



## Preliminary evidence of disparities in physical activity among adolescents with bipolar disorder



Laura Jewell <sup>a</sup>, Robert Abtan <sup>b</sup>, Antonette Scavone <sup>c</sup>, Vanessa Timmins <sup>c</sup>,  
Brenda Swampillai <sup>c</sup>, Benjamin I. Goldstein <sup>a, c, \*</sup>

<sup>a</sup> University of Toronto, Toronto, ON, Canada

<sup>b</sup> York University, Toronto, ON, Canada

<sup>c</sup> Department of Psychiatry, Sunnybrook Health Sciences Centre, Canada

### ARTICLE INFO

#### Article history:

Received 21 October 2014

Received in revised form

6 April 2015

Accepted 6 April 2015

Available online 24 April 2015

#### Keywords:

Physical activity

Bipolar disorder

Adolescents

Sedentary behaviour

### ABSTRACT

Physical activity can potentially mitigate the symptomatic burden and cardiovascular risk associated with bipolar disorder (BD). Studies have found that adults with BD are less physically active than controls. However, no previous study has examined this topic among adolescents with BD. This study compares physical activity among adolescents with BD vs. healthy controls without major psychiatric disorders, and examines characteristics associated with physical activity among adolescents with BD. Subjects were 86 adolescents with a diagnosis of BD via gold-standard psychiatric interviews, and 50 controls. The Quick Weight, Activity & Excess Screener (WAVE) was used to assess physical activity. Between-group analyses examined for differences in achieving recommended benchmarks for three types of physical activity: working out, “working in” (incidental physical activity), and screen time. Exploratory within-group analyses were based on a median split (high vs. low) of the total physical activity scores among BD adolescents. Adolescents with BD were significantly less likely to report working out regularly (6% as compared to controls (22%;  $\chi^2 = 7.98$ ,  $p = 0.005$ ). There were no significant between-group differences in working in or screen time. BD adolescents with low levels of physical activity were less likely to have a family history of substance use disorder ( $p = 0.03$ ). Adolescents with BD are less likely than their peers to achieve the recommended benchmark for regular working out. Future studies are warranted to determine what factors explain this difference, and to identify strategies for optimizing physical activity among adolescents with BD.

© 2015 Elsevier Ltd. All rights reserved.

### 1. Introduction

Bipolar disorder (BD), a recurrent and impairing mood disorder, has a lifetime prevalence of approximately 2–5% among

*Abbreviations:* BD, bipolar disorder; CVD, cardiovascular disease; K-SADS-PL, Schedule for Affective Disorders and Schizophrenia for School-Aged Children, Present and Lifetime; SES, socioeconomic status; BMI, body mass index; CDC, Centers for Disease Control and Prevention; WAVE, Quick Weight, Activity & Excess Screener; DRS, depression rating scale; MRS, mania rating scale; SUD, substance use disorder; SPSS, Statistical Package for the Social Sciences; PA, physical activity; BD-I, bipolar I disorder; BD-II, bipolar II disorder; BD-NOS, bipolar disorder not otherwise specified; ADHD, attention-deficit hyperactivity disorder; ODD, oppositional defiant disorder; CD, conduct disorder; SSRI, selective serotonin reuptake inhibitor.

\* Corresponding author. Centre for Youth Bipolar Disorder, Sunnybrook Health Sciences Centre, 2075 Bayview Avenue, Room FG53, Toronto ON M4N 3M5, Canada. Fax: +1 416 480 6818.

E-mail address: [benjamin.goldstein@sunnybrook.ca](mailto:benjamin.goldstein@sunnybrook.ca) (B.I. Goldstein).

adolescents (Merikangas et al., 2010) and is the fourth most disabling condition among adolescents worldwide (Gore et al., 2011). Although BD is defined by episodes of mania and depression, it is increasingly recognized that BD is also associated with excessive risk of cardiovascular disease (CVD), and excessive mortality from CVD (Goldstein, Fagiolini, Houck, & Kupfer, 2009; Osby, Brandt, Correia, Ekblom, & Sparén, 2001). Importantly, BD is also associated with premature onset of CVD and premature CVD mortality (Goldstein et al., 2009; Osby et al., 2001), suggesting that youth with BD are at increased risk for CVD.

The elevated and premature burden of CVD among individuals with BD underscores the importance of optimizing physical activity in this population. Relatively few studies of adults with BD have assessed physical activity, and these have yielded mixed results. Several clinical studies have reported that adults with BD are less physically active in various ways and/or have poorer exercise capacity than adults without BD (Brown, Ramesh, Newson, & Isaacs,

2013; Chwastiak, Rosenheck, & Kazis, 2011; Elmslie, Mann, Silverstone, Williams, & Romans, 2001; Janney et al., 2014; Kilbourne et al., 2007). However, other studies have found no differences (Cairney, Veldhuizen, Faulkner, Schaffer, & Rodriguez, 2009) or have found higher self-reported physical activity among adults with BD (Dakwar et al., 2012; Strohle et al., 2007). The factors underlying the findings of reduced physical activity among adults with BD are uncertain, but may be due to impaired exercise tolerance (Shah et al., 2007), the anergia and amotivation associated with depression (Sylvia et al., 2013; Wright, Armstrong, Taylor, & Dean, 2012), concern that exercise during a manic state would increase symptoms (Wright et al., 2012), or other reasons yet unknown.

Both the American Academy of Pediatrics and the Canadian Physical Activity Guidelines suggest that youth should participate in at least 60 min of moderate-to-vigorous intensity physical activity daily (Hagan, Shaw, & Duncan, 2008; Tremblay, Leblanc, et al., 2011; Tremblay, Warburton, et al., 2011). In addition to cardiovascular benefits, physical activity offers several other potential benefits for youth with BD. For example, prior research has shown that physical activity can reduce depression and anxiety symptoms, and improve attention and sleep among youth (Hughes et al., 2013; Kiluk, Weden, & Culotta, 2009; Pontifex, Saliba, Raine, Picchietti, & Hillman, 2013; Verret, Guay, Berthiaume, Gardiner, & Béliveau, 2012). Physical activity in adolescence is also associated with decreased odds of late-life cognitive impairment (Middleton, Barnes, Lui, & Yaffe, 2010).

In summary, youth with BD are at increased risk for CVD, adults with BD appear to be less physically active than adults without BD, and physical activity among adolescents has meaningful implications for their current and future physical health. Despite the apparent importance of this topic, no previous study has examined physical activity among youth with BD. We therefore set out to compare physical activity among youth with vs. without BD. We also undertook exploratory analyses to examine for demographic, clinical, and familial characteristics that are associated with physical activity among youth with BD, as this approach may help to identify BD youth who may especially benefit from the promotion of physical activity. Our primary hypothesis was that youth with BD would report significantly less physical activity in comparison to youth without major psychiatric disorders. We further hypothesized that, among BD youth, greater severity of depressive symptoms, and use of second-generation antipsychotics would be associated with lower levels of physical activity, whereas greater severity of manic symptoms would be associated with higher levels of physical activity.

## 2. Methods

### 2.1. Participants

Data were extracted from registries maintained by the Centre for Youth Bipolar Disorder at Sunnybrook Health Sciences Centre. Participants included 86 adolescents with BD and 50 controls with no history of major psychiatric disorders (including MDD, BD, substance abuse/dependence, or psychosis) and no family history of BD, schizophrenia, or psychosis. Controls were group-matched for age and sex. Participants were enrolled between September 2009 and May 2014, and were 13–19 years old at the time of enrollment. Participants with BD included those with bipolar I disorder ( $n = 20$ ), bipolar II disorder ( $n = 40$ ), or BD not otherwise specified (NOS,  $n = 26$ ). BD-NOS was defined based on the Course and Outcome of Bipolar Youth (COBY) study criteria (Birmaher et al., 2006) as follows: (i) two DSM-IV manic symptoms (three if only irritable mood is present), (ii) change in functioning, (iii) mood

and symptom duration of at least 4 h during a 24-h period, and (iv) at least four cumulative 24-h periods meeting the aforementioned (i) to (iii) criteria over the lifetime. The most common psychiatric comorbidities were anxiety disorders ( $n = 70$ ) and ADHD ( $n = 35$ ). All adolescent participants and a parent/guardian provided written informed consent. The study was approved by the local research ethics board.

### 2.2. Assessment

Psychiatric diagnoses were based on the Schedule for Affective Disorders and Schizophrenia for School-Aged Children, Present and Lifetime version (K-SADS-PL) (Kaufman et al., 1997). The K-SADS-PL is a widely used semi-structured diagnostic interview that integrates information obtained from adolescents and their parent/guardian. Interviewers had Bachelor's or Master's-level degrees in psychology or a health-related field, and completed extensive training under the supervision of the senior author (B.G.). Summary scores from the K-SADS-PL represent the incorporation of all data obtained throughout the interviews and review of available medical records. Diagnoses were confirmed in consultation with a child/adolescent psychiatrist (B.G.).

Demographic information regarding age, sex, race, and family structure was also collected during the K-SADS-PL interview. Participants who reported living with both biological parents were categorized as having an intact family. The Hollingshead Four-Factor Index of Socioeconomic Status (SES) was used to determine SES (Hollingshead, 1975).

Obesity was determined based on participants' height in centimeters, and weight in kilograms (adjusted for clothing). The body mass index (BMI) and corresponding percentile was calculated for each participant based on the Centers for Disease Control and Prevention (CDC) 2000 growth charts (Kuczmarski et al., 2002). Adolescents with a BMI at or above the 95th percentile for age and sex were categorized as obese.

Physical activity was assessed using the 17-item Quick Weight, Activity & Excess Screener (WAVE) for adults and adolescents (Soroudi, Wylie-Rosett, & Mogul, 2004). This self-reported measure assesses five subscales, including weight, physical activity, dietary variety, dietary excess, and household food security. While the WAVE Screen has not been formally validated, it is based on reliable and validated questionnaires, including the Centers for Disease Control Behavior Risk Survey. Additionally, the American Academy for Pediatrics has endorsed this survey for use in adolescent populations (Krebs et al., 2007). The current study focuses on the questions in the physical activity subscale of the WAVE Screener (see Table 1).

The physical activity questions addressed working out (*"in the past week, how many times did you work out enough to sweat [e.g. sports, cycle, or run]?"*), 'working in' (*"yesterday, how many times did you 'work in' other types of exercise [e.g. walk for more than 15 minutes, take 6 or more flights of stairs]?"*), and screen time (*"in the past 7 days, how many hours did you watch TV shows or videos or DVDs each day [note: each TV show or sitcom is about ½ hour, each video or DVD is about 1½ hours]?"*).

Answers to these questions were dichotomized in accordance with recommended benchmarks within the WAVE: working out greater than four times per week, 'working in' more than once per day, and watching two or more hours per day of television and/or movies (Soroudi et al., 2004). In addition, raw scores for each of the three questions were assigned and summed to create a composite measure of overall physical activity ranging from 0 to 13, with 13 being the most active. Participants with BD were divided into high- and low-physical activity groups based on a median split of this mean composite physical activity score.

Download English Version:

<https://daneshyari.com/en/article/913534>

Download Persian Version:

<https://daneshyari.com/article/913534>

[Daneshyari.com](https://daneshyari.com)