

# Associations Between Television Watching and Car Riding Behaviors and Development of Depressive Symptoms: A Prospective Study

Xuemei Sui, MD, MPH, PhD; Wendy J. Brown, PhD; Carl J. Lavie, MD; Delia S. West, PhD; Russel R. Pate, PhD; Jonathan P.W. Payne, MS; and Steven N. Blair, PED

## Abstract

**Objective:** To examine the longitudinal association between sedentary behaviors and risk of development of depressive symptoms.

**Patients and Methods:** The study population consisted of 4802 participants in the Aerobics Center Longitudinal Study (1012 women and 3790 men) aged 18 to 80 years who did not report depressive moods when they completed a health survey during 1982 in which they reported their time spent watching television (TV) and riding in a car each week. All participants completed a follow-up health survey when they responded to the 10-item Center for Epidemiologic Studies Depression Scale. Those who scored 8 or more on the Center for Epidemiologic Studies Depression Scale were considered to have depressive symptoms.

**Results:** Among the 4802 participants, 568 reported depressive symptoms during a mean follow-up of 9.3 years. After multivariate adjustment including moderate- and vigorous-intensity physical activity, time riding in a car, time watching TV, and combined time spent in the 2 sedentary behaviors were positively associated with depressive symptoms (each  $P < .05$  for trend). Individuals who reported 9 h/wk or more riding in a car, more than 10 h/wk watching TV, or 19 h/wk or more of combined sedentary behavior had 28%, 52%, and 74% greater risk of development of depressive symptoms than those who reported less than 5 h/wk, less than 5 h/wk, or less than 12 h/wk, respectively, after adjusting for baseline covariates and moderate- and vigorous-intensity physical activity. The positive association between time riding in a car or time watching TV and depressive symptoms was only observed among individuals who did not meet the current physical activity guidelines.

**Conclusion:** More time reported in these 2 sedentary behaviors was positively associated with depressive symptoms. However, the direct associations between time spent in car riding and TV viewing and depressive symptoms were only significant among those who did not meet the current physical activity recommendations.

© 2015 Mayo Foundation for Medical Education and Research ■ Mayo Clin Proc. 2015;90(2):184-193



From the Department of Exercise Science (X.S., D.S.W., R.R.P., J.P.W.P., S.N.B.) and Department of Epidemiology and Biostatistics (S.N.B.), Arnold School of Public Health, University of South Carolina, Columbia, SC; School of Human Movement Studies, Victoria University, Melbourne, Victoria, Australia (W.J.B.); and John Ochsner Heart and Vascular Institute, Ochsner Clinical School, University of Queensland School of Medicine, New Orleans, LA (C.J.L.).

During the past 10 years, sedentary behavior, defined as behavior characterized by a seated or reclining posture and low energy expenditure ( $\leq 1.5$  metabolic equivalents) during waking hours,<sup>1,2</sup> has emerged and been recognized as an important risk factor for negative health effects that is different and distinct from physical activity (PA).<sup>3-5</sup> Growing evidence from observational and experimental studies supports a direct link between sedentary behavior and poor physical health outcomes, including mortality due to all causes, cardiovascular diseases, and cancer, obesity, hypertension, diabetes, and metabolic health.<sup>6,7</sup> The World Health Organization and several individual countries are starting to

provide recommendations to limit sedentary time in youths and adults.<sup>8-10</sup>

However, the prospective association between sustained sedentary behavior and mental health outcomes is unclear.<sup>7,11</sup> Four longitudinal studies<sup>12-15</sup> have investigated the associations between sedentary behaviors and depressive disorders/moods. One of the longitudinal studies<sup>13</sup> created a sedentary index by combining television (TV) viewing and computer use, which makes interpretation of the results difficult because Internet use per se and sitting time alone are confounded. A recent study by Hamer and Stamatakis<sup>14</sup> reported a beneficial effect of Internet use on depressive symptoms in a group of older adults. This recent

study further supports the hypothesis that different types of sedentary behavior may influence human health differently.<sup>11,16</sup> The other 3 longitudinal studies examined the association of TV viewing with a depression-related outcome but focused exclusively on the one aspect of sedentary behavior. An important dimension of sedentary behavior was not considered in these analyses: none of these studies evaluated the role of time spent riding in a car in the development of depressive symptoms.<sup>12,14,15</sup> According to the 2009 National Household Travel Survey data, the average American now spends almost 1 hour each day traveling by car, not including long road trips,<sup>17</sup> and thus time spent sitting in the car may be an important sedentary behavior parameter that merits consideration.

In addition, the influence or the interaction of PA on the association between sedentary behavior and depression risk is controversial. The presence of a substantial interaction indicates that the mechanism through which sedentary behavior impacts depression may differ between people who are active and those who are inactive. Few studies have investigated this issue; some studies have reported no interaction<sup>18,19</sup> whereas others have observed an interaction<sup>13,20</sup> between sedentary behavior, PA, and depression risk. Therefore, careful consideration of an interaction with PA is warranted as a more detailed analysis of sedentary behaviors is evaluated in association with risk of depressive symptoms.

Considering the increased disease burden of depressive disorders worldwide,<sup>21</sup> identifying modifiable factors to prevent depression is becoming an important public health issue. Therefore, the aim of this study was to examine the association between 2 types of sedentary behaviors (TV viewing and car riding) and the risk of development of depressive symptoms over 20 years of follow-up among a group of men and women enrolled in the Aerobics Center Longitudinal Study (ACLS). A second aim was to explore if or how PA modified the association between sedentary behaviors and depressive symptoms.

## PATIENTS AND METHODS

### Aerobics Center Longitudinal Study

The ACLS is a prospective study of men and women who have been examined at the

Cooper Clinic in Dallas, Texas.<sup>22,23</sup> These patients came to the clinic for periodic preventive medical examinations and for counseling regarding health and lifestyle behavior factors. Patients came from all 50 states; most were self-referred, with some referred by their physicians or employers. At the time of their clinic examination, the ACLS was described to patients who then provided written informed consent for enrollment in the follow-up study. Starting in 1982, mail surveys were administered every 4 to 5 years until 2004 to collect additional information. The Cooper Institute Institutional Review Board annually reviewed and approved the study protocol.

### Study Population

For the purposes of the present analyses, data from participants who responded to the 1982 survey were used as the baseline measure because this was the first time that information on sedentary behaviors was collected. A total of 11,972 participants returned the 1982 survey for a 77% response rate.<sup>22</sup> We excluded 1830 individuals who met the following criteria: myocardial infarction or coronary bypass operation ( $n=560$ ), stroke ( $n=43$ ), cancer ( $n=476$ ), often depressed or generally sad ( $n=406$ ), and age younger than 18 or older than 100 years ( $n=345$ ). Among the eligible participants, 4802 individuals (1012 women and 3790 men) completed the 10-item Center for Epidemiologic Studies Depression Scale (CES-D 10) between January 1, 1990, and December 31, 2005, and therefore became the final analytical sample for the current study.

### Sedentary Behaviors

During the 1982 survey, participants were asked to recall their average time (in hours) viewing TV and riding in a car during each week. Weekly TV time, car riding time, and combined time in these 2 behaviors were categorized into 3 roughly equal groups rounded up to the nearest hour. The associated times were less than 5 h/wk, 5 to 8.9 h/wk, and 9 h/wk or more for TV viewing, less than 5 h/wk, 5 to 10 h/wk, and more than 10 h/wk for car riding, and less than 12 h/wk, 12 to 18.9 h/wk, and 19 h/wk or more for the combined behaviors. We used a similar approach in a previous study.<sup>22</sup>

Download English Version:

<https://daneshyari.com/en/article/2998758>

Download Persian Version:

<https://daneshyari.com/article/2998758>

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