

## Commentary

# Mental Fatigue: A Public Health Concern?

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### Article information

Received: March 2<sup>nd</sup>, 2018; Revised: March 22<sup>nd</sup>, 2018; Accepted: March 23<sup>rd</sup>, 2018; Published: March 23<sup>rd</sup>, 2018

### Cite this article

Chow JW. Mental fatigue: A public health concern? *Sport Exerc Med Open J.* 2018; 4(1): 1-2. doi: [10.17140/SEMOJ-4-153](https://doi.org/10.17140/SEMOJ-4-153)

In our current societal state of rapid technological advancement, we are constantly being exposed to various mediums of information. Obtaining information is just a matter of a few taps away on one's phone. The ease in accessing information has its benefits and shortfalls. While the ease in acquiring information is an obvious advantage, the downside though, is the fatigue associated with the constant processing of information on a daily basis. Adding on the multitude of responsibilities that everyone has while including the balancing of personal and professional obligations, the symptoms of mental fatigue is perhaps more prevalent than those associated with physical fatigue where symptoms are visible to identify and perceive.

Mental fatigue is characterized with subjective feelings of "tiredness" and "lack of energy". This psychobiological state has been extensively researched on professions where cognitive demand is very high, such as drivers and air pilots<sup>1,2</sup> and its contribution to the development of work-related musculoskeletal disorders.<sup>3</sup> It has been reported that in the United States, approximately 29% of adults reported sleeping less than 7 hours per night<sup>4</sup> and an estimated 70 million suffer from a sleep disorder or chronic sleep deprivation<sup>5</sup> with similar subjective consequential symptoms.<sup>6</sup> In a study by The Pulse Institute (2014), where employees from three U.S. based companies were surveyed, 76% of employees felt tired most days of the week, 40% doze off during the day once per month, 30% were unhappy or very unhappy with the quality or quantity of their sleep, and 15% reported to doze off during the day at least once per week to once per day.<sup>7</sup>

The impact of mental fatigue on workplace productivity is just one spectrum of recent research. The effects on subsequent physical performance in humans has been researched in various populations as well, such as professional road cyclists, soccer players, and intermittent team sport athletes.<sup>8-10</sup> Dating back to as early as 1891, Angelo Mosso published observations of reduced mus-

cular endurance in two physiology professors following long lectures and examinations.<sup>11</sup> Presently, there is surmounting body of evidence reflecting changes in neural function related to reaction time, concentration, endurance performance, and in patients with chronic fatigue syndrome.<sup>12-17</sup>

It has been reported that people who are mentally fatigued reported greater difficulty maintaining concentration and a reduced ability to complete tasks and vigorous exercise due to loss of motivation and tolerance to physical fatigue related symptoms.<sup>18-20</sup> It is well documented that driving and sleep deprivation, alternatively known as drowsy driving, has a crucial role to traffic accidents.<sup>21</sup> Similar deprivations in exercise physiological responses have also been observed.<sup>22</sup>

This raises the need for further research to elucidate the role of mental fatigue induced by excessive information processing enabled by the advancement of technology and its role on society's overall well being. Populations of interest may include, but not limited to the clinical population of various chronic diseases, children, adolescence, athletes of various skill levels and sports, and occupations that are subjected to prolonged cognitive activity.

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