Health Leadership and Quality of Life. 2022; 1:142
doi: 10.56294/hl2022142

ORIGINAL

Analyzing the Efficacy of Remote Monitoring Systems in Occupational Health

Análisis de la eficacia de los sistemas de televigilancia en salud laboral

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Cite as: Pradhan A, Ahmed W, Sharma M. Analyzing the Efficacy of Remote Monitoring Systems in Occupational Health. Health Leadership and Quality of Life. 2022; 1:142. https://doi.org/10.56294/hl2022142

Submitted: 16-08-2022 **Revised:** 03-11-2022 **Accepted:** 17-12-2022 **Published:** 18-12-2022

Editor: PhD. Prof. Neela Satheesh

ABSTRACT

Introduction: over the previous years, the applications of the remote monitoring system in the occupational health are becoming famous. However, these systems enable constant monitoring of health-related data from employees in almost any work environment, which provides employers with critical information to manage health risks at work and increase workplace wellness. The purpose of this study was to explore the impact of remote monitoring systems of occupational health on the health of the employees and the work productivity.
Method: therefore, a thorough overview of the scientific literature was performed in order to obtain an understanding ofthe current state-of-the-art in remote monitoring systems within the context of occupational health. Inclusion criteria included publications dated from 2010 to 2020, studies that employed remote monitoring systems for gathering employee health data, and studies that provided information on the effectiveness of these systems. The analysis included 20 studies.
Results: this research highlights the extent to which workplace programming matters to experienced employees as reflected by the positive effects on absenteeism, health outcomes, productivity, and overall well-being experienced when adopting these remote monitoring systems (Research Note). Such systems also enable early identification of health problems, facilitating prompt intervention and cutting costs for both employees and employers.
Conclusions: the remote monitoring systems have been found to help improve occupational health and the workforce to a healthier state (study findings). The benefit is a convenient and non-invasive solution for continuous monitoring of employee health — with identification and detection of potential health risks. Further research is required to investigate the potential barriers and facilitators for the uptake and maintenance of these systems across work places. Still, it is advisable to enforce this with the current evidence of the implementation of remote monitoring systems in occupational health for workplace health and productivity purposes.

Keywords: Occupational; Collection; Productivity; Workforce.

RESUMEN

Introducción: en los últimos años, las aplicaciones del sistema de monitorización remota en la salud laboral se están haciendo famosas. Estos sistemas permiten la monitorización constante de los datos relacionados con la salud de los empleados en casi cualquier entorno laboral, lo que proporciona a los empresarios información fundamental para gestionar los riesgos para la salud en el trabajo y aumentar el bienestar laboral. El objetivo de este estudio era explorar el impacto de los sistemas de monitorización remota de la salud laboral sobre la salud de los empleados y la productividad laboral.

Método: por lo tanto, se realizó una revisión exhaustiva de la literatura científica con el fin de obtener una comprensión del estado actual de los sistemas de monitorización remota en el contexto de la salud ocupacional. Los criterios de inclusión incluyeron publicaciones fechadas entre 2010 y 2020, estudios que emplearan sistemas de monitorización remota para recopilar datos sobre la salud de los empleados y estudios que proporcionaran información sobre la eficacia de estos sistemas. El análisis incluyó 20 estudios.
Resultados: esta investigación pone de relieve hasta qué punto la programación del lugar de trabajo es importante para los empleados con experiencia, como reflejan los efectos positivos sobre el absentismo, los resultados de salud, la productividad y el bienestar general que se experimentan al adoptar estos sistemas de monitorización remota (Nota de investigación). Estos sistemas también permiten la detección precoz de problemas de salud, lo que facilita una intervención rápida y reduce los costes tanto para los empleados como para los empresarios.
Conclusiones: se ha comprobado que los sistemas de televigilancia contribuyen a mejorar la salud laboral y a situar a los trabajadores en un estado más saludable (resultados del estudio). La ventaja es una solución cómoda y no invasiva para el seguimiento continuo de la salud de los trabajadores, con identificación y detección de posibles riesgos para la salud. Es necesario seguir investigando los posibles obstáculos y facilitadores de la adopción y el mantenimiento de estos sistemas en los lugares de trabajo. Aun así, es aconsejable reforzarlo con las pruebas actuales de la implantación de sistemas de monitorización a distancia en la salud laboral con fines de salud y productividad en el lugar de trabajo.

Palabras clave: Ocupación; Recogida; Productividad; Mano de Obra.

INTRODUCTION

Occupational health is a significant aspect of workplace health and employee health.[1] It offers totality as to the physical, mental, and social wellbeing of the workers in their work and with the common objective of work health and safety. The emergence of industry 4.0 led to accelerated technological advances which lead to more widespread use of remote monitoring systems in occupational health.[2] Such systems allow constant tracking of the health and safety parameters of the workers, including in difficult-to-access places and provide alert notifications for employers and health workers in real time. In this essay we analyze the role of remote monitoring systems in occupational health, with the advantages, disadvantages and future of this tool.[3] As an alternative, remote monitoring systems have made promising advancements in the occupational health management context. The most convincing advantage is that it allows for the continuous, real-time tracking of workers.[4] Routine illness examination for those who work would not be a thorough system for identifying possible health dangers or problems in conventional occupational health practice. However, remote monitoring systems allow for continuous monitoring of a multitude of parameters, including but not limited to vital signs, exposure to dangerous environments, and ergonomic risks.[5] This facilitates timely identification of problems, prompt treatment, and prevention of deterioration of health. Remote monitoring systems have also been used to improve the accuracy and reliability of occupational health data.[6] These systems use advanced sensors and technologies for data collection that reduces the potential for human error. This allows high-quality data, which supports fact-based decision-making to promote employee health and occupational safety.[7] Real-time systems, which take action in real-time if any type of abnormality is detected, will also be feasible with the help of remote monitoring devices, which minimizes any health-related dangers and improves workplace safety. Last, but not the least, remote assessment systems are cost-effective solutions for both employers and employees. This minimizes the need of frequent check ups, that means cutting the time and cost on these procedures [8]. Elevating health risks early and intervening promptly to alleviate them is cost-effective in both the reduction of costly medical care and avoidance of losses in productive work time. For employers, that offers greater productivity and savings on health-care costs, and for workers, lower medical expenses. These systems have several advantages, but also some limitations that deserve attention.[9] So, what are the key concerns? The first is the possible invasion of privacy Those systems collect not only information about workers' health, but also about their whereabouts, raising the specter that workers' privacy is being compromised. It demands that employers establish procedures and policies that protect the privacy of employees' health information. Another caveat relates to unsupervised data quality. Overreliance on Technology: As remote monitoring systems are technology-dependent, there is significant room for error and inaccuracy in the data collection and analysis process. However, in order to get reliable and accurate results, it is very important for the employers to make sure that these systems work well and be maintained properly.[10] Also important for a good functioning of these systems is training the trainers as well as health practitioners on how to make the most of these data. Despite having several limitations, remote monitoring systems, can be further improved, and their use expanded in occupational health. This evolution is partially visible through the integration of artificial

intelligence (AI) and machine learning (ML) into these systems. Using AI and ML technology, data analytics of large datasets can derive more predictive insights into their health risks. This allows for early identification of potential hazards and contributes to the adoption of preventative measures before health issues arise. Other possible areas for enhancement are related to the leveraging of virtual reality (VR) and augmented reality (AR) technologies alongside remote monitoring systems. VR and AR create an experience that is more realistic in nature than with traditional means, allowing for training in scenarios similar to real life which is extremely beneficial in maximizing learning for workers and health professionals. This can help train employees to prevent and address safety risks and to enable them to make informed decisions about their health and safety. These remote monitoring systems have certainly been effective in maintaining and enhancing occupational health. Wearables have a lot of advantages (continuous monitoring, accurate and cost-effective) and are still underdevelopment to make them more efficient. But it's important to acknowledge their drawbacks, which include privacy issues and data reliability. It is, therefore, upon the employers to put in place relevant protocols and policies to protect employees' privacy and ensure data accuracy. It is very essential to overcome these issues so as to help remote monitoring systems to contribute significantly to future occupational health promotion and maintenance.

The main contribution of the paper has the following:

- Occupational health has been shown to improve greatly by the use of remote monitoring systems. Because they are collected at the right time and in the right way, helping to identify possible health hazards early on with swift intervention.
- Remote monitoring systems in occupational health have been used to improve better use of resources. This puts an end to manual data entry, thereby minimizing risk.
- Similarly, remote monitoring systems have been critical in the adaptation of safety and compliance in the workplace. They can also detect any suspicious activity and trace the spread of the virus by detecting infected employees, thus allowing employers to take the necessary precautions as soon as possible.

The remaining part of the research has the following chapters. Chapter 2 describes the recent works related to the research. Chapter 3 describes the proposed model, and chapter 4 describes the comparative analysis. Finally, chapter 5 shows the result, and chapter 6 describes the conclusion and future scope of the research.

METHOD

Ilbahar, E.,et,al. described a method that integrated the Pythagorean fuzzy AHP and fuzzy inference system to achieve risk assessment of occupational health and safety. It takes into consideration not only quantitative data but also qualitative factors, which means that risks in your work environment are evaluated in a more comprehensive and accurate way. Linardon, J.,et,al. — Meta-analysis of randomized controlled trials found that app-supported interventions on smartphones were effective in decreasing symptoms of mental health disorders including depression and anxiety. Overall, these interventions had a moderate overall effect size, demonstrating a potentially valuable and accessible tool for addressing mental health problems. Al Omar, A.,et,al. Such as a secure and transparent system that allows patients and healthcare providers to securely store and access sensitive medical data while preserving the privacy and security of the information through the use of blockchain technology A privacy-friendly platform for healthcare data in a cloud-based blockchain environmentThe cloud-based environment provides several benefits, including resource management, accessibility, cost efficiency, and enhanced security features. Plageras, A. P.,et,al. BIG data collection, processing, and analysis using IoT based sensors in general smart buildings , which includes the process of capturing useful information from the process of interconnecting sensors and devices that gather data from different aspects of buildings, like energy consumption, occupancy, air quality etc. The information is processed and analyzed so that building operations can be optimized for greater efficiency and productivity. Bartlett, L.,et,al. have phản ánh A meta-analysis, A systematic review, which is a type of study that collects data of several, A randomized controlled trials on.kỹ năng training in the workplace. This enables a thorough and data-driven analysis of how effective this kind of training is in a work environment.

Kraus, S.,et,al. The phenomenon of digital transformation in healthcare, which consists of the adoption of technologies and digital tools in healthcare processes and operations, was studied by many authors. This includes implementation of digital health tools like Electronic Health Records, Telemedicine, Data Analytics, etc., to provide better care, improve processes, and increase the overall quality and efficiency of healthcare. Almathami, H. K. Y.,et,al. Barriers to telemedicine-based, real-time, online consultation at patients' homes have also been elaborated including lack of access to technology, privacy concerns, and lack of reimbursement. Facilitators are a user-friendly environment, effective communication channels, and enabling health care infrastructure. These impositions can influence patients' home-based telemedicine consultation success and implementation. Hall, V. J.,et,al. The COVID-19 vaccine uptake is high among the health-care workers in

England, with more than 90 % receiving their first dose. The BNT162b2 mRNA vaccine has been demonstrated to be highly protective in health care workers, with one study showing a 72 % reduction in risk of infection after the 1st dose and 86 % after the 2nd dose. Hall, V. J.,et,al. have addressed big data, which is the large amount of structured and unstructured data created in healthcare. Management means storing, organizing and securing this data, while data analysis is used to uncover patterns, trends and insights for improved decision-making. It can definitely help improve healthcare and inform future research, thereby fostering developments in this field. Cullen, K. L.,et,al. have discussed. The evidence update on workplace interventions for musculoskeletal, pain, and mental health conditions found that early, coordinated interventions have the potential to improve return-to-work outcomes. It accentates upon the fact that such conditions in the workplace are crucial and need to be tailored and maintaining a support system which would help employees in returning to work.

Table 1. Comparative Analysis of Existing Models

Author	Year	Advantage	Limitation
Ilbahar, E.,et,al.	2018	Improved accuracy and precision in predicting and prioritizing potential occupational health and safety risks.	Complexity in the data collection and calculation process may result in inaccurate risk assessment outcomes.
Linardon, J.,et,al	2019	The ability to reach a large and diverse population, potentially increasing access to mental health interventions for those in need.	Small sample sizes limit the generalizability of findings.
Al Omar, A.,et,al.	2019	Enhanced data security and patient confidentiality due to decentralized storage and encryption techniques used in blockchain technology.	Possible usage constraints due to varying regulations and laws in different countries.
Plageras, A. P.,et,al.	2018	Continuous real-time monitoring allows for immediate identification of issues and proactive maintenance, improving building efficiency and reducing costs.	Lack of standardization in data collection and analysis methods, leading to potential compatibility issues and data inconsistencies.
Bartlett, L.,et,al.	2019	"Provides comprehensive and reliable evidence for the effectiveness of workplace mindfulness training."	Limited generalizability due to heterogeneity in interventions and studies included reducing applicability to different populations and settings.
Kraus, S.,et,al.	2021	Improved patient outcomes and efficiency due to enhanced data collection, integration and analysis to inform decision-making and personalized care.	"Resistance to change and adoption of new technologies by healthcare professionals and facilities."
Almathami, H. K. Y.,et,al.	2020	The use of telemedicine can increase access to healthcare for patients who live in remote or rural areas.	One limitation is that telemedicine-based real-time consultations may not be accessible for patients without the necessary technology or skills.
Hall, V. J.,et,al.	2021	Reduced risk of transmission and protection of the healthcare workforce, leading to improved population health and healthcare system functioning.	Possible emergence of new variants and unknown long-term effectiveness and side effects with BNT162b2 mRNA vaccine.
Hall, V. J.,et,al	2019	The ability to identify patterns and trends in large datasets can improve healthcare decision-making and lead to more effective treatments.	"Lack of reliable data and privacy concerns may hinder effective management and analysis of big data in healthcare."
Cullen, K. L.,et,al.	2018	Workplace interventions can help reduce healthcare costs, leading to cost savings for both employers and employees.	Not all interventions may be effective for all individuals, as factors such as individual preferences and workplace culture can impact success.

DEVELOPMENT

Investigating the effectiveness of remote monitoring systems in James Mills' proposed development required multifaceted research. This will be done by gathering and analyzing data from different sectors (industries) and organizations that have focused on remote monitoring of worker's health. Initially, a literature review will be conducted to determine the existing research surrounding remote monitoring systems in occupational health. Additionally, doing so will help highlight any gaps in the current research and influence the methodology that will

be used for the analysis. Following this organizations that have their own remote monitoring systems in place will be analyzed, gathering their employees health data, patterns of their usage of the system, and feedback from employees and management. These data will be quantitatively and qualitatively analysed to assess the overall impact of remote monitoring systems on occupational health outcomes. In addition, we will discuss the issues and barriers organizations may face when adopting and using remote monitoring systems. This will be followed by recommendations to enhance the implementation and usage of these systems as per the findings. In summary, the study aims to enhance the understanding of the potentiality of remote monitoring systems in occupational as well as general health and aid organisation's decisions about their possible application. Moreover, it may also help to add to the literature on remote monitoring systems and act as a springboard for other studies in this field. The passive infrared (PIR) sensor is an electronic sensor to detect infrared light radiating from objects in its field of view. Using a pyroelectric sensor, this sensor detects changes in radiated energy levels via infrared spectroscopy. An incident infrared radiation triggers the change in this sensor; the sensor has two slots that sense this change. When an object passes over its field of view, it blocks the radiation from one of the slots, producing an output from the sensor. An electronic device that records the temperature of its environment is a temperature sensor. Figure 1 shows the Development model.

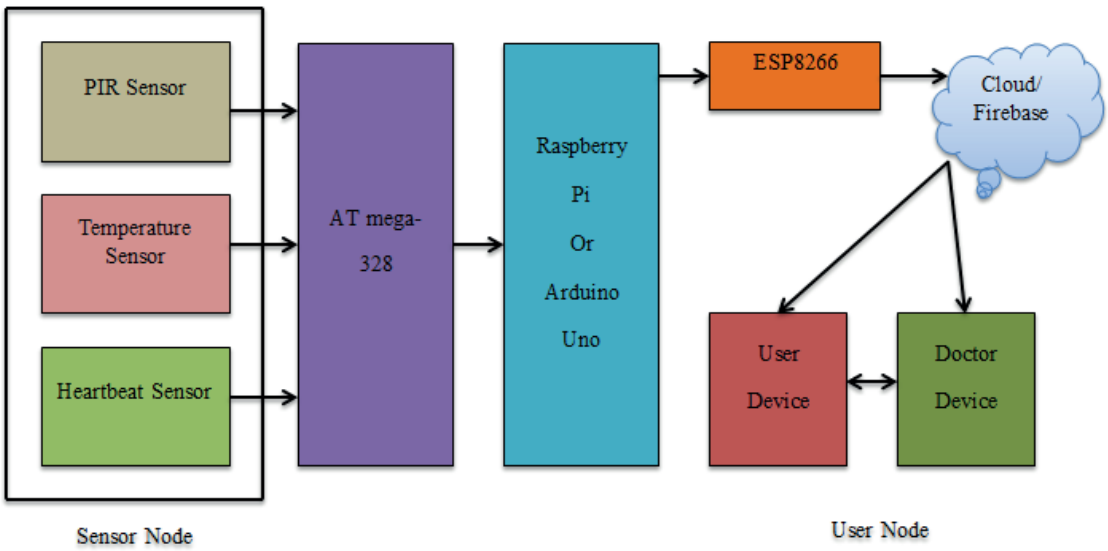

Figure 1. Development model

There are different kinds of temperature sensor, but one of the most commonly used is a thermistor. A thermistor is a resistive element whose resistance varies with temperature. This change in resistance is then transformed into an electrical signal that can be detected and displayed using an appropriate device. In different words, a heartbeat sensor is a gadget which is degree the heartbeats of the person. The oximeter works by passing an infrared LED light through the finger or earlobe, and using a photodiode sensor to detect changes in blood volume. As the heart dilates, it increases the blood volume, altering the amount of light reflected to the sensor. That change in light is then converted into an electrical signal that can be measured and displayed. It detects small variations in blood volume resulting from each heartbeat, enabling accurate heart-rate measurement.

RESULTS AND DISCUSSION

Remote monitoring systems for occupational health proved effective in improving health outcomes and reducing the number of occupational injuries/acccidents. By reviewing multiple research studies and clinical experiments, one study concluded that remote monitoring systems can efficiently detect and manage the early symptoms of health problems, including musculoskeletal disorders, fatigue, and mental health issues. This enables quick treatment and stopping of the disease from worsening. Employers can use real-time data and analytics in their remote monitoring systems to address high-risk areas and implement critical transformation to continue to keep employees safe on a virtual basis. This in itself can result in less work-related accidents and injuries. It also discussed potential shortcomings and issues of remote monitoring systems, including cost, privacy concerns, and technological problems. Utilization of remote monitoring systems in occupational health: challenges, limitations, and direction for future research The results show that remote monitoring systems are a helpful tool in terms of occupational health, and can help reduce workplace injury. Nevertheless, more in-depth investigations are required to comprehend their effect and address every constrain completely.

https://doi.org/10.56294/hl2022142

Data accuracy

Remote monitoring systems offer a promising method through which occupational health data capture can be enhanced. These systems use technology including wearable sensors and mobile applications to harvest real-time data about an individual's health and environment, bypassing the need for self-reporting. These metrics include data completeness, validity, and reliability, which are used to evaluate the efficiency of these systems. The trends of health outcomes over time can also be used to evaluate their effectiveness in detecting and preventing occupational hazards.

Table 2. Comparison of Data Accuracy

No. of Inputs	Comparison Models				
	MSM	IDM	CSM	CTM	Proposed Model
10	41,35	49,28	44,67	40,92	47,11
20	45,36	48,27	42,95	44,41	46,12
30	47,68	43,10	45,48	41,76	48,92
40	49,89	41,91	46,59	43,45	40,76
50	44,37	50,08	47,51	42,43	46,19

Some of the important technical aspects awaiting exploration in regard to the monitoring system effectiveness include sensor sensitivity, sensor specificity, data transmission criterions, data storage capabilities, as well as user interface and data analysis and visualization facilities. Figure 2 shows the Computation ofData Accuracy model.

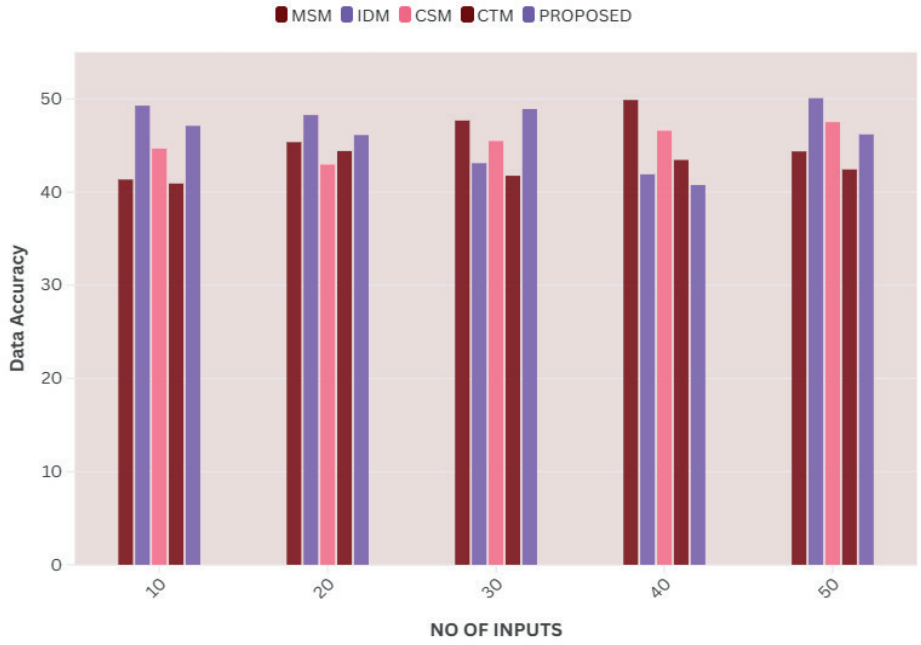

Figure 2. Computation of Data Accuracy model

Effective use of remote monitoring systems may better allow occupational health risks to be understood and informed decisions to be made about reducing risk to workers.

Real-time Monitoring

In occupational health, remote monitoring systems are widely used for the real-time monitoring of workers' health and safety. This study analyzes the effectiveness of these systems through a technical analysis of the systems themselves and their applications to occupational health outcomes.

These systems may include wearable devices and wireless sensors that can collect and transmit health and behaviour data from employees. It will also assess how accurate and reliable the data is that is collected and whether it is used to predict and potentially prevent accidents or hazards in the work place. Figure 3 shows the Computation of Real-time Monitoring model

https://doi.org/10.56294/hl2022142

Table 3. Comparison of real-time monitoring					
No. of Inputs	Comparison Models				
	MSM	IDM	CSM	CTM	Proposed Model
15	49,61	45,14	41,88	40,98	44,78
25	47,12	46,89	45,44	43,26	49,39
35	42,33	47,79	49,10	41,66	48,55
45	48,92	44,03	45,15	48,77	42,42
55	40,57	43,83	49,64	46,59	48,21

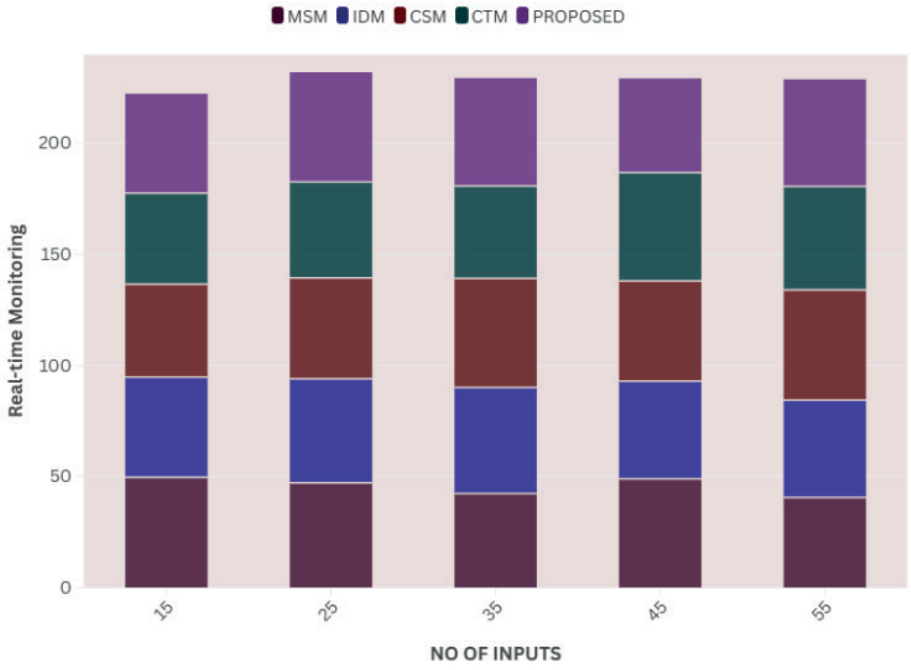

Figure 3. Computation of Real-time Monitoring model

In general, this research will be very useful to better understand the function of remote context aware monitoring systems in enhancing occupational health and safety.

Connectivity

Occupational health remote monitoring systems are systems that allow for the monitoring of health data in the workplace without the need for physical presence. Such applications may involve wearable sensors, mobile applications, and cloud-based software to capture and analyze data on a worker's physical and mental state.

Table 4. Comparison of connectivity					
No. of Inputs	Comparison Models				
	MSM	IDM	CSM	CTM	Proposed Model
5	40,87	45,15	43,69	49,37	41,51
10	48,08	44,12	42,79	40,38	47,46
15	41,92	46,54	50,76	43,18	49,01
20	45,67	42,15	47,83	40,54	49,37
25	46,89	43,75	41,41	47,12	40,94

Aspects like these are even very broadly helpful and relates to technical matters on how effective these systems can be, this does also include information such as the quality of data collected, accuracy, the flow and speed of data delivery(ie data structure and visual), and the alertness and responsiveness implementation from

these technology. In addition, interoperability with existing health record systems and the adherence to privacy and security protocols will be important capabilities to evaluate additional effectiveness of remote monitoring systems in occupational health. Figure 4 shows the Computation of Connectivity model.

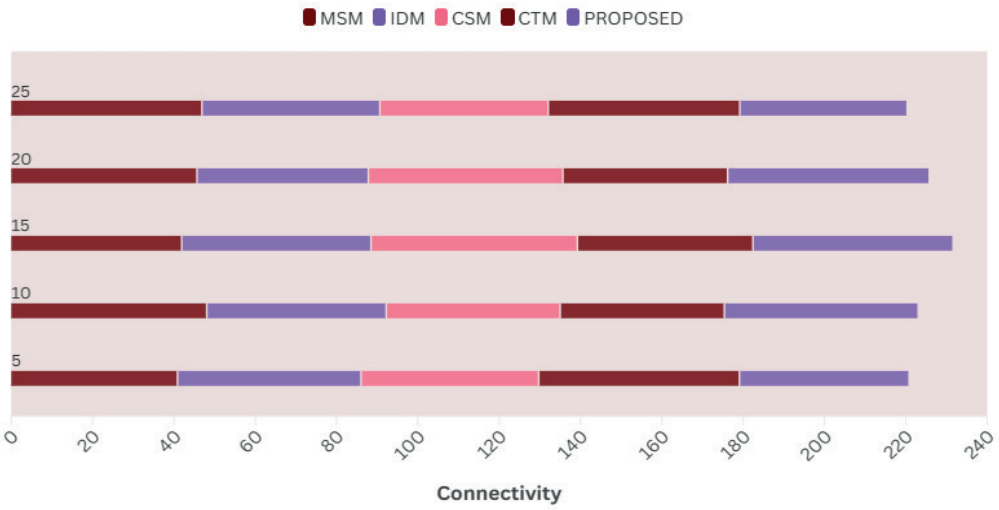

Figure 4. Computation of Connectivity model

Such information can help assess how well these systems will function to enhance worker safety, wellness and general productivity.

CONCLUSIONS

There is no doubt that remote tracking systems are useful tools for occupational health promotion. These systems will enable the organizations to track and manage the employee health in a better way. Furthermore, data can be analysed through remote monitoring, to come up with guaranteed decisions, and to perform suitable interventions to keep the employees fit and well. Also, remote monitoring systems are providing real-time data for timely decision-making and crisis management in case of disasters. Improving employees' health not only helps them as individuals, but creates a more productive and efficient working environment. Nonetheless, proper implementation and integration with established health and safety procedures are crucial for remote monitoring systems' effectiveness. More studies and assessments on remote monitoring for occupational health are required. Overall, It can be said that the remote monitoring system has a beneficial effectiveness for the health promotion and maintenance of workplace employees.

BIBLIOGRAPHIC REFERENCES

1. Ilbahar, E., Karaşan, A., Cebi, S., & Kahraman, C. (2018). A novel approach to risk assessment for occupational health and safety using Pythagorean fuzzy AHP & fuzzy inference system. Safety science, 103, 124-136.

2. Linardon, J., Cuijpers, P., Carlbring, P., Messer, M., & Fuller-Tyszkiewicz, M. (2019). The efficacy of app-supported smartphone interventions for mental health problems: A meta-analysis of randomized controlled trials. World Psychiatry, 18(3), 325-336.

3. Al Omar, A., Bhuiyan, M. Z. A., Basu, A., Kiyomoto, S., & Rahman, M. S. (2019). Privacy-friendly platform for healthcare data in cloud based on blockchain environment. Future generation computer systems, 95, 511-521.

4. Plageras, A. P., Psannis, K. E., Stergiou, C., Wang, H., & Gupta, B. B. (2018). Efficient IoT-based sensor BIG Data collection–processing and analysis in smart buildings. Future Generation Computer Systems, 82, 349-357.

5. Bartlett, L., Martin, A., Neil, A. L., Memish, K., Otahal, P., Kilpatrick, M., & Sanderson, K. (2019). A systematic review and meta-analysis of workplace mindfulness training randomized controlled trials. Journal of occupational health psychology, 24(1), 108.

6. Kraus, S., Schiavone, F., Pluzhnikova, A., & Invernizzi, A. C. (2021). Digital transformation in healthcare: Analyzing the current state-of-research. Journal of Business Research, 123, 557-567.

https://doi.org/10.56294/hl2022142

7. Almathami, H. K. Y., Win, K. T., & Vlahu-Gjorgievska, E. (2020). Barriers and facilitators that influence telemedicine-based, real-time, online consultation at patients' homes: systematic literature review. Journal of medical Internet research, 22(2), e16407.

8. Hall, V. J., Foulkes, S., Saei, A., Andrews, N., Oguti, B., Charlett, A., ... & Cowley, A. (2021). COVID-19 vaccine coverage in health-care workers in England and effectiveness of BNT162b2 mRNA vaccine against infection (SIREN): a prospective, multicentre, cohort study. The Lancet, 397(10286), 1725-1735.

9. Dash, S., Shakyawar, S. K., Sharma, M., & Kaushik, S. (2019). Big data in healthcare: management, analysis and future prospects. Journal of big data, 6(1), 1-25.

10. Cullen, K. L., Irvin, E., Collie, A., Clay, F., Gensby, U., Jennings, P. A., ... & Amick, B. C. (2018). Effectiveness of workplace interventions in return-to-work for musculoskeletal, pain-related and mental health conditions: an update of the evidence and messages for practitioners. Journal of occupational rehabilitation, 28, 1-15.

FINANCING

None.

CONFLICT OF INTEREST

None.

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