

Review Article

Increased working hours per day and its impact on health of the workers: A review

Amrut Swami^{1*}, Sanjay Kumar², Aneri Patel³, Hiral Undhad⁴, Rahul Netragaonkar²

¹Department of Community Medicine, Dr. SS Tantia Medical College, Hospital and Research Center, Sri Ganganagar.

²Department of Community Medicine, Zydus Medical College and Hospital, Dahod.

³Department of Pharmacology, MGM Medical College and MY Hospital, Indore.

⁴Department of Nephrology, Zydus Hospital, Ahmedabad.

* Correspondence: Dr. Amrut Swami (draaswami@gmail.com)

ABSTRACT

Working conditions in most of the developing nations are not as per the guidelines. Government is changing the guidelines as per the benefit of the employers and side-lining the employees regarding many issues. With many occupations requiring heavy work and taking a lot of physical strength from manual labourers, the working time per day also affects the health of such workers. We investigated the different health impacts of increasing the working hours on labourers, and did a literature review on the same. We recommend that the workers in every occupational sector should work not more than 8-9 hours per day. They should get at least 30 minutes lunch break and one or two 15 minutes tea brakes during their shift to avoid exhaustion and fatigue from prolonged working.

Key-words: Occupational Health, Prolonged Working Hours, Overtime, Health Effects

India is home to 522 million workers which is set to increase up to 570 million by 2030.¹ Many occupations in India require longer working hours for which many times the workers are not paid for the overtime and even it's a culture in many unorganized sectors to work for 12 hours or even 14 hour shifts.^{2,3}

These increased working hours can cause many health impacts on the workers, causing many addictions and chronic diseases because of this work environment as follows:

Increasing the working hours per day and its impact on health of the workers⁴⁻⁶

86% men and 67% women are working more than 40 hours per week whether they are paid or not for the overtime. The effect of working too much can be felt both personally and professionally.

GREATER RISK OF HEART ATTACK

As compared to people who worked 35–40 hours per week, those who worked more than 55 hours per week

had a 13% higher risk of having a heart attack and a 33% higher risk of having a stroke.

INCREASED RISK OF ALCOHOL USE

If people work for more than 48 hours per week, they are more likely to have increased risky alcohol use (more than 14 drinks/week for women and more than 21 drinks/week for men).

INCREASED INSOMNIA

Around 76% of overwhelmed people have reported higher insomnia problems; unfortunately, only 1-3% of the population can sleep 5-6 hours a night without suffering some performance drop-off.

INCREASED FAST FOOD CONSUMPTION

Burnout, which can be caused by us working too much, is significantly associated with higher fast food consumption, infrequent exercise, and more frequent painkiller use.

DECREASED MENTAL HEALTH

Compared to workers who work less than 40 hours, the mental health scores among workers who work almost more than 50 to 60 hours per week worsens by up to 2.4 points.

INCREASED RISK OF DEPRESSION

Employees who are working long hours (at least 55 to 60 per week) and who have high job expectations and stressful days of work (defined as “usually having too much work”) are at higher risk of depression.

NEGATIVE IMPACTS ON PERSONAL RELATIONSHIPS

76% of employees say stress at work has had a negative impact on their personal relationships.

GREATER RISK OF COSTLY MISTAKES

Overwork causes diminishing returns, by reducing the amount you're working; you can increase output and decrease the chances of expensive mistakes or accidents.

INCREASED CHANCE OF QUITTING

63% of workers are ready to quit their current jobs as a result of workplace stress brought on by their boss, ineffective communication, a heavy workload, or unclear expectations.

INCREASED RISK OF EYE STRAIN

64-90% of employees who are working on a screen experience eye strain, headache, blurred vision, and dry eyes.

In Japan, where long hours are common, a growing number of workers have been dying from cardiovascular causes (for instance, stroke, acute cardiac failure, myocardial infarction and aortic rupture) in their most productive years. According to studies based on workers' compensation claims, many of the victims were working a lot of hours before they passed away. The Japanese have termed such deaths as Karoshi, meaning “death from overwork.”⁷

A Karoshi model has been put up by Japanese academics to investigate the link between extended work hours and cardiovascular disease. Long hours are thought to lead to unhealthy lifestyle changes like smoking, alcoholism, inactivity, restlessness, bad dietary habits, and less opportunities for physical tests. Long stretches of time spent working may also make people feel more stressed, anxious, and irritable. Over time, individuals can become fatigued and develop a propensity toward obesity. The

cumulative result can be cardiovascular disease. In the research, based on case studies of small samples of male subjects, suggests an association between long working hours, high blood pressure and heart disease. Also, one of these studies discovered a "U"-shaped link between long workweeks and the risk of a heart attack: males who worked 35 hours or fewer per week or less had the same elevated risk of having an attack as those who worked more than 55 hours per week. In a study on the relationship between long workdays and hypertension that was conducted in Osaka, Japan, it was discovered that 941 male Japanese workers had blood pressure that was higher than normal.^{7, 8}

Managers or organisations in Iraq do not add up all overtime hours unless there are strong justifications. Few employees are given overtime pay by the organization's management to cover the excessive hours worked. Overtime wears down employees' efforts, has an adverse effect on their health and safety, lowers their performance and productivity, and raises the risk of a work accident in the company. Overtime impacts employees' personal lives since they spend too much time at work (more or less 40 hours in a week).⁹

Bemana S, in 2013¹⁰ and Pandey KM et al in 2014¹¹, stated that job stress can be defined as a hard and harmful effort done by employees when the result does not match the organization desire.

As per survey in Iraq, workers said there are six factors lead to job stress¹²:

- Job demands/workload
- Control over workload
- Support received from management and co-workers
- Relationships at work
- Change and how it is managed
- Role conflict or ambiguity

In South Korea, they discovered that the proportion of male employees increased with increasing working hours. This may reflect the fact that women typically take on multiple roles including housework and cannot commit as many hours to their employment as their male counterparts.

In a dose-response relationship, the number of hours worked increased in direct proportion to the observed stress levels. After taking into account factors including sex, age, marital status, location, and educational attainment, the results remained the same. They discovered that longer working hours, especially those that were unintended or unwelcome, cause workers to feel more stressed. Stress is linked to a number of ailments

and, in turn, causes undesirable behaviours. Long work hours are known to increase stress levels, which in turn can affect harmful behaviours including inactivity, smoking, and alcohol intake. Moreover, stress degrades mental health, which can result in sadness or even suicidal thoughts, in addition to subjective health status and sleep duration. One of the main factors contributing to health deterioration is stress brought on by extended workdays. They found that longer working hours were associated with higher levels of stress, sadness, and suicide ideation. All three indicators of mental health displayed dose-response relationships with working hours. They came to the conclusion that young workers, aged 20 to 35, who worked long hours were more likely to experience stress, sadness, and suicide thoughts. A study carried out in South Korea with 67,471 workers revealed a 30% increase in suicidal ideation among those who worked more than 60 hours per week. The ratio of increasing tendency 31% and 33% in male and female workers respectively.¹³

According to a study conducted in Hordaland, Norway, men and women who worked overtime had greater levels of anxiety and depression as well as a higher prevalence of "possible" anxiety and depressive disorders than those who worked regular hours. Men who put in a lot of overtime showed a higher prevalence of "possible" anxiety and depression disorders than the reference group. Men working 49 to 100 hours a week reported doing more "hard manual labour" and shift work, had lower skill levels, and had less education than males working 41 to 48 hours a week. In comparison to the reference group, men who worked 41 to 48 hours per week had greater levels of education, income, and ability. Another study found that women who worked overtime had significantly greater levels of probable depression and anxiety disorders. Those who worked overtime were more likely to report having the greatest or lowest skill level. Also, a greater percentage of the group that worked overtime had shift or night time jobs, more physical activity at work, and a higher BMI. Finally, people who worked long hours reported engaging in less physical exercise during their free time.¹⁴

Working more than 12 hours in a single day was linked to a 37% rise in hazard rate (HR), while working more than 60 hours per week was linked to a 23% increase in HR, according to a study done in the USA. When compared to occupations without overtime, there was a 61% rise in HR for those who worked it. Moreover, a significant dose-response association between injury rates and long hours was discovered. Cuts and bruises, other traumatic injuries, other occupational diseases, and fractures ranked as the top 5 injuries and illnesses in this survey across all employment kinds.

According to an NIOSH study from 2015, first-year medical residents who labour continuously for more than 24 hours are five times more likely to have a near-miss accident and are twice as likely to be in an automobile accident while driving home after their shift. The time of day, in addition to working long hours, is a significant factor in influencing the likelihood of contracting work-related diseases and injuries. According to the study, nurses who worked non-day shifts had a 54% and 48% higher risk of getting sick or injured at work, respectively.¹⁵

According to a Punjabi study, overworking in India has an impact on employees' emotional, physical, social, and reproductive health. Overworking or working nights has a negative impact on middle-aged women, especially those who are pregnant. Stress and family disputes are likely brought on by long hours and night shift employment, which also disrupts the menstrual cycle. The increased risk of spontaneous abortion, miscarriage, low birth weight, and prematurity may be linked to stress and depression. A key component of an employee's life is striking a balance between work and life. It goes without saying that the more hours a person works, the less time they have for family time or other leisure pursuits.

Workers struggled to take time off for personal or family requirements, which was a significant result. The extra money earned from putting in long hours, however, might mitigate some of the effects of this time lost. More particular, the effects of working overtime were greatly exacerbated by having a child. It is crucial for a child's development for parents to be involved in order to offer care and positive experiences, especially while the child is young. Because of the increased stress and family problems, work-life conflicts for parents occur significantly more frequently. For single parents, these consequences are substantially worse.¹⁶

The majority of Indian employers believe that long, irregular work hours are the main factor contributing to mental health problems. In a research titled "All in the Mind: the state of mental health in Corporate India," conducted by human capital solutions and services provider Gi Group, 77% of the employers polled cite long, unpredictable, and always-on work hours as the main contributing reason. Leading small-, medium-, and large-scale enterprises from Ahmedabad, Bangalore, Chennai, Hyderabad, Kolkata, Mumbai, Delhi-NCR, and Pune participated in the study. The COVID-19 epidemic raised a variety of problems with regard to accessibility, awareness, and mental health. Unpredictable work schedules caused 29% of the employees polled to suffer, and lower earnings caused 21% of the employees to suffer. 70% of all employers believed that the mental health has a very serious (40 - 45%) or significant (25 -

30%) impact on their organisational performance or the growth.¹⁷

It is also well recognised that we require a brief break every hour to allow our minds to unwind. The central nervous system is negatively impacted by the lengthy workday, working habits, and type of work. In July 2016, a study on the relationship between job and mental health was done. The findings showed that 38% of people overwork, 46% never had time to rest, and 60% had an unfavourable work-life balance, which may have contributed to their vulnerability to various mental diseases. Workers who work 49 to 59 hours per week had a 48% higher chance of experiencing a mental health decrease than those who work less hours than usual, according to the Mental Component Summary (MCS) of the SF-36 assessment (that is, 35–40 hours per week). Those who worked more than 60 hours a week had a 53% greater chance of occurring. Moreover, it has been noted that gender differences exist. Women had a lower SF-36 score than men among those who work 49–59 hours per week.¹⁸

The overworking lifestyle causes a variety of mental problems, such as decreased work satisfaction, blue mind (a feeling of mental heaviness), stress, sadness, mood swings, anger, and anxiety. One additional issue related to extra employment is suicidal thoughts. Also, both male and female employees who worked 51 to 60 hours per week showed an increase in suicide thoughts. Workers' efficiency and production are diminished by prolonged and continuous work, a lack of breaks during the day, and working back-to-back days without a day off. Unusual work and sleep routines were the primary cause of major health problems.¹⁹⁻²¹

The association between working long hours and people's propensity to smoke, drink, have a high body mass index (BMI), and engage in less physical activity is in addition to these other health hazards. The long-term impacts of alcohol use include an increase in workplace accidents and productivity loss, as well as family issues, a risk of high blood pressure, stroke, and other cardiovascular illnesses. Together with effects that are similar to those of alcohol, smoking has a higher risk of heart attacks, weight gain, obesity, emphysema, and a significant number of malignancies. 55 or more hours per week to investigate a connection between Type II Diabetes and that condition as opposed to a different set of workers who only put in 35 to 40 hours per week.²²⁻²⁴

CONCLUSION

We observed that there are many previous studies which reported ill health effects of long working hours in various Industries. Strict norms should be made to prevent such

practices by industries in both organised and unorganised sectors. We recommend that the workers in every occupational sector should work not more than 8-9 hours per day. They should get at least 30 minutes lunch break and one or two 15 minutes tea brakes during their shift to avoid exhaustion and fatigue from prolonged working. Special attention should be given to the annual health check-ups for the people involved in long working hour duties and the workers doing the night shifts.

REFERENCES

1. Number of employed persons in India from financial year 2012 to 2021, with estimates until 2030. Assessed on 15.08.2022 Available from www.staista.com
2. Chandra V. Work–life balance: eastern and western perspectives. *The International Journal of Human Resource Management*. 2012 Mar 1;23(5):1040-56.
3. Naik AK. Informal sector and informal workers in India. In *Special IARIW-SAIM Conference on 'Measuring the Informal Economy in Developing Countries'* September 2009 Sep 23 (pp. 23-26).
4. Wong K, Chan AH, Ngan SC. The effect of long working hours and overtime on occupational health: a meta-analysis of evidence from 1998 to 2018. *International journal of environmental research and public health*. 2019 Jun;16(12):2102.
5. Johnson JV, Lipscomb J. Long working hours, occupational health and the changing nature of work organization. *American journal of industrial medicine*. 2006 Nov;49(11):921-9.
6. Shields M. Long working hours and health. *Health Rep*. 1999;11(2):33-48.
7. Waterhouse, J. M., Folkard, S. and Minors, D.S. (1978). *Shift work, health and safety An overview of the scientific literature*. London: The Stationery Office, 1992:1–31
8. Kivimäki M, Virtanen M, Kawachi I, Nyberg ST, Alfredsson L, Batty GD, Bjorner JB, Borritz M, Brunner EJ, Burr H, Dragano N. Long working hours, socioeconomic status, and the risk of incident type 2 diabetes: a meta-analysis of published and unpublished data from 222 120 individuals. *The lancet Diabetes & endocrinology*. 2015 Jan 1;3(1):27-34.
9. Mahmood YN, Raewf MB, AL-Hamadany ZS. A study on the perceptual relationship between overtime and output. *Cihan University-Erbil Journal of Humanities and Social Sciences*. 2019 Jun 30;3(1):27-31.
10. Bemana S, Moradi H, Ghasemi M, Taghavi SM, Ghayoor AH. The relationship among job stress and job satisfaction in municipality personnel in Iran. *World Applied Sciences Journal*. 2013;22(2):233-8.

11. Pandey KM, Kumari G, Joshi G. Job stress in software companies: A case study of HCL Bangalore, India. *Global Journal of Computer Science and Technology*. 2014 May 15;14(C7):23-9.
12. Abdulkhaliq SS, Mohammadali ZM. The impact of job satisfaction on employees' performance: A case study of Al Hayat Company-Pepsi Employees in Erbil, Kurdistan Region-Iraq. *Management and Economics Review*. 2019;4(2):163-76.
13. Chang-Gyo, Y., Kyu-Jung B., Mo-Yeol K. and Jin-Ha Y. (2015). "Is suicidal ideation linked to working hours and shift work in Korea?". *Journal of Occupational Health*. 57 (3): 222-229. Doi:10.1539/joh.14-0237-OA
14. Kleppa E, Sanne B, Tell GS. Working overtime is associated with anxiety and depression: the Hordaland Health Study. *Journal of occupational and environmental medicine*. 2008 Jun 1:658-66.
15. Dembe AE, Erickson JB, Delbos RG, Banks SM. The impact of overtime and long work hours on occupational injuries and illnesses: new evidence from the United States. *Occupational and environmental medicine*. 2005 Sep 1;62(9):588-97.
16. Niaz U, Hassan S. Culture and mental health of women in South-East Asia. *World Psychiatry*. 2006 Jun;5(2):118.
17. Grover S, Mehra A, Sahoo S, Avasthi A, Tripathi A, D'Souza A, Saha G, Jagadhisha A, Gowda M, Vaishnav M, Singh O. Impact of COVID-19 pandemic and lockdown on the state of mental health services in the private sector in India. *Indian Journal of Psychiatry*. 2020 Sep;62(5):488.
18. Sato K, Kuroda S, Owan H. Mental health effects of long work hours, night and weekend work, and short rest periods. *Social Science & Medicine*. 2020 Feb 1;246:112774.
19. Yoon CG, Bae KJ, Kang MY, Yoon JH. Is suicidal ideation linked to working hours and shift work in Korea?. *Journal of occupational health*. 2015 May;57(3):222-9.
20. Kim KU, Park SG, Kim HC, Lim JH, Lee SJ, Jeon SH, Huh YS. Association between long working hours and suicidal ideation. *Korean Journal of Occupational and Environmental Medicine*. 2012 Dec 1;24(4):339-46.
21. Violanti JM, Charles LE, Hartley TA, Mnatsakanova A, Andrew ME, Fekedulegn D, Vila B, Burchfiel CM. Shift-work and suicide ideation among police officers. *American journal of industrial medicine*. 2008 Oct;51(10):758-68.
22. Prasad KD, Vaidya R, Anil Kumar V. Association among occupational stress factors and performance at workplace among agricultural research sector employees at Hyderabad, India. *Pacific Business Review International (TSI)*. 2018;10(7):27-36.
23. Lee J, Kim HR, Jang TW, Lee DW, Jeong C, Kang MY. Poor glycemic control in workers with diabetes mellitus in relation to long working hours: a cross-sectional study. *Industrial health*. 2020;58(5):451-9.
24. Artazcoz L, Cortès I, Escribà-Agüir V, Cascant L, Villegas R. Understanding the relationship of long working hours with health status and health-related behaviours. *Journal of Epidemiology & Community Health*. 2009 Jul 1;63(7):521-7.

Source of support: Nil

Conflict of interest: None declared

How to cite: Swami A, Kumar S, Patel A, Undhad H, Netragaonkar R. Increased working hours per day and its impact on health of the workers: A review. *GAIMS J Med Sci* 2023;3(2):16-20.

<https://doi.org/10.5281/zenodo.7935883>