between people, things, processes, and organizations are the subject of ergonomics (International Ergonomics Association, 2010). Ergonomics is developed to ensure simple and effective task execution and lower the chance of injuries, especially those caused by any strenuous physical activity that could injure or irritate the muscles. It aims to make it simpler to design tools, devices, workplaces, and organizations that are convenient for people and keep in mind their abilities and limitations (Hellar, 2020).

In essence, ergonomics is primarily used in businesses and has been associated with increasing employee performance and satisfaction for years. Whereas in theory, the themes were more genetically determined than psychological, the discipline started with a focus on the design of tools and workplaces. Presently, the term "ergonomics" is used to describe all human behaviors that integrate methods. Ergonomists continuously seek comprehensive techniques considering an individual's physical, cognitive, social, and environmental components. Even though ergonomists frequently focus on distinct economic sectors or job responsibilities, these application areas are constantly changing, introducing new ones while shifting the focus of the old ones. As a result, it is now possible to identify four secondary fields of knowledge essential for examining how people and socio-technical systems interact.

Workplace Safety and Comfort

The concept of "workplace" often refers to a space where employees carry out their responsibilities, including work and non-work areas, and the equipment and facilities required to carry out such duties (Chim, 2014). Workplace safety is becoming a top priority for businesses globally. Since safe environments also enhance productivity, employers always look for fresh approaches to keep their front-line, in-office, and remote workers safe and healthy. The safety and comfort of workers entail the development of a safe working environment, safe tools, safety rules, and safe processes to protect employees' health and safety.

Another key point, (Haynes, 2008 as cited in Jacskon, 2020) tried to examine how their comfort influences workers' productivity. As a result, a positive correlation has been found between the physical comfort of a workplace and its effect on employees' productivity. The author's literature review revealed enough data to support the claim that workplace comfort can boost output. However, it was discovered that there needs to be a broadly recognized concept of workplace comfort and a glaring lack of consensus over how office comfort should be weighed.

However, Taiwo (2010) asserts that work environments in organizations are responsible for about 86% of productivity issues. He also noted that work systems impact more than just employees. In another context, an employee's physical and emotional health and lifestyle are controlled by obligations, competency, and cost-effectiveness.

Health Workers and Workplace Ergonomics During the Surge of the COVID-19 Pandemic 2020

Implementing a safe and healthy work environment, safe tools, safety regulations, and safe operations preserves workers' health. The phrase "safety and comfort of workers" is commonly used to describe safety, also known as worker safety and "occupational health and safety. The physical and mental health of the employees is in danger due to the rigorous work environment and pressure to consistently produce effective outcomes (Koinis et al., 2015).

The top priority for many businesses in 2020 has ascended to workplace safety. Organizations need help interacting with their employees due to the COVID-19 pandemic and the proliferation of remote work and dispersed workplaces (Martic, 2020). Workflow adjustments, wearing full PPE, telemedicine, zoom fatigue, the ongoing risk of contracting diseases, and disruptions to specialist training and research needs are familiar sources of anxiety that could contribute to burnout at this time (Bayan et al., 2022). Using a cross-sectional survey, researchers measured burnout and perseverance among 196 Internal Medicine medical trainees. The study emphasizes the difficulties that tertiary hospital-based Filipino doctors encounter due to the Covid-19 pandemic. Filipino healthcare workers were put to the test as the Covid-19 pandemic started. They were exposed to different patients with different needs and experienced burnout as the number of patients increased in the facility. Their workflow has changed since they need to prioritize critical cases, especially those requiring immediate medical attention. Wearing personal protective equipment (PPE) also

burdens them since it is hot inside.

Markedly, health systems are under much stress trying to meet the increased demands and challenges brought on by the pandemic. It was clear that traditional management tactics were being supplanted by more adaptable and imaginative front-line leadership, with enhancements and modifications implemented from the bottom up, drawing on specialist expertise. As a result, adjustments have been made at all health system levels until now, including the rapid adoption of technology, the repositioning of wards for seriously ill patients, and the reunification of recently retired workers. Many employees are now keen to consider how they delivered safe and effective treatment throughout the pandemic's first wave and want lasting change.

Healthcare workers are known to face challenging situations in medical facilities. Based on the research-related literature, healthcare workers experience burnout in their field, which requires them to carry and be responsible for their patients. In the study of (De Leon, 2021), nurses highly experience burnout from exhaustion and disengagement from their patients, in which as their job burnout increases, their performance decreases. Based on the study of (Miruthu, et al., 2018), task sharing, hierarchical task analysis, patient safety, gender-based work, stress, violation, and risk perception are factors that affect the healthcare worker's performance in the hospital. On the other hand, ergonomics also plays a role in the healthcare worker's safety. According to the (International Ergonomics Association), Ergonomics is the scientific discipline concerned with understanding interactions among humans and other elements of a system and the profession that applies theory, principles, data, and methods to design in order to optimize human well-being and overall system performance. Additionally, ergonomics can help reduce the healthcare worker's burden with the support of the management, as this will be implemented in the facility for the betterment of the healthcare workers.

Employee Performance. The performance of employees was defined as completing tasks connected to their jobs (Karakas, 2010). Every business generally had its objectives, tasks, and goals allocated to the employees following their roles before being evaluated to assess performance. When workers were pleased and motivated, it was more outstanding, and management found it easy to motivate top performers to meet the goals and objectives of the organization (Kinicki & Kreitner, 2017). The accomplishment of assignments could only occur when the employee felt equipped to do them, which was achieved through enhanced training programs. Employee performance was also influenced by environmental factors such as workplace culture, organizational policies, job systems, evaluation procedures, power and politics, and group dynamics. If the problems mentioned above existed in the workplace, employee performance suffered, not because they lacked the requisite knowledge, skills, or attitude, but because of these problems. Setting strategic goals, upholding standards, motivating employees, and supervising subordinates to guarantee job completion were the evolving components of employee performance (Tripathy, 2014). In either case, the study (Anitha, 2014) stated that employee engagement and work environment impacted employee performance. Employees needed to have a positive work environment and communicate with each other to promote an excellent working atmosphere in their field of work and employee engagement.

Productivity Performance. The sustainability of every organization relied on productivity performance, which was the volume of output generated by an employee over a specific period (Nasution, Mahargiono, & Soesatyo, 2016). A business could only remain in business if its total productivity performance outpaced its costs. As a result, every company aimed for the highest possible staff productivity. According to the literature, happy and contented employees worked productively (Bawa, 2017). This, in turn, appeared to be influenced by several variables, including financial incentives, appropriate ergonomic intervention (e.g., Bawa, 2017), opportunities for development and training (e.g., Kum et al., 2014; Mahamid, 2013), and job dedication (Khan, 2011).

The work environment significantly impacted an organization, even if these elements were applicable in all situations. The majority of issues that employees encountered were related to the workplace. The degree of

productivity could be raised by creating a positive work environment within the company. Numerous researchers had looked into how the workplace affected employees' productivity since, according to Gonzalez (2011), it significantly impacted how well workers performed and facilitated a proper focus on their work. According to Mohanty, Susmitaparija, and Ghansyamsahu (2012), workplace systems and employee performance were positively intrinsically linked, and any adjustment to the work environment would have an impact on performance.

Similarly, Bakotic and Babic (2013) discovered that workers preferred to work in less unsafe surroundings, similar to how the home environment influenced job satisfaction. Employees found inspiration from environmental factors. Correspondingly, office design affected performance, as mentioned by Amina and Shehla (2009). In addition, Mokaya et al., (2013) said that all those items that interacted with employees and positively or negatively impacted productivity performance included ergonomic systems, procedures, structures, and instruments. It could also be characterized as the setting where work was carried out, significantly influencing how content people were with their work. There was conclusive evidence for this, as research by Olukkaran and Gunaseelan (2013) indicated that an employee's level of performance was favorably impacted by how well they interacted with their workplace. Additionally, the culture of a business affected how motivated its personnel were (Smrita et al., 2010).

Productivity referred to the compensation for a specific input unit. Gaining more value from a given investment meant raising productivity. Will (2018) frequently used the phrase "goods production" to describe this idea. Leonard & Ewan (2018) suggested that it was possible "to upgrade the current processes to the greatest level known, along with more performance without a commensurate increase in costs," first to raise organizational productivity. Organizations had to evaluate performance in connection to any activity's effectiveness. The two ideas were connected, and occasionally, it took work to distinguish them. Simply said, productivity measured the extent to which a goal would be met when executing a particular action successfully. As noted from the findings of Noah and Steve (2012), an organization's level of work satisfaction rose when suitable ergonomic interventions were implemented, eventually attaining organizational goals.

association between workplace ergonomics and employee performance, according to research by (Pickson et al., 2017) on the effect of ergonomics on employee performance in the slaughtering and trimming line of canned food in Ghana. Additionally, it was discovered that the office's physical surroundings and occupants' performance were directly correlated, even though it was noted that comfortability could be arbitrary and that there was no established standard to measure workplace comfort (Haynes, 2014). However, there are numerous studies on what would be considered a comfortable work environment, as seen through various publications, including those by the IEA and other ergonomic associations around the world, that provide the dimensions of a comfortable workplace, furniture, equipment, and even the job itself (Fernandez, 2015).

Furthermore, in the study by Miruthu et al., (2018), job sharing, multilevel task analysis, care coordination, sexual preference work, strain, violation, and risk awareness are the factors that impact healthcare workers' performance at the hospital. Ergonomics intervention can help them alleviate the pain from their jobs.

Risk Assessment. A risk assessment enables us to identify and classify hazards. Additionally, it offers a summary of possible outcomes. The processes and technology contribute to risk identification, evaluation, and reporting in risk assessments. An "essential component" of the risk management process, risk assessment mainly concentrates on the identification and analysis stages (NIST, 2013).

a. Ergonomic Risk Assessment tools. Managing workplace stress in healthcare is critical due to the severity of the issue and its effects. Research has been done to identify the best intervention strategies for healthcare personnel to reduce occupational stress. Most of these studies examine personal and business

intervention initiatives (Marine et al., 2006; Awa et al., 2009; Cunningham et al., 2010; Koinis et al., 2015). According to this researches, organization-directed intervention programs are more effective than person-directed intervention programs.

Studies on balanced workload, fewer professional clashes, better moral support, effective organization, and better leadership advise organizational changes (Burman & Goswami, 2018). They need to offer a clear organizational structure to implement such a system. In order to reduce occupational stress among healthcare employees, a comprehensive, systematic review was conducted (Ruotsalainen et al., 2015). Their review comprised 58 trials with a total of 7188 participants. They concluded that stress could be moderately reduced by relaxation (both mental and physical) and cognitive-behavioral training, as well as by modifying one's work schedule.

Their review, however, found no apparent effects of the organizational intervention on lowering work-related stress. However, they advised that organizational solutions should address specific sources of workplace stress. Studies like those by Burman & Goswami (2018) suggested organizational adjustments such as a balanced workload, fewer professional disputes, more excellent emotional support, better management, and better leadership. However, they needed to provide a clear organizational structure to implement such a system.

b. Enabling Sustainable Human Resource Management. The idea of sustainable human resource management is fuzzy and is continuously being evolved. The definition of the phrase provided by (Van Dam et al., 2017) fully expresses it. They define "sustainable human resource management" as practices that guarantee that workers will have the ability and motivation to continue working in the present and the future. The three essential components of sustainable human resource management—employability, work motivation, and health—were also stressed since they seem essential for maintaining employees' participation in the labor market. Employability is the capacity of an employee to carry out their responsibilities successfully in both their current and future positions, which increases their likelihood of finding employment in both the domestic and international labor markets (Fugate et al., 2014). The term "motivation" refers to the driving forces that direct and motivate labor-related activity (Ybema et al., 2017). Certain of these subjects are generally associated with HRM, but the fact that they are brought up demonstrates the value placed on people as resources that should be developed, fostered, and maintained in a variety of ways as opposed to the "hire and fire" mentality of many businesses prior to legislation and long-term considerations changing employer/employee interactions (Wilkinson and Townsend, 2011).

In light of this, the idea of human resources management (HRM) has also shifted to emphasize sustainability, boosting the idea of sustainable HRM in the literature. Current research demonstrates that most firms' HRM approaches are driven by concerns about efficiency (Lees, 1997; Boudreau & Ramstad, 2005; Boudreau & Lawler, 2014). In other words, the execution of HRM operations (e.g., staff selection, development, and evaluation) strives to increase internal efficiency. Even if it improves organizational efficiency, focusing only on certain HRM tasks may negatively affect third-party interests or stakeholders, such as the well-being of employees, their families, and communities.

Similarly, some academics contend that HRM practices affect externalities, including the environment, society, and humanitarian issues (Mariappanadar, 2003, 2012; Biglan, 2009; Avery & Bergsteiner, 2011). Unwanted results may primarily result from an organization's failure to consider the social cost (material and moral negative consequences it has on society) of its operations and policies. For instance, HRM procedures interfere with employees' everyday lives to meet company goals, which compels them to forgo their extracurricular interests (such as spare time, quality time with family and friends, and such like) (Greenwood, 2002; Mariappanadar, 2012). The negative external pressures have prompted additional talks about sustainable human resource management and expanded the range of efficiency focused HRM operations. To put it another way, researchers use sustainable HRM as a tool to explain the negative

externalities of organizational activities, ensure that social issues are understood, and realize a sustainable social purpose (Mariappanadar, 2012). In the context of the aforementioned developments, sustainable HRM refers to the adoption of HRM methods and practices that not only make economic, environmental, and social goals possible but also allow for the long-term management of the undesirable outcomes and drawbacks both inside and beyond the institution (e.g., Ehnert, 2009; Kramar, 2014; Ehnerta et al., 2016).

Healthcare workers are recognized for facing challenging circumstances in medical facilities. According to the research-related literature, healthcare workers often experience burnout in their field, which demands them to bear responsibility for their patients. In De Leon's study (2021), it was found that nurses frequently experience burnout due to exhaustion and disengagement from their patients, resulting in a decrease in their performance as their job burnout increases. Miruthu et al. (2018) identified factors affecting healthcare workers' performance in hospitals, including task sharing, hierarchical task analysis, patient safety, gender-based work, stress, violation, and risk perception. On the other hand, ergonomics also plays a significant role in ensuring the safety of healthcare workers. The International Ergonomics Association defines ergonomics as the scientific discipline concerned with understanding the interactions among humans and other elements of a system. It is a profession that applies theory, principles, data, and methods to design to optimize human well-being and overall system performance. Furthermore, ergonomics can help alleviate the burden on healthcare workers with the support of management, as this will be implemented in the facility for the betterment of the healthcare workers.

METHODOLOGY

This study utilized the narrative research design to investigate and seek information on ergonomics analysis of workspace comfort and safety among medical personnel in public hospitals in Metro Manila. According to Clandinin and Cornelly, "narrative research" encompassed several methodologies that relied on verbal or written communication and visual representation of people. These methods frequently concentrated on people's lives as a technique of understanding and inquiring into experience through collaboration between researcher and participants, through time, in a place or series of places, and through social interaction with milieus (Clandinin & Cornelly, 2020, p.20). Narrative research was to gather and present a storyline in detail. Researchers presented a person's life experience in a narrative form and discussed its significance with the subject. The narrative research approach often concentrated on investigating a single subject instead of a group. The researcher took on the role of writer for every individual.

Traditional inquiry utilized a narrative research design. According to Creswell (2013), the key elements of a narrative inquiry were the introduction and focus of the study, the data gathering techniques, and the data analysis and interpretation. The researcher aimed to understand the real-life experiences of the research participants within the premises of the hospital through their stories. The researcher sought to unfold the story of the research participants with the problems concerning the ergonomic factors. The researcher chose the narrative inquiry to discover the experiences and understand the meaning of these experiences to collect the necessary data for their topic.

In this study, the researchers selected a total of twenty-five (25) key and five (5) secondary informants who met specific inclusion criteria. These participants were healthcare professionals working in public hospitals in District II of Quezon City, Metro Manila. The researchers targeted individuals in clinical and support roles, including HR and administrative staff, as their contributions were crucial for the provision of standard healthcare services. No other inclusion criteria were enforced. Participation in the study was voluntary. The participants were previously required to review and signed an informed consent form before engaging in face-to-face or online interviews using platforms such as Zoom or Google Meet. To ensure the appropriateness and quality of the data, the researchers employed non-probability sampling techniques, including convenient and judgmental sampling, based on their belief in the participants' expertise and their

understanding of the relationship between workplace safety, comfort, and employee performance.

Data generation involved a variety of methods, including observations, interviews, and document analysis. The researchers utilized an open-ended questionnaire and conducted semi-structured interviews, either individually or in groups, to gather comprehensive and relevant data from the participants. These methods allowed for detailed responses and in-depth perspectives, encouraging participants to share their experiences and insights. Additionally, online interviews were conducted through platforms such as Google Meet, Messenger, and Zoom, providing flexibility and allowing the conversation to adapt based on the interviewees' responses.

Data collection extended beyond participant interactions, with information also gathered from other sources such as books, articles, and previous research published online. The researchers used open-ended questions to elicit narratives and encourage storytelling, ensuring consistency and organization throughout the interview process. Semi-structured interviews, characterized by open questions and the opportunity for deeper exploration of specific topics, were conducted to obtain in-depth information on the analysis of workspace ergonomics and employees' experiences with grievance management practices. The research team adhered to ethical considerations throughout the study, seeking informed consent from participants and emphasizing confidentiality and anonymity. The informed consent form provided participants with a clear understanding of the study's purpose, procedures, risks, and benefits, and emphasized their voluntary participation.

Overall, the researchers employed a comprehensive approach, combining various methods and ensuring ethical practices, to gather valuable and relevant data from the participants.

RESULTS AND DISCUSSIONS

This section unfolds the suggestions made by healthcare workers for enhancing the ergonomic interventions that significantly impact their physical performance. Every ergonomic intervention needs to be treated carefully and correctly. Therefore, it is the management's duty to ensure that healthcare professionals are recognized and prioritized so that they feel valued and at home. Participants A, B, C, F, H, I, M, O, R, U, V, X, and Z said that management in hospitals needs to appropriately implement ergonomic interventions by offering seminars and enhancing tool lifting knowledge. Education and training are essential elements of ergonomic interventions (Burton, 2010, Heidarimoghadam et al., 2022). Ergonomics training worked best with other techniques like workstation redesign and participatory ergonomics interventions (Heidarimoghadam et al., 2022). Participants I, J, K, L, N, P, Q, and Z said that implementing safety measures and physical safeguards can be helpful in terms of the institution's healthy environment. The key participants A, C, and E proved that they implemented continuous monitoring and improvement, people engagement quality, and quality management system.

The ISO 45001:2018 indicates standards for an occupational health and safety (OH&S) management system. It provides guidance for its implementation to allow organizations to provide a healthy and secure environment for employees by preventing work-related injury and illness and proactively improving OH&S performance. It also helps an organization achieve the intended outcomes of its OH&S management system. Consistent with the organization's OH&S policy, the intended outcomes of an OH&S management system include (a) continual improvement of OH&S performance; (b) fulfillment of legal requirements and other requirements; (c) achievement of OH&S objectives.

The key participants ensured they would provide continuous learning for their employees with ergonomics and incorporate more ergonomics in the institution. However, Participants D, E, and G expressed regret over the fact that more manpower is important for the hospital sector since it helps medical facilities manage an increase in patient load, shorten wait times, and deliver timely and effective care. A larger workforce also

makes it possible for the burden to be more evenly distributed, minimizes staff fatigue, and guarantees that healthcare providers can provide high-quality services while upholding patient safety. In response to the statements of Participants A, B, C, and D, Participant E responded that in order to prevent overwork that causes diseases, schedules for each healthcare worker must be managed and set up effectively.

However, despite their suggestions for change, their companies continue to implement ergonomic practices that have a favorable impact on their physical performance. The majority of participants, particularly Participants F and G, stated their resentment that a greater pay would be the solution to all problems. As we all know that healthcare workers here in the Philippines are not well compensated. As warned by Dr. Tony Leachon, a health reform advocate, "Our biggest health care problem is not the pandemic … but the continuous migration of our health care workers, particularly the nurses. This would affect our [Universal Health Care] plans and delivery of efficient services to our patients." (Philippine Daily Inquirer, 2022).

The link between low wage salaries for Filipino healthcare workers and ergonomics is subtle. Salary wages are more directly tied to pay and reward systems within the healthcare industry, whereas ergonomic procedures primarily focus on reducing physical and occupational risks in the workplace to enhance worker safety and well-being. Ergonomics' main objective is to make work environments and task designs as efficient as possible in order to reduce musculoskeletal injuries and increase worker output. However, according to the initial findings, wages are one of the reasons nurses seem to improve in hospitals. According to J. Leigh and R. De Vogli (2016), "Workers earning low wages may be at greater risk for disease and injury than workers earning high wages." Researchers think that low salaries should be included among the psychological elements identified as occupational health concerns, such as long work hours and high job strain. Workplace health and safety are critical components of business success, employee well-being, and overall productivity.

A safe and healthy workplace protects employees from possible risks, promotes good company culture, and increases employee happiness. Implementing effective workplace rules is critical for promoting and sustaining good health and safety standards. However, low salary earnings might indirectly affect healthcare professionals' general well-being, including their access to ergonomic resources, equipment, and interventions. Healthcare institutions may not have the funding to invest in ergonomic upgrades or to offer ergonomic training programs. This might restrict their ability to deliver treatment. In addition, financial strain brought on by lower pay may raise the possibility of physical and emotional exhaustion in healthcare employees, thus aggravating ergonomic concerns. Therefore, even though there is no direct link between low salaries and ergonomics, it is still crucial to address wage issues and guarantee fair compensation for healthcare workers in order to create a favorable environment for the successful implementation and maintenance of ergonomic interventions to support the health and safety of healthcare professionals.

Ergonomic Intervention Procedure – The application of ergonomic procedures was not consistently present in hospitals, even though it contributed to the physical well-being of healthcare workers. Participants explained how adjustable equipment like hospital beds improved their work as they did not have to manipulate them manually. The hospital environment was fast-paced, and urgent care was required to meet patients' needs. As a result, healthcare workers were susceptible to burnout and body aches. Ergonomic practices such as seminars and training helped healthcare workers become more productive in their workplaces. The implementation was necessary as it reduced backaches, body strain, etc. A few participants stated that there was no ergonomics in their hospital. A participant in the emergency department explained that a few pieces of equipment had assisted them with their jobs. In general, the implementation of ergonomic procedures was present in most hospitals as it impacted the employees' performance and their physical well-being in the work environment.

Awareness of Ergonomics – Introducing ergonomics to hospital staff was crucial as it raised their awareness about their rights to a safe and healthy working environment. The knowledge shared by the

participants demonstrated how ergonomics were recognized and utilized in various healthcare contexts. It underscored the importance of risk analyses, preventative actions, incentives, and rewards to motivate employees to adopt suitable ergonomic practices. Everyone, including healthcare professionals and employees, acknowledged the significance of ergonomics in their working environments.

To improve posture, reduce strain, prevent injuries, and promote overall well-being, it mentioned measures such as providing ergonomic seats, adjustable workstations, optimal patient placement, stockpiling supplies, and using assistive devices. The participants also emphasized the importance of cooperation, collaboration, and training initiatives in creating a supportive and safe workplace. Overall, the data underscored the importance of ergonomics in healthcare settings and the efforts being made to promote this aspect of patient care. By learning ergonomic concepts and practices, employees could recognize potential risks, advocate for necessary adjustments, and actively participate in creating a workplace that emphasized their rights and well-being.

Challenges of Ergonomics – Medical workers had varying perspectives regarding the challenges they encountered when ergonomic practices were implemented in their workplaces. Most of them struggled because they lacked sufficient knowledge about it, and resources were scarce. Others hardly paid attention to ergonomic practices because they were too busy and stressed with their work. The importance of ergonomics in the medical industry was to assist every worker in improving their physical well-being through good body mechanics, reducing their risk of developing musculoskeletal conditions or certain injuries, increasing their productivity in all areas of their work, and completing their daily activities more effectively. Additionally, it aimed to reduce fatigue and enhance each employee's mental health. Recognizing the value of ergonomics and taking preventative action to incorporate ergonomic concepts into the organization's policies and practices were critical roles played by management.

This area of study acknowledged that management-level engagement, leadership commitment, and support were necessary to implement ergonomic principles effectively. It highlighted that management should cultivate an ergonomics-friendly culture by raising awareness, providing the appropriate tools, and encouraging staff involvement. Overall, the implementation of ergonomic practices in healthcare helped develop interventions, policies, and procedures that improved the efficiency and well-being of medical professionals.

Addressing Ergonomic Risks: Techniques and Coping Strategies for Healthcare Workers – The risk of burnout among healthcare employees could increase if ergonomic measures were neglected in healthcare environments. Lack of sufficient ergonomic support could exacerbate the already demanding nature of their jobs by causing physical stress, fatigue, and pain. Healthcare companies could reduce the risk of burnout and improve the well-being of their employees by addressing ergonomic concerns through strategies including teaching good body mechanics, installing ergonomic equipment, and encouraging regular breaks. The participants noticed the specific improvements experienced by medical personnel depending on the nature of their work, individual factors, and the extent of Ergonomics interventions implemented in their workplace. Furthermore, by acknowledging the value of ergonomics and taking proactive measures, the medical personnel demonstrated their commitment to the comfort and safety of their employees. This helped create a healthier and more productive workforce and enhanced employee satisfaction, engagement, and loyalty.

Overall, implementing diverse ergonomic techniques and fostering an ergonomically conscious culture was necessary to create safer and healthier hospital work conditions. Employers should create an environment where employees felt comfortable discussing ergonomic concerns and suggesting improvements. Encourage open dialogue about discomfort, pain, or suggestions for ergonomic enhancements. Regular check-ins with employees could help identify and address ergonomic issues promptly. Hospitals could reduce the hazards that employees might suffer by giving priority to ergonomic concepts such as good workstation design,

equipment modifications, and training on ergonomic practices.

Implementing Workplace Guidelines to Improve Organizational Health and Safety – Ergonomics was an established discipline in today's world where professionals with interdisciplinary backgrounds worked together to design socio-technical systems to fit them to human needs and well-being. Healthcare practitioners were often subjected to high levels of stress, lengthy working hours, and emotional difficulties. HR could implement flexible scheduling, access to mental health services, and wellness programs to improve employee health and well-being. Prioritizing employee well-being increased job satisfaction, reduced burnout, and contributed to a healthy work environment, all of which assisted patient care.

The results showed that salaries greatly influenced how well nurses performed and developed in hospitals. J. conducted a study. L. and R. According to De Vogli (2016), workers who earned less money might be more susceptible to illness and accidents than those who earned more money. It was critical to recognize that poor pay caused financial stress and could affect employees' overall health and well-being. In this framework, variables like long work hours and high job strain should be acknowledged as psychological components and occupational health concerns.

It was clear that resolving wage issues was essential for enhancing the overall well-being and performance of healthcare employees when considering the advice of health professionals who emphasized higher compensation. While ergonomic practices primarily focused on reducing physical and occupational hazards, fair and competitive pay was essential for fostering job satisfaction, reducing financial stress, and improving workers' overall health.

The employees' recommendations included having training, seminars, and preventive safety measures addressed through continuous monitoring and improvement measures, implementing quality management measures, and maintaining people engagement quality. These recommendations to solve the problems arising in the institution were beneficial for the employees' confidence, as they felt valued when problems were being addressed.

CONCLUSIONS

The narratives and first-hand accounts of medical staff regarding the application of ergonomic procedures and their effects on work performance were successfully captured in our study, which examined the impact of ergonomic practices on the physical work performance of medical workers in public hospitals in Metro Manila. Ergonomic knowledge was more important than personality and cultural work environment in determining behavior in relation to the application of ergonomics to hospitals. Ergonomics had a significant impact on medical staff at public hospitals. The responses to the questionnaire demonstrated a high degree of knowledge and awareness of ergonomics, but the majority of participants did not receive health education on ergonomics and some hospital administrators were still did not receive health education on ergonomics and some hospital administrators were still not implementing it. Education and training were required, and plans needed to be put into action in this regard.

Several noteworthy findings resulted from our qualitative study, which investigated the effects of ergonomic procedures on the physical job performance of medical staff in Metro Manila public hospitals. Through our study, we were able to pinpoint a number of significant factors that contributed to employees' poor performance. These factors included physical stress and fatigue brought on by long workdays and demanding tasks, poor ergonomic facilities and equipment, a lack of knowledge about good ergonomics practices, difficulties in maintaining a healthy work-life balance, and a need for better resources and support to encourage their physical well-being.

The evaluation of the healthcare personnel's performance in light of the evaluation was done concerning the

impact of workplace ergonomics. It was discovered that the workplace ergonomics variables, such as ergonomic equipment designed to aid their bodies to prevent strains, impacted employees' performance. All of these elements had a substantial influence on employees' performance, which called for different stakeholders to consider these aspects when making decisions about the overall performance of the institutions and the welfare of the employees.

The degree of workplace ergonomics knowledge among employees in the healthcare industry was shown to be somewhat low. This was the case for many developing nations, including the Philippines, where the process was hampered by poverty and technical sluggishness. All parties involved with this issue needed to highlight the need to hold training and seminars for both employers and employees in order to raise strong awareness of the difficulties surrounding workplace ergonomics and bring about positive improvements.

Budgetary constraints, technical limitations, and outdated hospital designs were considered significant obstacles to ergonomic workplace design at public hospitals. The administration of these public hospitals should allocate a sufficient budget and make significant investments in technological innovation to enhance the needed status of the ergonomics considerations and ensure that the workplace ergonomics design was followed.

This study clearly showed that effective ergonomic intervention implementation required the cooperation and commitment of several stakeholders, including hospital administration, supervisors, and staff. Hospitals could create a healthy and long-lasting work environment that supported medical staff's physical and emotional health by developing a culture that valued ergonomic well-being. It pointed out the need to take action on specific ergonomic hazards encountered by medical employees. Hospitals could provide a safer and more supportive work environment and reduce the incidence of job-related injuries and musculoskeletal diseases among medical staff by implementing comprehensive ergonomic measures.

It further illustrated the importance of explaining ergonomic advice and standards to medical professionals to ensure their knowledge and compliance. Hospitals could empower staff members to preserve their health and well-being while providing high-quality patient care by giving them the proper training and information on ergonomic concepts and practices.

It also suggested that healthcare institutions needed to improve workplace ergonomics and raise public awareness of more ergonomically sound workplace designs. Additionally, there was a need for increased spending on technical development to assist workplace ergonomics and for the allocation of adequate financial resources to support workplace ergonomic design. The research recommended that workplace ergonomics be considered in order to enhance employee performance. These findings drew the attention of all interested parties, particularly healthcare institutions, who were encouraged to consider workplace ergonomics factors while evaluating the performance of their personnel.

RECOMMENDATIONS

The findings of the present study have led to several recommendations for future action. First, for hospitals and institutions, the introduction of an organizational ergonomics program could be a significant step forward. This would ensure the integration of ergonomic principles throughout the organization, enhancing the existing system. To identify areas for improvement, comprehensive ergonomic assessments of workstations, equipment, and processes should be carried out. A culture of collaboration and open communication among all stakeholders is also vital, as it encourages the sharing of knowledge and perspectives, thereby contributing to the program's effectiveness. In addition, the development and implementation of comprehensive ergonomic policies and procedures across all departments can create a safer and more ergonomic work environment. Turning to human resource practitioners, the creation of a program that integrates ergonomic practices such as regular training and awareness throughout the

organization is recommended. This would improve the physical job performance of medical professionals since it could help medical personnel understand the importance of ergonomics. Occupational health experts should be involved in assessing workstations and providing advice on implementing ergonomic practices. If ergonomic modifications are needed, comprehensive ergonomic standards and recommendations should be adopted. Furthermore, tracking and evaluation tools for ergonomic operations should be used to ensure continuous development. The subsequent research should focus on lowering potential risks through the development of programs and their adaptation to the system. Researchers may find a wealth of information from the study's conclusions.

Notably, the Department of Labor and Employment (DOLE) should consider regularly reviewing and updating standards to reflect the latest ergonomic research findings and technological advancements. Additional measures should be taken to ensure that ergonomic practices comply with legal standards in healthcare settings. Penalties or consequences for non-compliance could be enhanced to motivate hospitals to prioritize ergonomic measures. Comprehensive guidelines and materials, especially for healthcare institutions and staff, could facilitate the adoption of ergonomic practices. The rights and welfare of healthcare workers should be promoted within the broader labor system.

Research focusing on ergonomics in healthcare settings should also be promoted and funded. Finally, for other researchers, it might be beneficial to evaluate the impact of ergonomic interventions on physical work performance using objective metrics. Comparative studies in various healthcare settings can help identify potential variations in ergonomic challenges and associated solutions. The influence of psychological factors on the relationship between ergonomic practices and physical work performance should be investigated. In conclusion, the study of ergonomics in healthcare settings can be promoted by fostering interdisciplinary collaborations between academics, medical professionals, occupational health specialists, and technologists.

REFERENCES

1. ACHS (Australian Council on Healthcare Standards). (2013). Standards for health service organizations.
2. Afana A, Ghannam J, Ho EY, Al-Khal A, Al-Arab B, Bylund CL. Burnout and sources of stress among medical residents at Hamad Medical Corporation, Qatar. East Mediterr Health J. 2017 Feb 21;23(1):40-45. doi: 10.26719/2017.23.1.40. PMID: 28244060.
3. Akafu, C. D. (2022). Occupational health and safety in healthcare settings: A global perspective.
4. Alexandria, E. (2016). Mental health in the workplace.
5. Andersen, L. L. et al. (2019). Patient transfers and risk of back injuries in healthcare workers: Prospective cohort study.
6. Anitha, J. (2014). Determinants of employee engagement and their impact on employee performance.
7. Awa, W. L., et al. (2009). The impact of leadership and quality climate on hospital employees' commitment to service quality.
8. Azman, A. H. et al. (2016). Ergonomics in the workplace: A review.
9. Baker, G. R., Norton, P. G., Flintoft, V., Blais, R., Brown, A., Cox, J., … & Workman, D. (2004). The Canadian Adverse Events Study: The incidence of adverse events among hospital patients in Canada. Canadian Medical Association Journal, 170(11), 1678-1686.
10. Bakotic, D., & Babic, T. (2013). Design of the work environment and employee satisfaction.
11. Bayan, M. M., Subhan, S. A., & Awang, H. (2022). Burnout and resilience among medical trainees in a tertiary hospital in the Philippines during the COVID-19 pandemic. Journal of Medicine and Life, 15(1), 122-130.
12. Boudreau, J. W., & Ramstad, P. M. (2005). Talentship, talent segmentation, and sustainability: A new HR decision science paradigm for a new strategy definition.
13. Burman, R., & Goswami, A. (2018). How individual and organizational interventions can reduce burnout in healthcare professionals.

14. Chanchai W, Songkham W, Ketsomporn P, Sappakitchanchai P, Siriwong W, Robson MG. The Impact of an Ergonomics Intervention on Psychosocial Factors and Musculoskeletal Symptoms among Thai Hospital Orderlies. Int J Environ Res Public Health. 2016 May 3;13(5):464. doi: 10.3390/ijerph13050464. PMID: 27153076; PMCID: PMC4881089.
15. Chim, T. M. (2014). The safety implications of office workstation design. Safety Science, 62, 9-15.
16. Chim, T. W. (2017). Physical environment and its impact on hospital performance.
17. Cunningham, C. E., et al. (2010). Modifiable risk and protective factors for depressive symptoms in children exposed to intimate partner violence.
18. DeNisi, A. S., & Pritchard, R. D. (2006). Performance appraisal, performance management, and improving individual performance: A motivational framework.
19. Dul J, Bruder R, Buckle P, Carayon P, Falzon P, Marras WS, et al. A Strategy for
20. Ehnert, I. (2009). Sustainability and human resource management: Reasoning and applications.
21. Ehnert, I., et al. (2016). Reporting on sustainability and HRM: A comparative study of sustainability reporting practices by the world's largest companies.
22. Ewnetu, D. G. (2022). The impact of occupational risks on health workers in low- and middle-income countries: A scoping review.
23. Fleury-Bahi, G., Felonneau, M. L., Marchand, D., & Hanappe, P. (2015). Processes of place identification and residential satisfaction. Journal of Environmental Psychology, 42, 143-157. doi: 10.1016/j.jenvp.2015.03.001
24. Fugate, M., et al. (2014). The process of employability enhancement: A sustainable human resource management perspective.
25. Greenberg, J. (2002). Who stole the money, and when? Individual and situational determinants of employee theft.
26. Hellar, F. (2020). Ergonomics: Definition, history, and fields of application. In Ergonomics: How to Design for Ease and Efficiency (pp. 1-12). Springer.
27. Herzberg, F. (1959). The motivation-hygiene concept and problems of manpower.
28. Hignett, S., Lang, M. H., & Pickup, L. (2013). Occupational health in the NHS—how far have we come? Healthcare, 1(1-2), 30-46.
29. Human Factors/Ergonomics: Developing the Discipline and Profession. Ergonomics 2012;55(4):377-95.
30. International Ergonomics Association. (2010). What is ergonomics? Retrieved from https://www.iea.cc/what-is-ergonomics/
31. Jackson, T. (2020). The relationship between comfort and productivity in the office. Workplace Solutions, 4(1), 1-5.
32. Johnson, S. A., & Brown, S. C. (2019). Ergonomic Awareness and Its Impact on Workplace Health and Productivity: A Literature Review. Journal of Occupational Health and Safety, 2019.
33. Judith, M. (2016). Mental health in the workplace: Situation analysis for Kenya.
34. Karakas, A. (2010). The human factor: Igniting employee passion and performance.
35. Karwowski, W., & Salvendy, G. (2011). Macroergonomics: Theory, methods, and applications. CRC Press.Selamat, N. H. (2013). Impact of ergonomic risk factors on work-related musculoskeletal disorders (WRMSDS) among healthcare professionals: A systematic review. Journal of Engineering and Applied Sciences, 8(9), 707-712.
36. Keebler, J. R., Gillen, M., & Landis, B. C. (2022). Physical ergonomics in healthcare. In Ergonomics in healthcare and medical devices (pp. 17-44). CRC Press.
37. Kinicki, A., & Kreitner, R. (2017). Organizational behavior: Key concepts, skills & best practices.
38. Koinis, A., et al. (2015). The impact of healthcare workers' job environment on their mental-emotional health: The case of Greece.
39. Koinis, A., Giannou, V., Drantaki, V., Angelaina, S., Stratou, E., Saridi, M., … & Theodorou, M. (2015). The impact of healthcare workers job environment on their mental-emotional health. Coping strategies: The case of a local general hospital. Health Psychology Research, 3(1), 1984.
40. Kramar, R. (2014). Beyond strategic human resource management: Is sustainable human resource

management the next approach?
41. Lazarus, R. S., & Folkman, S. (1987). Transactional theory and research on emotions and coping. European Journal of Personality, 1(3), 141–169. https://doi.org/10.1002/per.2410010304
42. Lees, R. (1997). Sustainable development: Towards a genuinely ecological management.
43. Leigh JP, De Vogli R. Low Wages as Occupational Health Hazards. J Occup Environ Med. 2016 May;58(5):444-7. doi: 10.1097/JOM.0000000000000717. PMID: 27158950.
44. Lundstrom, T. (2012). The relationship between physical work environment and job satisfaction: A study of Swedish hospital nurses.
45. Mahboobi, H., Nabavi, S. M., & Vakili, M. (2012). Study of occupational accidents in medical sciences university of Tabriz. Journal of Safety Promotion and Injury Prevention, 1(1), 24-28.
46. Mahmud, K., Razak, A. A., Syed, I. A., & Marzuki, N. A. (2015). The impact of ergonomics training program on employee performance. Procedia Manufacturing, 2, 176-181.
47. Manila Standard. (2022, January 4). National Kidney and Transplant Institute, Ayala Corp., MCX highlight extraordinary efforts in battling COVID-19. Manila Standard.
48. Mariappanadar, S. (2003). Ethical decision making in public human resource management: Framework and case study.
49. Mariappanadar, S. (2012). Sustainable human resource management: A conceptual framework.
50. Mariappanadar, S. (2013). Sustainable HRM: Strategies and practices for responsible and ethical organizational systems.
51. Marine, A., et al. (2006). The efficacy of interventions to reduce occupational stressors: A systematic review.
52. Martic, M. (2020). How the pandemic will change the way we work. World Economic Forum. Retrieved from https://www.weforum.org/agenda/2020/04/covid19-coronavirus-pandemic-changing-way-we-work/
53. Maslow, A. H. (1954). Motivation and personality.
54. McCormick, E. J., & Sanders, M. S. (2011). Human factors engineering and ergonomics: A systems approach.
55. McKenney, B. (2021). Healthcare organizations focus on risk management and compliance.
56. McVeety, J., Gerberich, S. G., Alexander, B., Church, T., & McGovern, P. (2015). Healthcare provider mental health, stress, and burnout. Occupational Medicine, 65(1), 48-53.
57. Menon, M. (2015). Occupational health and safety issues among health care workers in the context of climate change: A study from a tertiary care hospital in India. Indian Journal of Occupational and Environmental Medicine, 19(3), 145-150.
58. Middlesworth, M. (2022). Workplace ergonomics and its impact on productivity. Ergonomics Plus.
59. Miruthu, A. A. et al. (2018). Factors influencing healthcare workers' performance at a hospital.
60. Moore, S., Kawachi, I., & Hone, T. (2017). Bloodless revolution? Social epidemiology and the future of health inequalities research. Epidemiology and Community Health, 71(2), 112-113.
61. Mpwanya, M., & Dockrat, A. (2020). Learning styles and demographic profiles of logistics students in South Africa. The International Journal of Management Education, 18(1), 100369.
62. Nasution, M., Mahargiono, S., & Soesatyo, Y. (2016). Improving productivity performance by using balance scorecard approach in PT KAI.
63. Neag, C. D. (2017). Staff safety, satisfaction and retention: A causal-comparative study of workplace health interventions. International Journal of Workplace Health Management, 10(5), 396-414.
64. News, E. (2022, November 20). Taking care of HCWs. Philippine Daily Inquirer. https://opinion.inquirer.net/158880/taking-care-of-hcws
65. Noah, B. S., & Steve, W. J. (2012). The effects of job satisfaction and ergonomic intervention on worker performance.
66. Norwich, E. (2021). Occupational safety and health management in healthcare organizations.
67. Pickson, R. B., et al. (2017). Ergonomic intervention on employee performance: A case study in a canned food factory.
68. Pradhan, R. K., & Jena, L. K. (2016). Performance management practices and employee performance.

69. Rahmah, M., Nusantara, T., Lestari, D., & Dahlan, J. (2022). Analysis of the problem-solving ability of senior high school students based on Kolb's learning style. Journal of Physics: Conference Series, 2198(1), 012019.
70. Ruotsalainen, J. H., et al. (2015). Workplace interventions for preventing work disability.
71. Sasaki, M., Kitaoka-Higashiguchi, K., Morikawa, Y., & Nakagawa, H. (2009). Relationship between stress coping and burnout in Japanese hospital nurses. Journal of Nursing Management, 17(3), 359–365. https://doi.org/10.1111/j.1365-2834.2008.00960.x
72. Springer, P. J. (2017). Ergonomics in healthcare: improving quality of care and quality of life. Journal of Healthcare Risk Management, 36(4), 37-43.
73. Taiwo, A. A. (2010). Ergonomics and human factors in safety management. In Safety and Health for Engineers (pp. 227-242). Wiley.
74. Tarus, D. K. (2011). Effects of motivation on employee performance: A case study of Kenya Pipeline Company.
75. Ulfa, M., Hakim, A. R., & Fitriani, A. (2022). Workload and work fatigue towards burnout syndrome on healthcare professional. Journal of Psychological Sciences, 1(1), 11-17.
76. Ulrich, R. S. (2004). The role of the physical environment in the hospital of the 21st century: A once-in-a-lifetime opportunity.
77. Van Dam, K., et al. (2017). Sustainable human resource management: A conceptual and exploratory analysis from a paradox perspective.
78. WHO (World Health Organization). (2014). Occupational health: A manual for primary health care workers.
79. World Health Organization. (2007). Everybody's business: Strengthening health systems to improve health outcomes: WHO's framework for action. World Health Organization.
80. Yassi, A., Lockhart, K., & Sykes, C. (2017). The hidden epidemic of musculoskeletal injuries: The burden in developing countries. Injury Prevention, 23(2), 72-73.