WILDERNESS & ENVIRONMENTAL MEDICINE, ▮, ▮▮▮–▮▮▮ (2017)

BRIEF REPORT

Psychological Attributes of Ultramarathoners

Katherine Buck, PhD, LMFT; Jack Spittler, MD, MS; Alex Reed, PsyD, MPH; Morteza Khodaee, MD, MPH

From the Family Medicine Residency Program, John Peter Smith Hospital, Fort Worth, TX (Dr Buck); and the Department of Family Medicine, University of Colorado School of Medicine, Denver, CO (Drs Spittler, Reed, and Khodaee).

Introduction—As the popularity of ultramarathon participation increases, there still exists a lack of understanding of the unique psychological characteristics of ultramarathon runners. The current study sought to investigate some of the psychological and behavioral factors that are involved in ultramarathon running.

Methods—We obtained information from participants of the Bear Chase Trail Race via an online survey. This race is a single-day, multidistance race consisting of a 10 k, half marathon, 50 k, 50 mi, and 100 k run in Lakewood, Colorado, at a base altitude of 1680 m with total altitude in climbs ranging from 663 to 2591 m. We correlated information from the Exercise Addiction Inventory and the Patient Health Questionnaire-2 and demographic information with race finish times.

Results—Out of 200 runners who started the race, 98 (48%) completed the survey. Over half of the runners were men (61.2%), and the average age was 39.0 years (SD±8.9; range 21–64 years). A number of respondents (20%) screened positive for exercise addiction concerns. Approximately 20% of our sample screened positive for depressive symptoms (Patient Health Questionnaire-2 score >3). The majority of participants reported receiving strong social support from current partners with regard to their ultramarathon running training time and goals.

Conclusions—Although only a screening, the number of positive screens on the Exercise Addiction Inventory suggests use of screening measures with an ultramarathon running population. Athletes with positive screening tests should be fully evaluated for depression and exercise addiction because this would enable appropriate athlete support and treatment referral.

Keywords: ultramarathon, exercise addiction, screening, PHQ-2

Introduction

The fundamental principles of sport drive athletes to run faster, jump higher, and achieve bigger goals. As a result, there has recently been an emergence of "ultra-endurance" events, where participants exercise for extended periods of time, often in extreme conditions. Although exercise is generally considered to be a healthy activity, there is the notion that excessive exercise may have addictive potential. The term "exercise addiction" has been coined because it encompasses many qualities of classic addiction, such as dependence, compulsion, pleasure, or relief from psychologic discomfort (eg, anxiety, depression).[1] This issue has been examined in recent years using a validated screening tool developed by Griffiths et al, called the Exercise Addiction Inventory (EAI).[2] Exercise addiction appears to be relatively rare in habitual exercisers (3.2%) and in the general population (0.5%), although obsessive passion and dedication to athletic activity are strong predictors of exercise addiction.[3,4] Competing in ultraendurance events requires long training hours and large training volumes. As such, many of these athletes display signs of obsessive passion and dedication to the sport.

Endurance athletes dedicate a significant amount of time to their respective sports. There are many potential stressors for endurance athletes, including maintaining health, recovering from injury, coping with success, and managing performance expectations.[5] As a result of these stressors, some may assume that only emotionally and mentally strong athletes are able to compete at the highest level of endurance sports and as such are at a lower risk for psychological disorders.[6,7] However, recent research has suggested the prevalence of psychological disorders in endurance athletes may be

Corresponding author: Katherine Buck, PhD, LMFT, John Peter Smith Family Medicine Residency, 1500 South Main Street, 4th Floor OPC, Fort Worth, TX 76104; e-mail: KBuck@jpshealth.org.

Submitted for publication October 2016.

Accepted for publication September 2017.

higher than the 6.7% in the general population, with depression rates ranging from 68% in a sample of 50 collegiate varsity swimmers precompetition to 34% after competition.[6,8] Additional research with professional footballers found that up to 26% of current players reported symptoms of depression and anxiety.[9]

Ultraendurance athletes, including ultramarathoners, represent a unique population within athletics in that they must perform optimally in extreme environments.[10] Generally, these athletes tend to be well educated, of high socioeconomic status, and psychologically high functioning.[11] Little is known to date about the psychological functioning and incidence of exercise addiction in this group. The purpose of this study was to learn more about this population, including potential positive screens on depression, exercise addiction measures, and lifestyle factors associated with ultramarathon running (eg, social support).

Methods

An observational online survey study was conducted before the Bear Chase Race in Lakewood, Colorado, in August 2015. The Bear Chase Trail Race is a single-day, multidistance race consisting of a 10 k, half marathon, 50 k, 50 mi, and 100 k run at an altitude of 1680 m with total altitude in climbs ranging from 663 to 2591 m. The survey link was sent twice to all ultramarathon (50 k, 50 mi, and 100 k) runners within 2 weeks before the race. The aim of this survey was to capture a more chronic mood state, rather than mood immediately after race completion. Race results were matched with survey data. The Colorado multiple institutional review board and the Bear Chase Race approved the study.

SURVEY INSTRUMENT

A 30-item electronic survey including the Patient Health Questionnaire-2 (PHQ-2), the EAI, and demographic questions was used for this study.[1,12] The PHQ-2 is a validated screening tool for depressive symptoms.[12,13] PHQ-2 scores were considered positive if participants endorsed any current symptoms of depression, regardless of number of days of symptoms.[12] PHQ-2 scores were dichotomized into variables consisting of endorsement of any symptoms vs none. The EAI is a validated 6-item Likert-type scale based on behavioral components of addiction (salience, mood modification, tolerance, withdrawal symptoms, conflict, and relapse).[1,2] See Table 1[2,13] for additional information on PHQ-2 and EAI. The cutoff score for "at risk" individuals is 24 out of 30. The EAI intends to reflect the top 15% of respondents with regard to risk. The EAI reports excellent factor loadings and reliability.

STATISTICAL ANALYSIS

We conducted statistical analyses with IBM SPSS, version 22.0 (SPSS Inc, Chicago, IL). We used descriptive statistics to examine the frequency, mean, median, and range for all variables. Group comparisons were done using χ^2 and unpaired t tests. P values <0.05 were considered statistically significant.

Results

Our survey was completed by 98 out of 200 race starters (49% response rate). Participant demographics are summarized in Tables 2 and 3.

On the EAI, 18.2% of respondents reported scores in a range considered indicate risk for exercise addiction (scores $\geq$24).[1] First, dichotomous variables were created for both EAI total score (scoring at or above the at-risk cutoff) and answers to each EAI item (Likert-type items were grouped into "*strongly disagree, disagree*" vs "*agree, strongly agree*"). The relationship between overall exercise addiction risk and completion status, sex, and age was examined. No significant relationship between these variables existed. Additionally, each item of the EAI was examined with regard to its relationship to the total EAI score (scoring at or above the cutoff for exercise addiction). Of the 6 individual EAI questions only 4 were significantly related. Mood modification (χ^2 [1, n=81]=1.93; P=0.17) and tolerance (χ^2 [1, n=81]=3.13; P=0.07) were not significantly related to overall EAI score. Of note, mood modification and tolerance were both endorsed by a number of participants (84.5% and 72.2%, respectively), with the next highest item being withdrawal at 60.8%. Individual responses to EAI items were examined with respect to sex, with no significant differences present. Finally, no differences existed between entrants in the 3 events (50 k, 50 mi, and 100 k) with respect to EAI scores.

In our sample, 21.6% endorsed having little interest or pleasure in doing things and 18.6% endorsed feeling down, depressed, or hopeless over the last 2 weeks. We examined the relationship between endorsed depressive symptoms and age, sex, spirituality, relationship status, race completion status, and race completion time. No significant relationships were found.

The majority (89.7%) of participants reported that they are currently either married or "in a relationship." Of single participants, 9.3% reported being single and 1.0% reported being divorced. Before analysis, participants' views of their partners' supportiveness of their ultramarathon training time and goals was dichotomized (Likert-type items were grouped into "*strongly disagree, disagree, neutral*" vs "*agree, strongly agree*").