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Excessive Social Network Use: Is it Harmful for Human Health?

Dr. Arnaldo Rodríguez León* and Dr. Mark D Griffiths

[1]*Cardiology Service, University Hospital Celestino Hernández, Santa Clara, Cuba*

[2]*Director, International Gaming Research Unit, Psychology Department, Nottingham Trent University, UK*

***Corresponding Author:** Dr. Arnaldo Rodríguez León, Cardiology Service, University Hospital Celestino Hernández, Santa Clara, Cuba.

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For humans to survive, they have felt it necessity to work and live in groups from ancient times of civilization [1]. The father of the medicine, Hippocrates (460-370 BC) outlined that to exercise medicine correctly, we should worry about the way our patients live [2,3]. In recent times, the rise of the social networking sites (SNSs) via Wi-Fi enabled smartphones has created a phenomenon never experienced before – the possibility to live two simultaneous worlds. Today SNSs have become a 'second world' and many adolescents and young adults live in both the virtual world and real world often experiencing the same emotions and feelings [4,5]. Although SNSs use has many positive benefits, excessive SNS use has the potential to generate high-level stress and alongside negative lifestyle consequences such as physical inactivity, lack of exercise, lack of sleep, and other potential health complications such as increase blood pressure and obesity due to sedentary behavior [6-8].

The history of SNSs began in 1997 when Andrew Weinreich created the social networking site *Six Degrees* based on the idea that everybody is linked with everybody else in the world via six degrees of separation, and was initially referred to as the "small world problem" [9,10]. The creation of Facebook in 2004 by Mark Zuckerberg to provide the students at the University of Harvard with a platform to share photographs, and constituted the beginning of SNSs as we now know them. Other SNSs platforms followed including Twitter (in 2006 by Jack Dorsey) and Instagram (in 2010 by Kevin Systrom and Mike Krieger). Other popular platforms for millions of users now include YouTube and WhatsApp. Despite the proliferation of many new SNSs platforms, Facebook has the largest number of active users, with 2,449 million users [11].

However, beyond these figures, several elements need highlighting in relation to the potential impact of SNSs use on health. First, more than 4.5 billion individuals currently use internet and 3.8 billion use SNSs [12]. Second, nearly 60% of the world's population is online and it is suggested that more than half of the world's population will use SNSs by the middle of 2020 [13]. Third, 99% of individuals engage in such online use via smartphones, and individuals are often connected while they engage in their daily activities, including at work or while driving a vehicle which can have unpredictable economic, social, and health consequences [11,14].

SNS use has grown markedly worldwide over the past decade. For instance, in the United States, up to 5% of the American adult population had used at least one SNSs platform in 2005, which increased to 50% in 2011, and 69% at the time of writing, representing over a tenfold increase in the past 15 years. Similarly, in Great Britain, the use of SNSs rose from 45% in 2011 to 66% in 2017 [15]. Judicious SNSs use as part of a healthy 'digital diet' can result in many positive outcomes such as increased perceived social support, lower stress levels, less physical illness, greater job satisfaction, and increased psychological wellbeing [16]. However, a growing body of literature suggests that several negative psychosocial impacts can occur among a minority of SNSs users due to uncontrolled use. Even though 'SNS addiction' is not currently recognized as a formal mental health disorder, research has associated SNS addiction to

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a wide-range of psychiatric symptoms and negative outcomes such including binge drinking, phubbing, depression, social anxiety, and poor psychological functioning [17-19].

Due to the aforementioned research, one of the main concerns at the present time is that young generations, among who comprise the greatest users with potential for SNS addiction [4,19], could be prone to suffer hypertension, obesity, and consequently diabetes mellitus with an increase of cardiovascular risk [20-22]. Adolescence is a decisive period in human life because of the multiple physiological and psychological changes that take place. Behaviors engaged in alongside these changes could determine long-term health-related habits in adulthood [23].

As noted earlier, excessive SNSs use could result in various health risks, such as hypertension, as a consequence of sedentary lifestyles. Hypertension (also known as high or increased blood pressure) is a global public health issue. It contributes to the burden of heart disease, stroke, and kidney failure, as well as premature disability and mortality [24]. It disproportionately affects populations among those from low and middle-income countries (LMICs) where health systems are weak. Furthermore, hypertension rarely causes symptoms in the early stages and many people go undiagnosed. Those who are diagnosed may not have access to treatment and may not be able to successfully control their illness in the long-term [25].

Raised blood pressure is also one of the top global risks for death and disability, and is estimated to have caused over 10 million deaths (~18% of all deaths) and over 200 million years of disability-adjusted life years (DALYs) ~9% DALYs in 2017. Hypertension is also a major risk factor to health in the Americas. In Cuba specifically (where the first author resides), hypertension is attributed to have caused 19,000 deaths (~18.7% of total deaths) and approximately 345,000 DALYs (11% of total DALYs) in 2017. The prevalence of hypertension in Cuba in 2010 was 30.9% with 35.6% control of blood pressure [26].

In a previous editorial in Cardiology EC ("The Big Challenge in Cardiovascular Disease Control in Low- and Middle-Income Countries" [27]) Dr. Castillo reminded readers about the growing evidence that elevated blood pressure is a major condition implicated in the deaths of almost 10 million individuals annually worldwide. If we focus on optimal hypertension, prevention and control could significantly impact cardiovascular disease (CVD) reduction, including CVD deaths mainly in LMICs [27]. He also cited a report from the European Society of Cardiology and stated that lower-income countries, compared to high-income countries (HICs), have: (i) higher premature deaths (below 70 years) due to CVD; (ii) more potential years of life lost due to CVD, (iii) higher age-standardized incidence and prevalence of coronary heart disease and stroke, and (iv) three times more years lost, including lesser quality of life, due to CVD ill-health, disability, or early death [27].

Finally, we would add a 'fifth element'– individuals from LMICs are online more than twice as much as individuals from HICs [11]. In fact, there is no HICs in the top ten of time spent online, with Philippines being the highest in the list (at 9.45 hours per day online), and Japan being the lowest with 4.22 hours per day online [11].

Time spent online may be another factor in understanding why individuals who live in LMICs engage in unhealthy lifestyles with unfavorable consequences concerning cardiovascular health [23]. We believe that excessive SNS use might be harmful for some individuals due to sedentary behavior and increased stress resulting from an unhealthy lifestyle. However, further empirical investigation is needed to evaluate such claims [28].

At present, lifestyle is considered as the key determinant of traditional cardiovascular risk factors [29]. In light of the increasing amount of time spent engaged in screen-based sedentary behaviors such as excessive SNS use, and their impact on lifestyle, it is time to raise awareness of these behaviors to help reduce the health and economic burdens of CVD [30].

Conflict of Interest

None.

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