Issue 75

Rise of workplace health monitoring with wearables

***W**earable technology, also known as "wearables" are body-worn electronics devices powered by microprocessors, with the ability to transmit and receive data via the internet.*

This blanket term includes fitness activity trackers, smartwatches, smart clothing, augmented and virtual reality headsets [1]. Some popular uses of wearables for health monitoring include fitness tracking, improving sleep quality, managing stress level, tracking weight, blood pressure and heart health monitoring [2].

Since 2020, organisations around the world were compelled to embrace remote working due to the COVID-19 pandemic, which led to a rising trend in corporate health tracking to allow employees to return to work safely.

Benefits of workplace health monitoring

One of the first companies to integrate wearables into employees' wellness programmes is BP America (BPA). In 2013, over 90% of BPA's employees participated in the company's voluntary health initiative, receiving a company-issued FitBit, to collect information on their fitness, sleep quality, fatigue levels and location [4].

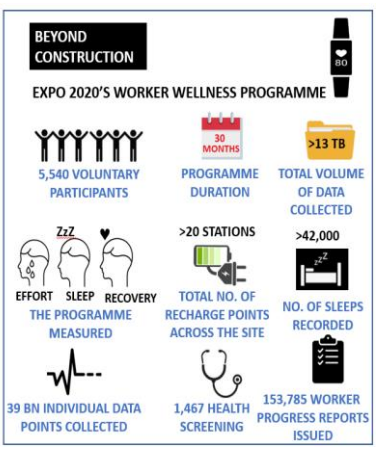
According to BPA, the programme improved the overall health of employees, lowered insurance premiums and built camaraderie as the wearable was common to all BPA's employees [5].

Expo 2020, pioneered the Worker Wellness Programme in October 2017. It is a voluntary initiative to collect workers' data with wearables, to build predictive models to make construction sites safer around the world [6].

5,540 workers participated in the first phase and used Whoop wearables to monitor cardiovascular health and sleep disorders, based on heart rate variability data.

More than 13 terabytes of data have been collected with findings to be released at end 2021. A second phase of the programme using wearables to monitor the health and well-being of event-time workers will take place from 1 Oct 2021 to 31 March 2022.

Smart wearables for safety & health monitoring [3]



Worker Wellness Programme, Expo2020, Dubai [6]

Confidentiality of health data

For privacy reasons, some employees may be unwilling to share their health data with their company. For example, employees with pre-existing health conditions may be worried about retrenchments or denied job promotions.

Under Personal Data Protection Act 2012, data from employees' wearables must be processed lawfully [7]. The processing of data is subject to the employee's consent, who must be informed about the extent of monitoring, how it might be carried out and the purposes for it. Employees should be allowed to opt-out or withdraw consent at any time after the data sharing scheme has commenced. Organisations are required to conduct data protection impact assessments and implement safeguards to mitigate any risks of sharing personal data.

It is unlikely that any company would make it mandatory for staff to share their health data against their wishes. However, there could be social pressure for employees who are reluctant to participate in corporate health monitoring programmes as they are perceived as unsupportive of company's initiatives [8].

On top of monitoring workers' health and safety, the wearables can track productivity so that new work orders could be issued to the workers once the pre-determined threshold time for completing the tasks lapsed [9].

The role of wearables in the future workplace

With more sophisticated wearables emerging in the market, workplace health tracking is likely to become more mainstream. For example, company could use data collected by wearables to detect early signs of infectious viral infections, such as flu [10]. Analysis of data could also be done to formulate corporate programmes to improve physical and mental health of employees.

References

1) 6 Forms of Wearable Technology You Must Know Right Now https://www.42gears.com/blog/6-wearable-technologies-you-must-know-right-now
2) Wearable Technology: The Coming Revolution in Digital Health https://mobisoftinfotech.com/resources/blog/wearable-technology-in-healthcare
3) Wearables Devices https://faststreamtechnologies.blogspot.com/2021/03/wearable-devices-wearable-technology.html
4) BP Wellness Programme https://hr.bpglobal.com/LifeBenefits/Sites/core/BP-Life-benefits/BP-Wellness-Programs.aspx
5) What industries are the first to introduce wearables at work? https://www.fastcompany.com/3036331/what-industries-are-the-first-to-introduce-wearables-at-work
6) Expo2020, Dubai, UAE https://www.expo2020dubai.com/en/news/wearable-wellness-tech-set-to-aid-worker-safety
7) Personal Data Protection Commission Singapore, Guide to Data Sharing, Revised 1 Feb 2018
8) A.Habibipour et al., Social, Ethical and Ecological Issues in Wearable Technologies, Sci Eng Ethics, 2018 Feb; 24(1):1-28
9) W.R.I.S.T Smart Toilet System – On demand cleaning https://www.sensorla.co
10) H. Ceren Ates et al., Wearable devices for the detection of COVID-19, Nature Electronics 4,13-14(2021)

Insights

1) Popular uses of wearables for health monitoring include fitness tracking, improving sleep quality, managing stress level, tracking weight, blood pressure and heart health monitoring.

2) More organisations are beginning to incorporate wearables into the employees' wellness initiative to improve workplace health and safety. Unlike conventional testing in a clinical setting which may not occur as frequently as desired, wearables enable physiological data to be monitored continuously, allowing deviations from a user's usual baselines to be detected for more timely interventions.

OWLinks** is brought to you by **Workplace Safety and Health Institute, Singapore.

For enquiries or feedback, please email us at contact@wshi.gov.sg