Cyberchondria: the dark side of digital health

A few years ago, one of my friends started having headaches that felt, as per her description, like a sudden electric shock. Of course this was unpleasant because it was painful; but it was rather disquieting as well because the experience was completely new and she had no idea about the cause. Consulting a doctor would be expensive and someone like her (a middle-class resident of one of the least developed countries without health insurance and health security) usually keeps it as a last resort. Consequently, she impatiently searched the internet for information about such headaches and got many search hits based on which she started diagnosing herself. She also kept a list of the potential diagnoses; ranking them as per her symptoms and the most probable causes. Her top three diagnoses were 'occipital neuralgia', 'migraine', and a 'tumor' on the neck. She was very terrified and started getting more anxious, which made the headaches even worse. Finally, she consulted a pharmacist who gave her a medication of paracetamol mixed with a pain reliever. After a day of taking the medications, she started feeling better and never consulted a doctor on this problem again. However, to this day, she frequently describes getting anxious about the cause of that headache and often imagines that in reality, she has a tumor that is just passive right now. When I ponder over her story, I ask myself – could it be that she indeed has a slow but serious medical condition that has gone undiagnosed? For me, it is a testament that the digital media has an influencing power on our health – and how, besides all the advantages that it offers, it has a dark side as well.

This is of course just one example of how digital technology impacts our lives. Thanks to the low cost and easy accessibility of digital platforms, people all over the world are in constant interaction with technical devices and online applications, and this affects us in both ways, positively and negatively. Digitalization has changed the way we work, the way we use to entertain ourselves, the way we access and process information, and the way we communicate with our family, friends, companies, and state institutions. Without digital devices, many of us would perhaps even feel incomplete and less competent. No wonder, therefore, that digital technology is also affecting our healthcare practices. Concepts such as digital health, mHealth, telehealth have become commonplace in the healthcare context. There are clear advantages of the emergence of mobile technology in healthcare, research, and development – it reduces costs, enhances effectiveness and even saves lives. The story of the friend, however, depicts one of the potential downsides of the digital revolutionization of healthcare – 'Cyberchondria'. It can be defined in layman's terms as the habit of excess internet search for medical information related to health conditions and symptoms. Cyberchondria is a clear example of how information technology may negatively affect the minds and well-being of the public.

Nowadays, many people with concerns and questions regarding their health issues are tempted to search the internet about their symptoms. They can self-diagnose and even treat and medicate themselves. In itself, that is a good thing. But, as mentioned earlier, this is not always the case. Although some people will come to understand their conditions better and feel informed by digital health information, others might increasingly become more confused and anxious. Those in the former category may benefit from feeling empowered by the information. For those in the latter category, the excess information may have a negative impact on health-related behaviour and decisions. Moreover, in some countries, people can get access to and take medicines without proper prescriptions. In these countries, pharmacists often sell drugs in an unregulated system. Such over-the-counter transactions are obviously riskier, especially in the context of cyberchondria. People might be driven by biases and distortions based on the information gathered digitally. They might also be much more likely to end up with misleading ideas regarding their diagnosis, and the applicable drugs and treatment methods. In some cases, the practice of one's self health management through 'Dr. Google' leads to medical complications. There is research evidence which states "the false security and often unsubstantiated know-better

attitude stemming from gathering health information from various online sources is driven by the practice of cyberchondria and influences the decision to (not) visit doctors". This attitude renders alarming concerns about the health risks. Even more, it might not just be the individual patients who could suffer the consequences.

Zooming out further, ranging from the individual level to the community level, and to the national level, cyberchondria may even have an adverse effect on the implementation and monitoring of the United Nations' Sustainable Development Goals (SDGs). There are 17 SDGs, involving for example hunger, poverty, and sustainable energy. In particular the third SDG, "Good health and well-being", is relevant to the context of digital health. The SDGs are aspirational, but monitoring and measuring their impact and progress is a complex task, especially in an environment in which continuous data collection is a challenge amidst socio-cultural, political, and geographical difficulties. As mentioned, false security and know-better attitudes are driven by the practice of cyberchondria and influence cyberchondriacs' choices to avoid visits and consultations with medical professionals. While the accessibility of the Internet has fuelled self-diagnosis and self-treatment practices, it has also created problems for proper health monitoring. In particular, patients' diagnoses, underlying diseases, and other important health parameters are not recorded in appropriate health databases, which would serve for the monitoring of patients' health developments. The plans and policies of the healthcare system, based on the feedback mechanism driven by such databases, thus, inherently face an issue of bias – privileging some groups while unfavoring others. Failure to record continuous and comprehensive data may then create recursive biases in every process of the healthcare system, research, national data registry, and the SDGs implementation and monitoring: specific demographic categories may be overlooked in the monitoring process, which could lead to inefficiently or unfairly allocated funds, and that would then exacerbate the inequalities which caused the discrepancies.

The above illustration of interlinkage between cyberchondria and SDGs reflects the necessity of an integral and systemic approach to address the global challenge of SDGs implementation and monitoring. Such an approach requires expertises from a wide range of domains, not just digital health. Consider for an example how the problem of cyberchondria relates to one of the other crucial challenges of the recent time – the Antimicrobial Resistance (AMR). AMR is the phenomenon that, due to exposure to antibiotics, strains of bacteria adapt, which reduces the efficacy of these drugs. Bacteria that have become resistant to a wide range of antibiotics have been described as 'superbugs', and these are increasingly common. The emergence of AMR endangers health care practice around the globe, as sometimes even simple infections are no longer treatable. This phenomenon is simple enough, but both the pathways leading to resistance and its possible solutions are incredibly complex. The World Health Organization (WHO) recognises issues of missing data during tracking and monitoring superbugs. Further, the WHO argues that AMR shall be an important part of a lot of health-related indicators in the SDGs. Precisely in this regard, cyberchondria is problematic. When people self-medicate on the basis of insufficiently founded fears, they are much more likely to use drugs in inappropriate ways: to use them when they don't actually need them, to use them too long, or too short. In the case of antimicrobials, such inappropriate use drives AMR. Further, the online search of medication and diagnoses may not only be limited to human symptoms but also involve the unregulated use of antimicrobial drugs in animals. All of these increase the chance of misuse of antimicrobial drugs which in turn increases the risks of AMR.

In a nutshell, cyberchondria can have immensely negative implications and hamper the quality of health of the public on an individual level; the health care system on a community and national levels; and the health initiatives such as SDGs and AMR on a global level. Current literature seems to have a gap in terms of academic research linking these three layers of health issues triggered by cyberchondria. As AMR is one of the potential repercussions of cyberchondria, especially in medically underprivileged communities, it may also be worthwhile to explore the linkage between cyberchondria and the AMR and its impact on the global SDGs implementation and monitoring.

LITERATURE

- Starcevic, Vladan, and David Berle. „Cyberchondria: towards a better understanding of excessive health-related Internet use." Expert Review of Neurotherapeutics 13.2 (2013): 205-213.