

Rates of Self-reported Concussive and Affective Symptoms at Baseline in a Sample of University Athletes

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Abstract

The current study sought to determine the rate of concussive and affective symptom reporting at preseason baseline and to examine potential differences by sex and sport in a Canadian sample of varsity athletes. Previous research shows that these symptoms can be important predictors of prolonged recovery from concussion (Broshek et al., 2015). Participants (n=334; 30% female) were healthy university athletes who completed the Depression, Anxiety & Stress Scale (DASS) and the Post-Concussion Symptom Scale (PCSS) as part of a preseason baseline evaluation. Scores on the self-report measures were coded by severity based on standard cut-offs. Athletes scored above the normal range on each of the DASS scales at the following rates: Depression 3.3%, Anxiety 5.2%, and Stress 3.6%. Over 25% of athletes endorsed higher than normal levels on the PCSS. Females reported more symptoms on the PCSS, which is consistent with previous research (Brown et al., 2015). No other significant sex or sport-related difference was found. Whereas the rates of concussion symptoms at baseline were consistent with previous research (Iverson & Lange, 2003), studies have generally revealed higher rates of depressive symptoms than the current study suggests (Yang et al., 2007). No comparable studies that examine anxiety and stress symptom reporting at baseline testing were located.

Introduction

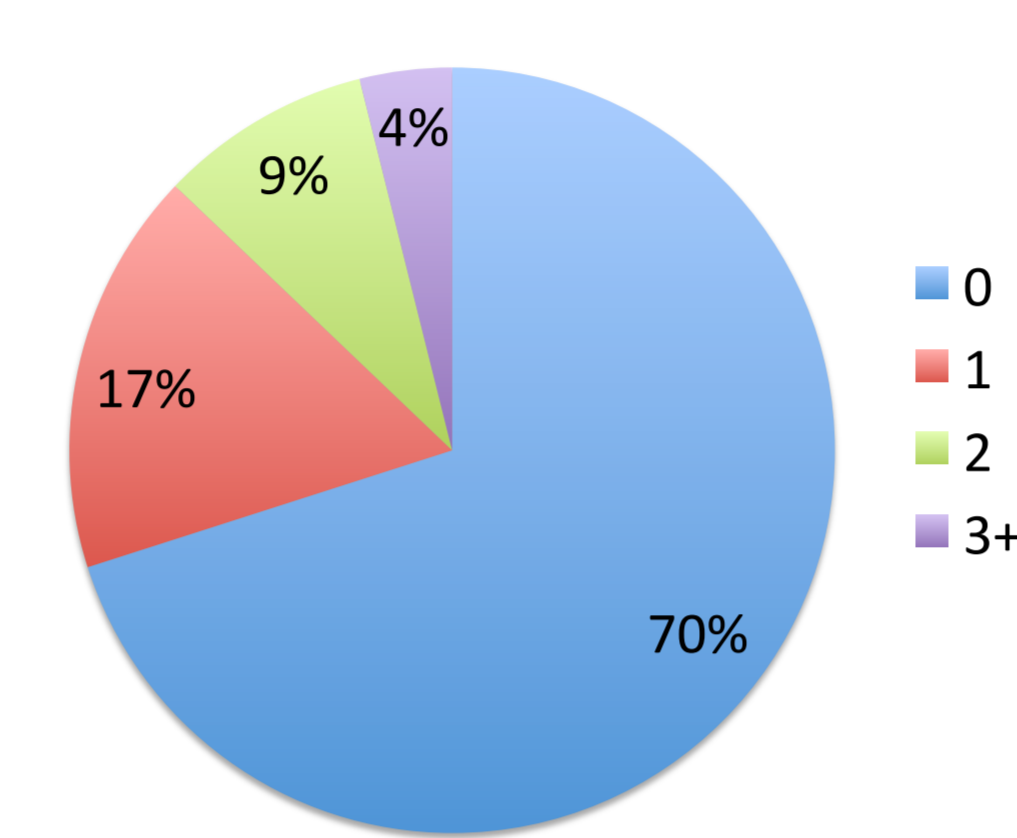
- Baseline testing is recommended in concussion management to facilitate tracking of symptoms and neurocognitive functioning following an injury (McCroory et al., 2013).
- Premorbid affective and concussive symptoms may prolong recovery from concussion (Broshek et al., 2015).
- Rates of concussive (Iverson & Lange, 2003) and depressive (Yang et al., 2007) symptoms in athletes at baseline have been previously documented, but no comparable studies examine premorbid rates of anxiety and stress symptoms.
- Sex differences in symptom reporting among athletes have previously been found (Brown et al., 2015).
- The current study explores the rates of concussive and affective symptom reporting at preseason baseline and examines potential differences in sex, sport, and history of concussion.

Method

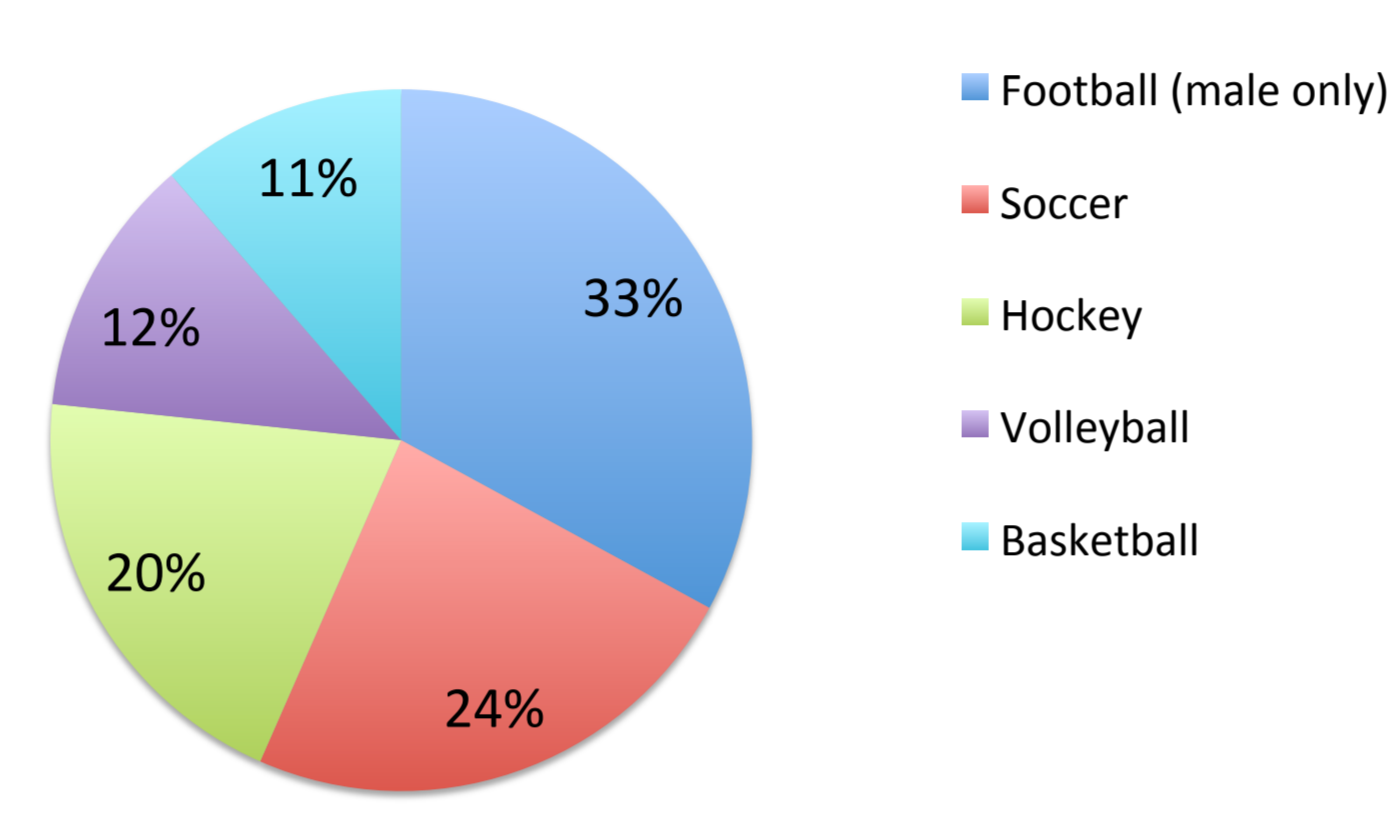
- Participants:** 334 university athletes (30% female) aged 17 to 27 years ($M = 19.6$, $SD = 1.85$).
- Measures:**
 - Post-Concussion Symptom Scale (PCSS; Pardini et al., 2004)
 - Depression Anxiety Stress Scale (DASS; Lovibond & Lovibond, 1995)
- Athletes completed the PCSS and DASS as part of their pre-season baseline assessment that included the Immediate Post-concussion Assessment and Cognitive Testing (ImPACT®; Lovell & Collins, 2002).
- Scores were coded as severity levels based on the respective normed cut-offs.

Results

Number of Prior Concussions



Sport Played



t-test	M(SD) ₁	M(SD) ₂	t (332)	p	d
SEX	Female	Male			
PCSS	5.73 (9.02)	5.18 (7.58)	.58	.56	.07
Depression	1.79 (3.34)	1.41 (3.30)	.58	.34	.11
Anxiety	2.43 (3.08)	1.89 (2.94)	1.53	.13	.18
Stress	3.89 (4.87)	3.03 (4.13)	1.54	.13	.19
CONCUSSION	No	Yes			
PCSS	5.23 (7.55)	5.61 (9.09)	-.40	.69	.05
Depression	1.53 (3.38)	1.52 (3.18)	.01	.99	.002
Anxiety	2.09 (2.99)	1.96 (2.98)	.35	.73	.04
Stress	3.22 (4.39)	3.45 (4.35)	-.44	.66	.05

- Approximately 25% of athletes reported greater than normal levels of concussive symptoms at baseline (i.e., >10 symptoms for females & >5 symptoms for males).
- 3-5% of athletes reported greater than normal levels of affective symptoms (depression 3.4%, anxiety 5%, stress 4%).
- No significant between-group differences in reported concussive or affective symptoms were found based on sex, history of concussion, or sport played.

ANOVA	F (4,329)	p	η_p^2
SPORT			
PCSS	1.99	.10	.02
Depression	1.32	.26	.02
Anxiety	.86	.49	.01
Stress	1.82	.12	.02

Conclusions

- Whereas rate of concussive symptoms reported at baseline was consistent with previous research (Iverson & Lange, 2003), studies have generally revealed higher rates of depressive symptoms than those found in the current sample (Yang et al., 2007).
- This is the first study to document the rates of anxiety and stress reported by university athletes at baseline.
- No differences in reported symptoms were found based on sex, sport, or presence of prior concussions.
- These findings can inform clinical practice with university athletes since premorbid symptoms may be related to prolonged recovery following concussion (Broshek et al., 2015).

References

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