

The impact of Sport-Related Concussion and Physical Pain on Mental Health, Cognition, and Quality of Life

Daniel Walker, Adam Qureshi, David Marchant & Alex Bahrami Balani
Edge Hill University

Project Overview

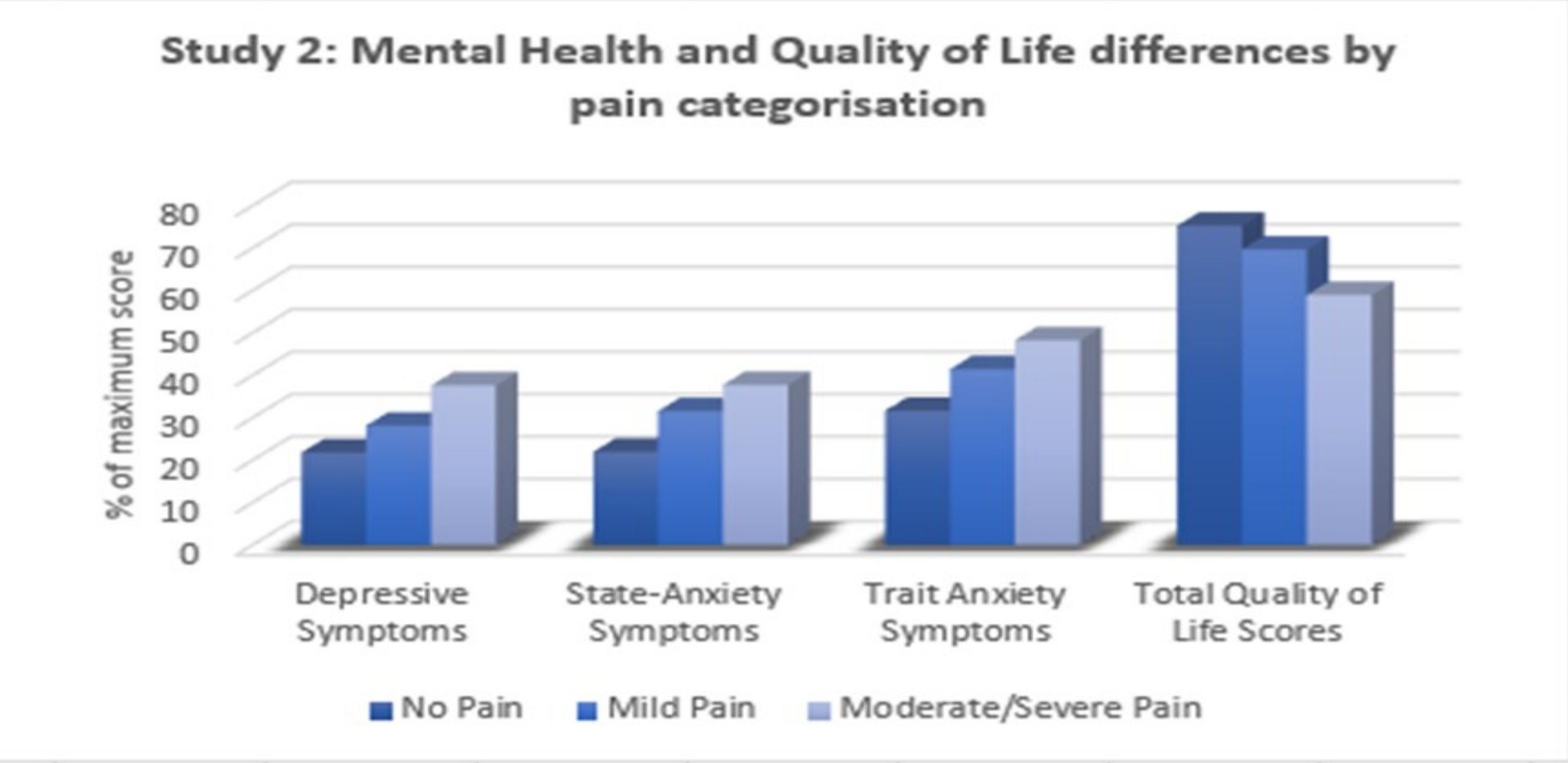
This project aims to investigate three commonly reported consequences of concussion; poor mental health, impaired cognition, and reduced quality of life. While there is a lot of evidence that concussion is associated with these three outcomes, no project to date has investigated them simultaneously. Additionally, physical pain often accompanies concussion, and therefore it is surprising that this is not included in much of the concussion literature. This project intends to shed light on the roles that both concussion and pain have on mental health, cognition,

Method

Participants: All participants completed a general information questionnaire gathering demographic variables including concussion history and pain (NRS-11).
Measures: CESD (1) measured depressive symptoms and STAI (2) measured anxiety symptoms. Quality of life was recorded using SF-12 (3), and a Trail Making Task assessed cognitive flexibility.

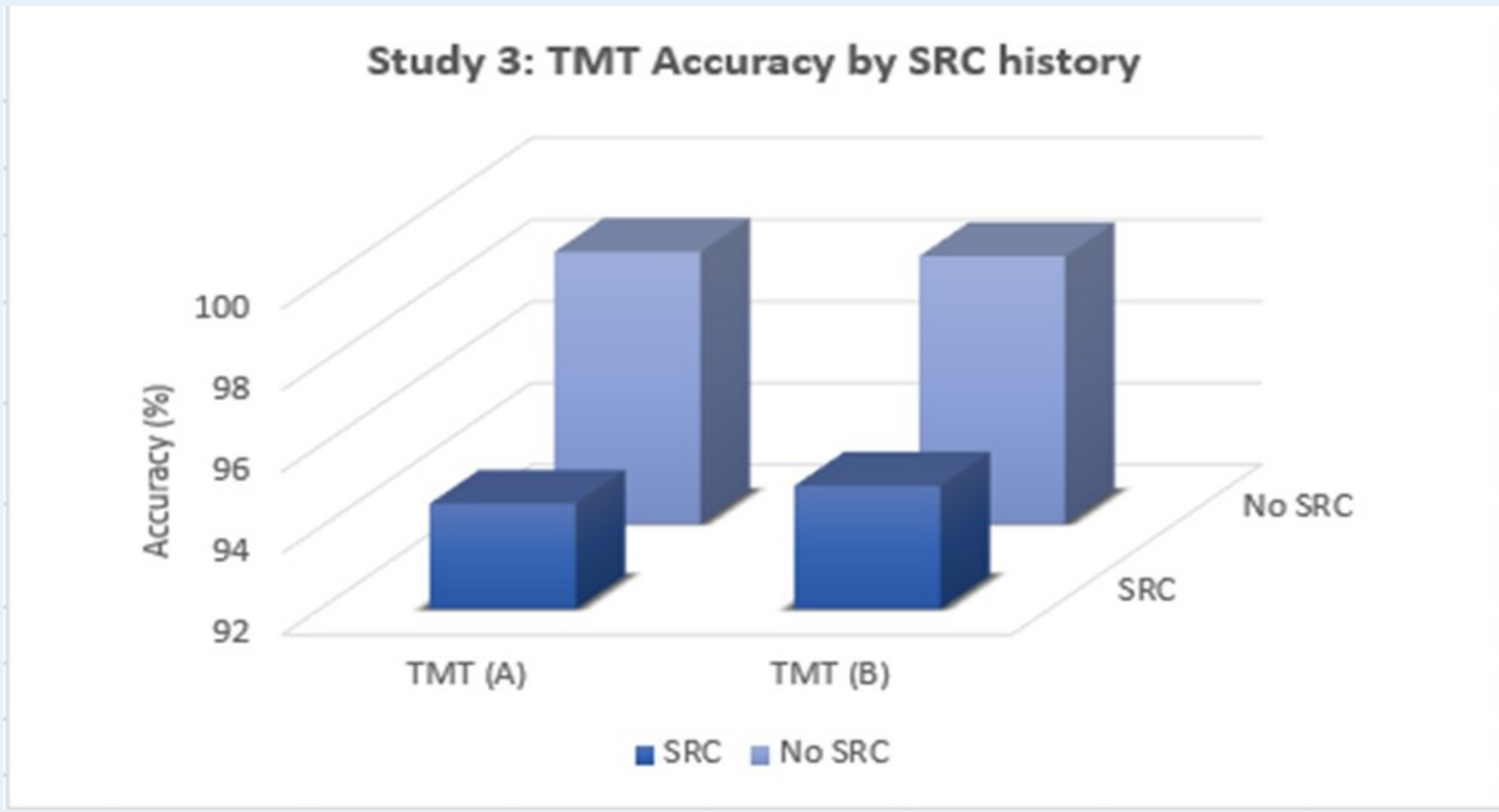
Study 1: Incorporating physical pain in concussion research

Results: Analysis (N=67, 32 Concussed) revealed (i) concussion had a significant effect on depressive symptoms when controlling for pain but no effect on quality of life when controlling the same variable (ii) pain had a significant effect on depressive symptoms and quality of life.
Conclusion: Concussion and physical pain negatively impact depressive symptoms, however, individuals may only recognise a reduction in quality of life with increased physical pain, suggesting pain may be more relevant than the concussive event itself. Therefore, physical pain ought to be incorporated into concussion research more often.



Study 2: Physical Pain vs. Concussion History: Which has the greater influence on Mental Health and Quality of Life?
Results: Analysis (n=102, 56 Concussed) revealed (i) increasing levels of physical pain resulted in elevated depression and anxiety and lower quality of life (ii) concussion history was found to have no significant effect on these outcomes (iii) headache scores also had no significant effect on said outcomes.
Conclusion: It appears that physical pain has a greater influence on mental health and quality of life than concussion. Headache scores suggest that physical pain experienced can not be attributed to persistent concussion symptoms.

Study 3: Providing a clearer insight into how concussion and pain impact mental health, cognition, and quality of life
Results: Analysis (n=84, 45 Concussed) revealed (i) SRC history led to poor accuracy on TMT but had no bearing on mental health and quality of life, and (ii) physical pain did not impact cognitive flexibility but was responsible for poorer mental health and lower quality of life.
Conclusion: SRC and pain have differing influences on mental health, cognition, and quality of life. Concussion appears to be more responsible for impaired cognition whereas physical pain is associated with poorer mental health and reduced quality of life. Therefore, we can predict the outcome of these events and support athletes that have sustained SRC, are experiencing physical pain, or both.



Future Directions

From this research, physical pain ought to be incorporated into concussion research as much as possible, due to the overlap of outcomes that are being reported. We illustrate here that concussion may be more responsible for cognitive impairment whereas pain may be more responsible for poor mental health and quality of life, and this requires more attention. In addition, the NRS-11 utilised to assess pain may not be the most robust, and therefore, we are currently collecting data in an attempt to develop a new pain scale that captures different areas of

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