

## HOW IT WORK CAN IMPACT PROGRAMMER'S HEALTH

Victor REVENCO<sup>1</sup>, Dragomir MÎNDRESCU<sup>1</sup>, Tudor GAVRILIUC<sup>1\*</sup>

<sup>1</sup>Department of Software Engineering and Automation, group FAF-221, Faculty of Computers, Informatics and Microelectronics, Technical University of Moldova, Chisinau, Republic of Moldova

\*Correspondent author: Gavriiuc Tudor, [tudor.gavriliuc@isa.utm.md](mailto:tudor.gavriliuc@isa.utm.md)

**Abstract.** *Software engineers are in great demand in the Information Technology (IT) industry, which has improved employment prospects and raised wages.*

*But, because of their sedentary jobs, demanding work environments, and stress-related health issues, such as burnout, anxiety, and physical health issues, it has also resulted in these issues.*

*Software developers may put their health first by prioritizing exercise and mindfulness techniques into their daily routines to reduce these hazards.*

*Companies may also do their part by fostering a culture that values work-life balance and provides access to mental health resources.*

**Keywords:** *health concerns, health problems, physical activity, professional development, software engineers, work-life balance.*

### Introduction

Software engineers are essential to the IT sector since they are continuously coming up with solutions to different issues. The gratification that comes from resolving problems that have confounded others for a time is something special. They have the knowledge and experience to provide their consumers with solutions that are effective and efficient, whether it's a simple, quick fix or a more involved, strategic one. Their efforts enhance the lives of numerous people and companies by making technology more approachable and user-friendly. Yet frequently, no one considers the impact their employment has on them. Although being a software developer may sound appealing, few individuals are aware of the dangers involved. Software engineering appears to be a career with plenty of advantages because it comes with many bonuses and fantastic compensation. Yet for many developers, programming can be extremely stressful, isolating, and life-consuming, resulting in emotional and mental health problems.

### Health Issues

#### *Prolonged cognitive load*

The demands of this job, which involves spending multiple hours and even days working on a project, can take a toll on a person's mental state. The constant focus and intensity can lead to mental exhaustion, which leads many developers to rely on short-term fixes like coffee, energy drinks, and sugary foods to get through the day. However, these quick energy boosts only provide temporary relief and do not address the underlying problem of mental fatigue.

This is proved by Louis Wilbrink, a software engineer with a PhD in Computer Science: *"We as software engineers need to make energy levels our primary concern. It will allow you to maintain concentration for longer periods of time without dropping to critical levels where your body screams for snacks and distractions. It is many tiny decisions that can erode your energy and many tiny ones that will improve it."*[1]

In addition, investing in employee wellness programs such as gym memberships, meditation sessions, and healthy meal options can also have a positive impact on employee health.

Ultimately, prioritizing employee wellbeing is a crucial step towards creating a healthy, productive, and sustainable work environment in the IT industry.

### *Anxiety and depression*

Prolonged periods of sitting in front of a computer screen with limited social interaction can lead to anxiety and depression in workers. "Coding depression" is a real phenomenon that occurs when programmers spend countless hours coding without receiving any social support[2]. This puts them at a higher risk of depression and anxiety compared to the general population, as the stress of troubleshooting and long hours takes a toll on their mental health.

### *Long periods of sitting*

Prolonged sitting has become an increasing concern in recent years due to its many harmful effects on health. The sedentary nature of software engineering, where people spend hours sitting at desks and in front of computers, has contributed to this growing problem. Research has consistently linked prolonged periods of sitting with numerous health problems that can have serious consequences [3].

One of the most common health issues associated with prolonged sitting is obesity. Sitting for extended periods of time can slow down the metabolism, making it easier for the body to store excess fat and leading to weight gain. Additionally, sitting for too long can result in a cluster of conditions known as metabolic syndrome, which includes high blood pressure, high blood sugar, abdominal obesity, and unhealthy cholesterol levels.

These conditions, if left untreated, can increase the risk of heart disease, stroke, and diabetes.

Prolonged periods of sitting have also been linked to an increased risk of death from cardiovascular disease and cancer. This is due to the fact that the body is not actively burning calories when sitting, which can cause a number of physiological changes that can lead to disease. On top of these serious health concerns, prolonged sitting can also lead to musculoskeletal pain, particularly in the neck, back, and legs, due to the strain it places on the muscles and joints.

### *Statistics*

According to American Psychological Association research, 29% of IT employees claim they feel intense stress, while over 60% of them report high levels of stress [4].

In a poll conducted by Blind, an anonymous professional networking site, 57% of tech employees reported experiencing burnout in 2020 [5].

Long periods of computer use and extended sitting have been linked to an increased risk of obesity, diabetes, and cardiovascular disease, according to research from the University of California, Irvine. The same research revealed that short periods of standing up and moving about can dramatically lessen the harmful consequences of extended sitting. According to a Blind poll, 58% and 55%, respectively, of tech employees said they had anxiety or depression [6].

According to a National Institutes of Health research, software engineers are more likely than the overall population to have mental health issues including anxiety, depression, and bipolar disorder [7].

These figures demonstrate the serious negative effects that working in the IT industry may have on a software engineer's physical and mental health. It emphasizes the necessity for people and organizations to give health and wellbeing a high priority at work.

The culture within the IT industry can contribute to stress and burnout among employees due to constant pressure, high-stakes projects, and a competitive environment. To address this, companies need to prioritize employee wellbeing, promote work-life balance, and provide mental health support. By doing so, organizations can improve productivity and retention rates while enhancing the quality of life of their staff.

Research has shown that companies with a strong focus on employee wellbeing tend to have lower rates of absenteeism, presenteeism, and employee turnover. Prioritizing mental and physical health in the workplace is, therefore, a win-win situation for both employees and employers.

## **Ways to combat the health problem**

### *Prioritize physical activity*

Software developers should take frequent breaks and include exercise in their daily schedules. This might involve riding a bike or walking to work, taking quick breaks during the day to stretch, and engaging in sports or fitness activities after work.

### *Use an ergonomic workstation*

Software developers should have ergonomic workstations, such as adjustable chairs, desks, and computer monitors. This can help reduce the risk of back pain, neck pain, and other physical health concerns.

### *Healthy eating habits*

Software developers should be provided with healthy food options near workspace, such as fresh fruit and vegetables, whole grains, and lean protein sources. They should be encouraged to take breaks to eat lunch away from their desks.

### *Promote work-life balance*

Employers may aim for a work climate that values balancing work and personal obligations. Offering flexible work hours, enabling remote work, and encouraging staff to take time off when necessary are a few examples of how to do this.

### *Providing training and development opportunities*

Software developers should be provided with different training environments, to avoid stress complication and to increase the job satisfaction.

### *Offer mental health resources*

Provide employees access to options for mental health, such as counseling services or an employee support program. Urge workers to take breaks and get help if they're feeling anxious or overwhelmed.

### *20-20-20 rule*

Take a 20 second break every 20 minutes and look at an object 20 feet away. On top of that you can use a computer glass that blocks the blue rays from digital screens. A programmer is constantly being exposed to harmful UV light, and it's important to take such steps from the beginning.

### *Keep proper posture*

Back discomfort, neck pain, and headaches are just a few of the health issues that can result from poor posture. Whether sitting at your desk or using a computer, be sure to have a decent posture.

### *Get adequate sleep*

Sleep is crucial for maintaining good health. Aim for seven to eight hours of sleep every night for adults.

### *Stay hydrated:*

Drink enough of water throughout the day to stay hydrated and preserve excellent health. Consistently sip water, and stay away from sweet beverages.

### *Set self-care as a top priority*

Self-care activities like having a massage or taking a soothing bath can help you unwind and lower stress.

### *Maintain regular medical checkups*

Frequent medical examinations, such as physicals and eye exams, can help identify health issues early and stop them from growing worse.

## **Conclusion**

In conclusion, the intersection of Information Technology (IT) and healthcare represents a dynamic and constantly evolving landscape with both opportunities and challenges. The widespread adoption of IT in the healthcare sector has brought about significant improvements in patient care, ranging from more efficient and individualized treatments to increased access to medical services. However, as the article has highlighted, the development and maintenance of IT systems pose potential risks to programmers' health and well-being, highlighting the need for proactive measures to mitigate these risks.

Furthermore, the ongoing COVID-19 pandemic has amplified the importance of IT in healthcare, necessitating a rapid shift towards telemedicine and remote care solutions. This development has created unprecedented opportunities for programmers and other IT professionals to contribute to the healthcare sector's innovation and advancement. Still, it has also exposed new vulnerabilities, such as cybersecurity threats and privacy concerns, which require close attention from all stakeholders.

Therefore, the future of IT in healthcare hinges on a concerted effort by all parties to balance the potential benefits with the potential risks. This requires a multifaceted approach that prioritizes the health and well-being of programmers, while also promoting innovation, collaboration, and accountability. Policymakers, healthcare providers, employers, and individuals must work together to ensure that IT-enabled healthcare remains sustainable, secure, and equitable, while also safeguarding the health and well-being of those responsible for its development and implementation.

In summary, the impact of IT on healthcare is a complex and multifaceted issue that demands ongoing attention and action. By embracing the potential of IT while also addressing its potential risks, we can create a healthcare system that leverages the latest technologies to improve patient outcomes and enhance the well-being of all stakeholders.

### **References:**

1. LOUIS, W., Software engineer, Researcher, Ph.D. in Computer Science, *Does computer programming have negative effects on your personality and mental health?* [online], [accessed 17.01.2023], Available: <https://www.quora.com/Does-computer-programming-have-negative-effects-on-your-personality-and-mental-health>
2. The Pitfalls Of Anxiety And Depression In Programming, [online], [accessed 31.01.2023], Available: <https://civilizedcaveman.com/wellness/can-learning-programming-really-help-mental-health/>
3. EDWARD, R., LASKOWSKI, *What are the risks of sitting too much?*, [online], [accessed 07.02.2023], Available: <https://www.mayoclinic.org/healthy-lifestyle/adult-health/expert-answers/sitting/faq-20058005>
4. The American Institute of Stress, [online], [accessed 14.02.2023], Available: <https://www.stress.org/workplace-stress>
5. ESTHER, S., *Employee burnout on the rise since COVID-19*, [online], [accessed 14.02.2023], Available: <https://www.techrepublic.com/article/employee-burnout-on-the-rise-since-covid-19/>
6. EIRINI-ELENI P., *'Impostor syndrome' affects almost 58% of tech professionals*, [online], [accessed 14.02.2023], Available <https://devm.io/careers/impostor-syndrome-survey-149402>
7. A study on professional stress, depression and alcohol use among Indian IT professionals, [online], [accessed 28.02.2023], Available: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3574458/>