

TABLE 1 Occurrence of (symptoms of) mental health disorders among current elite athletes: data extraction from included studies.

Article information	Study population	Study design	Outcome measures (caseness cut-off)	Prevalence/incidence % (95% CI)
Biggins 2017 ¹⁵	N= 69 A= 22.7 yrs (SD=4.1) G= M:F 69:0 Nat= Ireland S= Gaelic football and hurling	Observational cross-sectional	Definition: 1-month prevalence of sleep disturbance Instrument(s): - Sleep quality: PSQI (≥5)	1-month prevalence; - Poor sleep 47.8 (NR)
Drew 2017 ¹⁷	N= 132 A= A= Male: 25.8 yrs (SD=4.1); Female: 24.3 yrs (SD=3.9) G= M:F 47:85 Nat= Australia S= Olympic Sports (Boxing, Equestrian, Football, Gymnastics, Hockey, Rowing, Rugby sevens, Sailing, Triathlon, and Water polo)	Observational cross-sectional	Definition: Prevalence of poor sleep quality, and poor mental health symptoms Instrument(s): - Depression: DASS-21 subscale (>4) - Anxiety: DASS-21 subscale (>3) - Stress: DASS-21 subscale (>8) - Sleep quality: PSQI (≥5) - Sleepiness: ESS (>10)	Prevalence; - Depression 17 (NR) - Anxiety 19 (NR) - Stress 14 (NR) - Poor sleep 49 (NR) - Sleepiness 22 (NR)
Du Preez 2017 ¹⁸	N= 404 A= 21.4 yrs (SD=3.6) G= M:F 404:0 Nat= Australia S= Rugby	Observational cross-sectional	Definition: Prevalence of depression, generalized anxiety, and alcohol misuse Instrument(s): - Depression: PHQ-9 (≥10) - Anxiety/depression: GAD-7 (≥10) - Alcohol Misuse: AUDIT-C (≥4)	Prevalence; - Depression 17 (NR) - Anxiety 19 (NR) - Alcohol Misuse 68.6 (NR)
Escobar-Molina 2014 ¹⁹	N= 68 A= 21.4 yrs (SD=3.0) G= M:F 37:31 Nat= Spain S= Judo	Observational cross-sectional	Definition: Mean scores of anxiety and eating attitudes Instrument(s): - Anxiety: STAI-T (NR) - Eating attitudes: EAT-40 (NR)	Mean Scores; - Anxiety 17.7 (SD=6.9) - Eating attitudes 12.2 (SD=9.1)
Foskett 2018 ²⁰	N= 143 A= 24 yrs (SD=8.6) G= M:F 81:61* Nat= UK S= 25 different sports	Observational cross-sectional	Definition: Prevalence of signs of distress and anxiety/depression Instrument(s): - Distress :4DSQ (≥4) - Anxiety/depression: GHQ-12 (≥2)	Prevalence; - Distress 26.8 (NR) - Anxiety/depression 47.8 (NR)
Giel 2016 ²¹	N= 1138 A= 16.3 yrs (SD=1.1)	Observational cross-sectional	Definition: Prevalence of depression/anxiety, and eating disorder pathology	Prevalence (among individuals non-weight dependent sports);

	G =M:F 638:500* Nat = Germany S = 51 Olympic sports		Instrument(s): - Depression/Anxiety: PHQ-4 (>5) - Eating Disorders: FKKS (<19), SIAB-S (>1 compensatory behavior), and SCOFF (>1 positive answer)	- Eating Disorder Pathology 27.9 (NR) - Anxiety/depression 6.9 (NR)
Goutteborge 2015 ¹²	N = 607 A = 26.8 yrs (SD=4.4) G =M:F 607:0 Nat = Belgium, Chile, Finland, France, Japan, Norway, Paraguay, Peru, Spain, Sweden, Switzerland S =Football (soccer)	Observational cross-sectional	Definition: 4-week prevalence of symptoms of distress, anxiety/depression, smoking, and adverse alcohol use. Instrument(s): - Distress: 4DSQ (≥4) - Anxiety/depression: GHQ-12 (≥3) - Adverse alcohol use: AUDIT-C (≥5)	4-week prevalence; - Distress 14.8 (11.8-17.8) - Anxiety/depression 37.9 (33.7-42.2) - Sleep disturbance 23.4 (19.8-26.9) - Adverse alcohol use 9.4 (7.0-11.9)
Goutteborge 2015 ²²	N = 149 A = 27 yrs (SD=5) G =M:F 607:0 Nat = Australia, Ireland, The Netherlands, New Zealand, Scotland and USA S =Football (soccer)	Observational cross-sectional	Definition: 6-month prevalence of symptoms of distress, burnout, 1-month prevalence of anxiety/depression, and point prevalence of smoking, and adverse alcohol use. Instrument(s): - Distress :4DSQ (≥4) - Anxiety/depression: GHQ-12 (≥3) - Burnout: Utrecht Burn-Out Scale (>75% percentile from the reference population) - Adverse alcohol use: AUDIT-C (≥5)	1-month prevalence; - Distress 10 (6-16) - Anxiety/depression 26 (19-33) 6-month prevalence; - Burnout 5 (2-10) - Low self-esteem 3 (1-8) Point prevalence; - Smoking 7 (4-12) - Adverse alcohol use 19 (13-26)
Goutteborge 2016 ²⁴	N =204 (baseline), 108 (6-month follow-up) A =25 yrs (SD=4) G =M:F 204:0 Nat = Ireland S = Gaelic sports (hurling/football)	Observational prospective cohort	Definition: 4-week prevalence, and 6-month incidence of symptoms of distress, anxiety/depression, sleep disturbance, and adverse alcohol use. Instrument(s): - Distress :4DSQ (≥4) - Anxiety/depression: GHQ-12 (≥3) - Sleep disturbance: PROMIS Sleep (≥13) - Adverse alcohol use: AUDIT-C (≥5)	4-week prevalence; - Distress 38.3 (31.4–45.3) - Anxiety/depression 47.8 (40.6–55.1) - Sleep disturbance 33.0 (26.3–39.7) - Adverse alcohol use 23.2 (17.0–29.4) 6-month incidence; - Distress 14.1 (7.6–24.2) - Anxiety/depression 20.7 (12.1–33.4) - Sleep disturbance 11.1 (5.5–20.7) - Adverse alcohol use 17.5 (10.6–27.4)
Goutteborge 2017 ¹³	N =203 (baseline), 143 (12-month follow-up) A = 27 yrs (SD=7)	Observational prospective cohort	Definition: 12-month incidence of symptoms of distress, anxiety/depression, sleep disturbance, and adverse alcohol use.	12-month incidence; - Distress 32.4 (19.6–48.6) - Anxiety/depression 56.8 (40.9–71.3)

	G =M:F 73:130 Nat = Netherlands S = Mixed Olympic and national team athletes		Instrument(s): - Distress :4DSQ (≥ 4) - Anxiety/depression: GHQ-12 (≥ 3) - Sleep disturbance: PROMIS Sleep (≥ 13) - Adverse alcohol use: AUDIT-C (≥ 5)	- Sleep disturbance 19.4 (9.5–35.3) - Adverse alcohol use 5.6 (0.6–19.1) - Eating disorders 16.7 (7.5–32.3)
Goutteborge 2017 ²⁸	N =384 (baseline), 262 (12-month follow-up) A =27 yrs (SD=NR) G =M:F 384:0 Nat = Finland, France, Norway, Spain, Sweden S =Football (soccer)	Observational prospective cohort	Definition: 12-month incidence of symptoms of distress, anxiety/depression, sleep disturbance, and adverse alcohol use. Instrument(s): - Distress :4DSQ (≥ 4) - Anxiety/depression: GHQ-12 (≥ 3) - Sleep disturbance: PROMIS Sleep (≥ 13) - Adverse alcohol use: AUDIT-C (≥ 5)	12-month incidence; - Distress 11.9 (7.3-18.5) - Anxiety/depression 37.0 (29.4-45.4) - Sleep 18.5 (12.8-26.0) - Adverse alcohol use 14.1 (9.1-21.0)
Goutteborge 2017 ³¹	N =135 (baseline), 81 (6-month follow-up) A =26 yrs (SD=5) G =M:F 135:0 Nat =Denmark, Finland, Norway, Switzerland S =Ice hockey	Observational prospective cohort	Definition: 4-week prevalence, and 6-month incidence of symptoms of distress, anxiety/depression, sleep disturbance, and adverse alcohol use. Instrument(s): - Distress :4DSQ (≥ 4) - Anxiety/depression: GHQ-12 (≥ 3) - Sleep disturbance: PROMIS Sleep (≥ 13) - Adverse alcohol use: AUDIT-C (≥ 5) - Eating disorders: Eating Disorder Screen - Primary Care (≥ 2)	4-week prevalence; - Distress 13.4 (8.6–20.3) - Anxiety/depression 24.1 (17.6–32.0) - Sleep disturbance 15.0 (9.9–22.2) - Adverse alcohol use 7.6 (4.0–13.5) - Eating disorders 17.6 (10.2–28.5) 6-month incidence; - Distress 5.6 (<0.1–27.7) - Anxiety/depression 16.7 (5.0–40.1) - Sleep disturbance 11.1 (1.9–34.1) - Adverse alcohol use 5.6 (<0.1–27.7) - Eating disorders 22.2 (8.5–45.8)
Goutteborge 2017 ²⁹	N =990 A =25 yrs (SD=4) G =M:F 941:49 Nat =Argentina, Australia, Canada, England, France, Ireland, Italy, New Zealand, Pacific Islands, South Africa, USA, Wales S =Rugby	Observational cross-sectional	Definition: 4-week prevalence of symptoms of distress, anxiety/depression, sleep disturbance, eating disorders, and adverse alcohol use. Instrument(s): - Distress :4DSQ (≥ 4) - Anxiety/depression: GHQ-12 (≥ 3) - Sleep disturbance: PROMIS Sleep (≥ 13) - Adverse alcohol use: AUDIT-C (≥ 5) - Eating disorders: Eating Disorder Screen - Primary Care (≥ 2)	4-week prevalence; - Distress 17 (15–20) - Anxiety/depression 30 (27–33) - Sleep disturbance 13 (11–15) - Adverse alcohol use 15 (13–18) - Eating disorders 23 (20–26)
Goutteborge 2018 ³²	N =595 (baseline), 333 (12-month follow-up) A =26 yrs (SD=4) G =M:F 595:0	Observational prospective cohort	Definition: 12-month incidence of symptoms of distress, anxiety/depression, sleep disturbance, and adverse alcohol use.	12-month incidence; - Distress 11 (6–16) - Anxiety/depression 28 (21–35) - Sleep disturbance 12 (7–17)

	<p>Nat= Argentina, Australia, Canada, England, France, Ireland, Italy, New Zealand, Pacific Islands (including Fiji, Samoa, Tonga), South Africa, USA, Wales</p> <p>S=Rugby</p>		<p>Instrument(s):</p> <ul style="list-style-type: none"> - Distress :4DSQ (≥ 4) - Anxiety/depression: GHQ-12 (≥ 3) - Sleep disturbance: PROMIS Sleep (≥ 13) - Adverse alcohol use: AUDIT-C (≥ 5) 	<ul style="list-style-type: none"> - Adverse alcohol use 22 (15–29) - Eating disorders 11 (6–16)
Gulliver 2015 ³³	<p>N=224</p> <p>A= 24.9 yrs (SD=6.0)</p> <p>G=M:F 106:118</p> <p>Nat= Australia</p> <p>S=Cricket, football (soccer), hockey, netball, rowing, sailing, water polo, softball, athletics/track and field, cycling (track and road), skiing (alpine and aerial), volleyball, golf, powerlifting, archery, beach volleyball, canoe slalom, gymnastics, swimming, triathlon, basketball, kayak, orienteering, skeleton</p>	Observational cross-sectional	<p>Definition: Prevalence of general psychological distress and common mental disorders.</p> <p>Instrument(s):</p> <ul style="list-style-type: none"> - Distress: K-10 (≥ 22) - Anxiety: GAD-7 (≥ 11) - Depression: CES-D (≥ 16) - Social anxiety: SPIN (≥ 19) - Panic disorder: PDSS-SR (≥ 19) - Eating disorders: SCOFF (≥ 2) 	<p>Prevalence;</p> <ul style="list-style-type: none"> - Distress:16.5 (NR) - Anxiety: 7.1 (NR) - Depression:27.2 (NR) - Social anxiety:14.7 (NR) - Panic disorder: 4.5 (NR) - Eating disorders: 22.8 (NR)
Hakansson 2018 ³⁴	<p>N= 352</p> <p>A= 23.7 (SD = 3.2)</p> <p>G= M:F 141:211</p> <p>Nat= Sweden</p> <p>S= Several (most common: athletics; martial arts; cross-country skiing; handball; canoeing; alpine skiing; gymnastics)</p>	Observational cross-sectional	<p>Definition: Prevalence of problem gambling, problem gaming, and hazardous drinking</p> <p>Instrument(s):</p> <ul style="list-style-type: none"> - Problem gambling: NODS-CLiP (≥ 1) - Problem gaming: GASA (≥ 4) - Adverse alcohol use: AUDIT-C (≥ 5 male; ≥ 4 female) 	<p>Prevalence;</p> <ul style="list-style-type: none"> - Problem gambling: 7 (NR) - Problem gaming: 2 (NR) - Hazardous drinking: 26 (NR)
Hulley 2001 ³⁶	<p>N=184</p> <p>A=28.5 (SD=0.5)</p> <p>G=M:F 0:184</p> <p>Nat=England, Scotland, Wales</p> <p>S=Distance running</p>	Observational cross-sectional	<p>Definition: Prevalence of eating disorder.</p> <p>Instrument(s):</p> <p>Diagnostic instrument not specified.</p>	<p>Prevalence;</p> <ul style="list-style-type: none"> - Anorexia nervosa n=7, 3.8 (NR) - Bulimia nervosa n=2, 1.1 (NR) - EDNOS n=20, 10.9 (NR)
Junge 2016 ³⁷	<p>N=471</p> <p>A=22.3 yrs (SD=4.47)</p> <p>G=M:F 289:182</p> <p>Nat=Switzerland</p> <p>S=Football (soccer)</p>	Observational cross-sectional	<p>Definition: Prevalence of depression and anxiety.</p> <p>Instrument(s):</p> <ul style="list-style-type: none"> - Depression: CES-D (≥ 16, 21) - Anxiety: GAD-7 (≥ 10) 	<p>Prevalence;</p> <ul style="list-style-type: none"> - Depression, mild-moderate n=33, 7.6 (NR) - Depression, major n=13, 3.0 (NR) - Anxiety, moderate n=6, 1.4 (NR)

Kilic 2017 ³⁹	<p>N=348 football, 232 handball A=25.8 yrs (SD=4.9) football, 25.3 yrs (SD=4.5) handball G=M:F 285:63 football, 118: 114 handball Nat=Denmark S=Football (soccer), handball</p>	Observational cross-sectional	<p>Definition: 4-week prevalence of symptoms of distress, anxiety/depression, sleep disturbance, and adverse alcohol use.</p> <p>Instrument(s):</p> <ul style="list-style-type: none"> - Distress :4DSQ (≥ 4) - Anxiety/depression: GHQ-12 (≥ 3) - Sleep disturbance: PROMIS Sleep (≥ 13) - Adverse alcohol use: AUDIT-C (≥ 5) 	<p>Prevalence football;</p> <ul style="list-style-type: none"> - Distress 14.7 (10.9–18.4) - Anxiety/depression 18.1 (14.1–22.2) - Sleep disturbance 15.8 (12.0–19.6) - Adverse alcohol use 2.9 (1.1–4.6) <p>Prevalence handball;</p> <ul style="list-style-type: none"> - Distress 19.8 (14.7–25.0) - Anxiety/depression 26.3 (20.6–32.0) - Sleep disturbance 22.0 (16.7–27.3) - Adverse alcohol use 2.6 (0.5–4.6)
Schaal 2011 ⁴¹	<p>N=2067 A=18.5 yrs (SD=4.9) G=M:F 1339:728 Nat=France S=Mixed Olympic sports</p>	Observational cross-sectional and retrospective	<p>Definition: 4-week prevalence of symptoms of distress, anxiety/depression, sleep disturbance, eating disorders, and adverse alcohol use.</p> <p>Instrument(s):</p> <ul style="list-style-type: none"> - Clinical diagnosis (physician or psychologist) according to DSM-IV criteria 	<p>Prevalence current;</p> <ul style="list-style-type: none"> - Generalised anxiety 6 (NR) - Panic disorder 1.2 (NR) - Agrophobia 1.0 (NR) - OCD 1.6 (NR) - Social phobia 0.8 (NR) - Major depression 0.7 (NR) - Anorexia nervosa 0.2 (NR) - Bulimia nervosa 0.4 (NR) - EDNOS 4.3 (NR) - Sleep problems (>15 days) 21.5 (NR) - Psychosis 0.2 (NR) - Substance abuse / dependence 0 <p>Prevalence lifetime;</p> <ul style="list-style-type: none"> - Generalised anxiety 8 (NR) - Panic disorder 2.8 (NR) - Agrophobia 1.8 (NR) - OCD 1.7 (NR) - Social phobia 1.3 (NR) - Major depression 2.6 (NR) - Anorexia nervosa 1.1 (NR) - Bulimia nervosa 1.4 (NR) - EDNOS 6.2 (NR) - Sleep problems (>15 days) 26.6 (NR) - Psychosis 0.4 (NR) - Substance abuse / dependence 4.1 (NR)
Schuring 2017 ¹⁴	<p>N=78 (baseline), 53 (6-month follow-up) A= 27 yrs (SD=5)</p>	Observational prospective cohort	<p>Definition: 4-week prevalence, and 6-month incidence of symptoms of distress,</p>	<p>Prevalence;</p> <ul style="list-style-type: none"> - Distress 38.4 (28.0–49.8) - Anxiety/depression 37.0 (26.8–49.1)

	G =M:F 68:10 Nat =South Africa S =Cricket		anxiety/depression, sleep disturbance, and adverse alcohol use. Instrument(s): - Distress :4DSQ (≥ 4) - Anxiety/depression: GHQ-12 (≥ 3) - Sleep disturbance: PROMIS Sleep (≥ 13) - Adverse alcohol use: AUDIT-C (≥ 5)	- Sleep disturbance 38.4 (28.0–49.8) - Adverse alcohol use 26.0 (17.3–37.2) 6-month incidence; - Distress 9.4 (2.5–25.0) - Anxiety/depression 15.6 (6.4–32.2) - Sleep disturbance 15.2 (6.2–31.4) - Adverse alcohol use 15.6 (6.4–32.2)
Tan 2016 ⁴³	N =51 A = 16.70 yrs (2.46) G =M:F 16:35 Nat = England, Scotland, Wales S =Gymnastics	Observational cross-sectional	Definition: Identify symptom patterns of eating disorder and depression. Instrument(s): Depression: BDI-II (10-18, ≥ 19) Eating problem: EAT-26 (20)	Prevalence current; Depression, mild 40 (NR) Depression, moderate 6 (NR) Eating problem 19 (NR)

*N, number of participants; A, mean age in years; G, gender; Nat, nationality; S, sport discipline(s); yrs, years; %, percentage; CI, Confidence interval; SD, Standard deviation; NR, Not reported; EDNOS, Eating disorders not otherwise specified; *one participant did not specify gender*

TABLE 2 Occurrence of (symptoms of) mental health disorders among former elite athletes: data extraction from included studies.

Article information	Study population	Study design	Outcome measures (caseness cut-off)	Prevalence/incidence % (95% CI)
Brown 2017 ¹⁶	N = 173 (voluntary retirement), 120 (forced retirement) A =39 yrs (SD=5) voluntary, 37 yrs (SD= 5) forced G = M:F 293:0 Nat =France, Ireland and South Africa S =Rugby	Observational prospective cohort	Definition: Prevalence of symptoms of distress, anxiety/depression, sleep disturbance, and adverse alcohol use. Instrument(s): - Distress :4DSQ (≥4) - Anxiety/depression: GHQ-12 (≥3) - Sleep disturbance: PROMIS Sleep (≥13) - Adverse alcohol use: AUDIT-C (≥5)	Prevalence voluntary retirement; - Distress 18.9 (NR) - Anxiety/depression 26.1 (NR) - Sleep disturbance 23.9 (NR) - Adverse alcohol use 21.9 (NR) Prevalence forced retirement; - Distress 32.8 (NR) - Anxiety/depression 32.7 (NR) - Sleep disturbance 34.5 (NR) - Adverse alcohol use 26.3 (NR)
Gouttebarge 2015 ²²	N =104 A =36 yrs (SD=5) G =M:F 104:0 Nat =Australia, Ireland, The Netherlands, New Zealand, Scotland and the USA S =Football (soccer)	Observational cross-sectional	Definition: Prevalence of symptoms of distress, anxiety/depression, and adverse alcohol use. Instrument(s): - Distress :4DSQ (≥4) - Anxiety/depression: GHQ-12 (≥3) - Adverse alcohol use: AUDIT-C (≥5)	Prevalence; - Distress 18 (12–27) - Anxiety/depression 39 (30–49) - Adverse alcohol use 32 (24–41)
Gouttebarge 2016 ^{25,26}	N =219 A = 35.0 yrs (SD=6.4) G =M:F 219:0 Nat = Belgium, Chile, Finland, France, Japan, Norway, Paraguay, Peru, Spain, Sweden Switzerland S =Football (soccer)	Observational cross-sectional	Definition: Prevalence of symptoms of distress, anxiety/depression, and adverse alcohol use. Instrument(s): - Distress :4DSQ (≥4) - Anxiety/depression: GHQ-12 (≥3) - Sleep disturbance: PROMIS Sleep (≥13) - Adverse alcohol use: AUDIT-C (≥5)	Prevalence; - Distress 18.4 (13.2 - 23.7) - Anxiety/depression 35.3 (28.4 - 42.1) - Sleep disturbance 28.2 (22.0 - 34.3) - Adverse alcohol use 24.6 (18.7 - 30.6)
Gouttebarge 2016 ²⁷	N = 295 A = 38 yrs (SD=6) G =M:F 295:0 Nat = France, Ireland and South Africa, S = Rugby	Observational cross-sectional	Definition: Prevalence of symptoms of distress, anxiety/depression, and adverse alcohol use. Instrument(s): - Distress :4DSQ (≥4) - Anxiety/depression: GHQ-12 (≥3) - Sleep disturbance: PROMIS Sleep (≥13) - Adverse alcohol use: AUDIT-C (≥5)	Prevalence; - Distress 24.8 (19.7–29.9) - Anxiety/depression 28.4 (23.1–33.7) - Sleep disturbance 28.8 (23.1–34.5) - Adverse alcohol use 23.8 (18.8–28.9)

Gouttebarga 2017 ³⁰	N =282 A = 50.7 (15.1) G =M:F 138:144 Nat = Netherlands S =Mixed Olympic and national team athletes	Observational cross-sectional	Definition: Prevalence of symptoms of distress, anxiety/depression, adverse alcohol use, and eating disorder. Instrument(s): - Distress :4DSQ (≥ 4) - Anxiety/depression: GHQ-12 (≥ 3) - Sleep disturbance: PROMIS Sleep (≥ 13) - Adverse alcohol use: AUDIT-C (≥ 5) - Eating disorders: Eating Disorder Screen - Primary Care (≥ 2)	Prevalence; - Distress 17.5 (13.1–21.9) - Anxiety/depression 29.4 (24.1–34.8) - Sleep disturbance 21.8 (17.0–26.6) - Adverse alcohol use 23.2 (18.2–28.2) - Eating disorder 27.4 (22.2–32.7)
Gouttebarga 2017 ³¹	N = 123 (baseline), 77 (6-month follow-up) A =35 yrs (8) G =M:F 123:0 Nat =Denmark, Finland, Norway, Switzerland S =Ice hockey	Observational prospective cohort	Definition: 4-week prevalence, and 6-month incidence of symptoms of distress, anxiety/depression, sleep disturbance, and adverse alcohol use. Instrument(s): - Distress :4DSQ (≥ 4) - Anxiety/depression: GHQ-12 (≥ 3) - Sleep disturbance: PROMIS Sleep (≥ 13) - Adverse alcohol use: AUDIT-C (≥ 5) - Eating disorders: Eating Disorder Screen - Primary Care (≥ 2)	4-week prevalence; - Distress 11.7 (6.8–19.1) - Anxiety/depression 19.4 (13.0–28.0) - Sleep disturbance 16.7 (10.7–24.9) - Adverse alcohol use 28.7 (21.0–37.9) - Eating disorders 23.8 (14.9–35.7) 6-month incidence; - Distress 8.3 (<0.0–37.5) - Anxiety/depression 8.3 (<0.0–37.5) - Sleep disturbance 25.0 (8.3–53.9) - Adverse alcohol use 16.7 (3.5–46.0) - Eating disorders 8.3 (<0.0–37.5)
Hart 2013 ³⁵	N = 34 A =61.8 yrs (57.8–65.7) G =M:F 34:0 Nat =USA S =American Football	Observational cross-sectional	Definition: Diagnoses of depression, dementia, Alzheimer disease and mild cognitive impairment Instrument(s): - Depression: BDI-II (NR) - Dementia: DSM-IV (NR) - Alzheimer Disease (NR) - Mild Cognitive Impairment (NR)	Prevalence; - Depression: 24 (NR) - Dementia: 6 (NR) - Alzheimer Disease: 12 (NR) - Mild Cognitive Impairment: 23 (NR)
Kerr 2012 ³⁸	N = 2536 (2001), 1316 (2010) A =NR G =M:F 2536:0 Nat = USA S = American football	Observational prospective cohort	Definition: Prevalence and 9-year incidence of clinical diagnosis of depression Instrument(s): - Depression: GHS questions	2010 prevalence; - Depression 42.0 (39.7–44.3) 9-year incidence; - Depression –4.4 (–7.1 to –1.7)
Kilic 2017 ³⁹	N =345 football, 230 handball A =34.0 yrs (SD=4.9) football, 35.0 yrs (SD=5.6) handball G =M:F 79:21 football, 100:0 handball	Observational cross-sectional	Definition: 4-week prevalence of symptoms of distress, anxiety/depression, sleep disturbance, eating disorders, and adverse alcohol use.	Prevalence football; - Distress 8.7 (5.2–12.1) - Anxiety/depression 18.7 (13.8–23.5) - Sleep disturbance 11.0 (7.2–14.9) - Adverse alcohol use 8.4 (4.9–11.8)

	Nat =Denmark S =Football (soccer), handball		Instrument(s): - Distress :4DSQ (≥ 4) - Anxiety/depression: GHQ-12 (≥ 3) - Sleep disturbance: PROMIS Sleep (≥ 13) - Adverse alcohol use: AUDIT-C (≥ 5)	Prevalence handball; - Distress 16.3 (10.8–21.8) - Anxiety/depression 15.8 (10.3–21.3) - Sleep disturbance 12.2 (7.3–17.1) - Adverse alcohol use 7.0 (3.2–10.9)
Sanders 2017 ⁴⁰	N = 307 A = 46.8 (SD=15.7) G =M:F 307:0 Nat = UK S = Football (soccer)	Observational cross-sectional	Definition: Prevalence of possible clinically relevant depressive symptoms Instrument(s): - Depression: SDHS (< 10)	7-day prevalence; - Depression 15.6 (NR)
Schuring 2017 ¹⁴	N =38 (baseline), 23 (6-month follow-up) A = 36 yrs (SD=6) G =M:F 38:0 Nat =South Africa S =Cricket	Observational prospective cohort	Definition: 4-week prevalence, and 6-month incidence of symptoms of distress, anxiety/depression, sleep disturbance, and adverse alcohol use. Instrument(s): - Distress :4DSQ (≥ 4) - Anxiety/depression: GHQ-12 (≥ 3) - Sleep disturbance: PROMIS Sleep (≥ 13) - Adverse alcohol use: AUDIT-C (≥ 5)	Prevalence; - Distress 26.3 (14.8–42.2) - Anxiety/depression 24.3 (13.2–40.3) - Sleep disturbance 21.1 (10.8–36.6) - Adverse alcohol use 22.2 (11.5–38.3) 6-month incidence; - Distress 0.0 (0.0–0.0) - Anxiety/depression 0.0 (0.0–0.0) - Sleep disturbance 5.6 (0.0–27.7) - Adverse alcohol use 5.6 (0.0–27.7)
Schwenk 2007 ⁴²	N = 1617 A = 53.4 (SD=14.5) G =M:F 1617:0 Nat = USA S = American Football	Observational cross-sectional	Definition: Prevalence of depression Instrument(s): - Depression: PHQ-9 (≥ 10)	Prevalence; - Depression 14.7 (NR)
Van Ramele 2017 ⁴⁴	N = 212 (baseline), 194 (12-month follow-up) A =35 yrs (8) G =M:F 212:0 Nat = Finland, France, Norway, Spain, Sweden S =Football (soccer)	Observational prospective cohort	Definition: 12-month incidence of symptoms of distress, anxiety/depression, sleep disturbance, and adverse alcohol use. Instrument(s): - Distress :4DSQ (≥ 4) - Anxiety/depression: GHQ-12 (≥ 3) - Sleep disturbance: PROMIS Sleep (≥ 13) - Adverse alcohol use: AUDIT-C (≥ 5)	12-month incidence; - Distress 11 (6-17) - Anxiety/depression 29 (21-39) - Sleep 28 (20-38) - Adverse alcohol use 15 (9-23)
Willer 2018 ⁴⁵	N = 21 A = 56.7 (SD = 9.5) G = M:F 21:0 Nat = USA S = American football and ice hockey	Observational cross-sectional	Definition: Clinical diagnosis of depression, anxiety Instrument(s): - Depression: BDI-I (≥ 14) - Anxiety: BAI (≥ 10)	Prevalence; - Depression 23.8 (NR) - Anxiety 33.3 (NR)

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3 *N, number of participants; A, mean age in years; G, gender; Nat, nationality; S, sport discipline(s); yrs, years; %, percentage; CI, Confidence interval; SD,*
4 *Standard deviation; NR, Not reported; EDNOS, Eating disorders not otherwise specified*
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