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Adults with an epilepsy history fare significantly worse on positive mental and physical health than adults with other common chronic conditions—Estimates from the 2010 National Health Interview Survey and Patient Reported Outcome Measurement System (PROMIS) Global Health Scale^{★★}

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Abstract

Healthy People 2020, a national health promotion initiative, calls for increasing the proportion of U.S. adults who self-report good or better health. The Patient-Reported Outcomes Measurement Information System (PROMIS) Global Health Scale (GHS) was identified as a reliable and valid set of items of self-reported physical and mental health to monitor these two domains across the decade. The purpose of this study was to examine the percentage of adults with an epilepsy history who met the Healthy People 2020 target for self-reported good or better health and to compare these percentages to adults with history of other common chronic conditions. Using the 2010 National Health Interview Survey, we compared and estimated the age-standardized prevalence of reporting good or better physical and mental health among adults with five selected chronic conditions including epilepsy, diabetes, heart disease, cancer, and hypertension. We examined response patterns for physical and mental health scale among adults with these five conditions. The percentages of adults with epilepsy who reported good or better physical health (52%) or mental health (54%) were significantly below the Healthy People 2020 target estimate of 80% for both outcomes. Significantly smaller percentages of adults with an epilepsy history reported good or better physical health than adults with heart disease, cancer, or hypertension. Significantly smaller percentages of adults with an epilepsy history reported good or better mental health than adults with all other four conditions. Health and social service providers can implement and enhance existing evidence-based clinical interventions and public health programs and strategies shown to improve outcomes in epilepsy. These estimates can be used to assess improvements in the Healthy People 2020 Health-Related Quality of Life and Well-Being Objective throughout the decade.

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1. Introduction

Healthy People 2020 (HP2020), a national health promotion initiative, calls for increasing the proportion of U.S. adults who self-report good or better health [1]. Underlying the focus on “good or better health” is an asset-based paradigm that emphasizes protective factors and conditions that may foster health and resilience [1,2]. For HP2020, the Patient-Reported Outcomes Measurement Information System (PROMIS) Global Health Scale (GHS) provides a reliable and valid set of items of self-reported physical and mental health to monitor these two domains across the decade [1,3]. Using advanced psychometric methods, PROMIS developed a standardized set of generic measures, including the GHS, to facilitate measurement of health among individuals with various conditions and demographic characteristics, enabling cross-disease comparisons [4,5]. A previous study examined several psychosocial outcomes including self-rated physical and mental health among adults with active epilepsy measured with the PROMIS GHS [6]. The purpose of this study was to examine the percentage of adults with an epilepsy history who meet the Healthy People 2020 targets for self-reported good or better health and to compare these percentages to adults with history of other common chronic conditions.

2. Methods

Using the 2010 National Health Interview Survey, we compared and estimated the age-standardized prevalence of reporting good or better physical and mental health among adults with five selected chronic conditions including epilepsy, diabetes, heart disease, cancer, and hypertension. Adults’ chronic condition statuses were assessed by a “Yes” response to a survey question that asked if they have ever been told by a doctor or other health professional that they have this condition. Individuals with multiple chronic conditions, in addition to the unique condition assessed, were used in the analysis. Adults’ reported physical and mental health were assessed through scales containing eight PROMIS measures [3]. As described elsewhere [3,6], the physical health scale measures fatigue and pain in the past seven days, everyday physical activities, and general physical health.¹ The mental health scale measures emotional problems in the past seven days, satisfaction with social activities/relationships, general quality of life, and general mental health.² After we appropriately recoded and rescored each PROMIS item [3], both physical and mental scales ranged from 4 to 20 points. Consistent with HP2020 methodology, we used fifteen points as the cutoff point for good and better physical health and fourteen points for good and better mental health [3,7]. We examined response patterns for the physical and mental health scales among adults with these five conditions after age-standardizing these percentages to the year 2000 US population. We considered these percentages statistically significantly different at a significance level of 0.05 if their 95% confidence intervals did not overlap.

¹The physical health scale includes four survey questions: “In the past 7 days, how would you rate your fatigue on average?” “In the past 7 days, how would you rate your pain on average? Use a scale of 0–10 with 0 being no pain and 10 being the worst imaginable pain,” “To what extent are you able to carry out your everyday physical activities such as walking, climbing stairs, carrying groceries, or moving a chair?” and “In general, how would you rate your physical health?”

²The mental health scale includes four survey questions: “In the past 7 days, how often have you been bothered by emotional problems such as feeling anxious, depressed, or irritable?” “In general, how would you rate your satisfaction with your social activities and relationships?” “In general, would you say your quality of life is...?” and “In general, how would you rate your mental health, including your mood and your ability to think?”

3. Results

Among 480 adults reporting an epilepsy history (1.8%, 95% CI: 1.6–1.9%) of 27,139 survey respondents included in the study [6], only about 52% reported good or better physical health, compared to 79% of all adults who self-reported good or better physical health [1]. The percentage of adults with an epilepsy history who reported good or better physical health was significantly less than the percentages of adults with heart disease, cancer, and hypertension who reported good or better physical health (Fig. 1). About 54% of adults with an epilepsy history reported good or better mental health, compared to 79% of all adults who self-reported good or better mental health [1]. The percentage of adults with an epilepsy history who reported good or better mental health was significantly less than the percentage of adults with all other four selected conditions who reported good or better mental health (Fig. 1). The percentages of adults with epilepsy who reported good or better physical or mental health were significantly below the HP 2020 target estimate of 80% for both outcomes (Fig. 1).

4. Discussion

Adults with an epilepsy history are well below national averages for the percentages of adults who report good or better mental and physical health, and they fare significantly worse on positive mental and physical health functioning than adults with other common chronic conditions such as heart disease and cancer. Correlates of low levels of health-related quality of life and well-being are attributed to multiple condition-, treatment-, individual-, and social-related factors that have been extensively described [8]. However, findings in this study supplement previous findings among those with active epilepsy [6] and underscore the marked disparities in positive physical and mental health functioning that persist for U.S. adults with an epilepsy history, including those with active epilepsy despite advances in treatment and care. These findings also underscore an urgency to prioritize epilepsy prevention efforts to reduce health and social disparities [9].

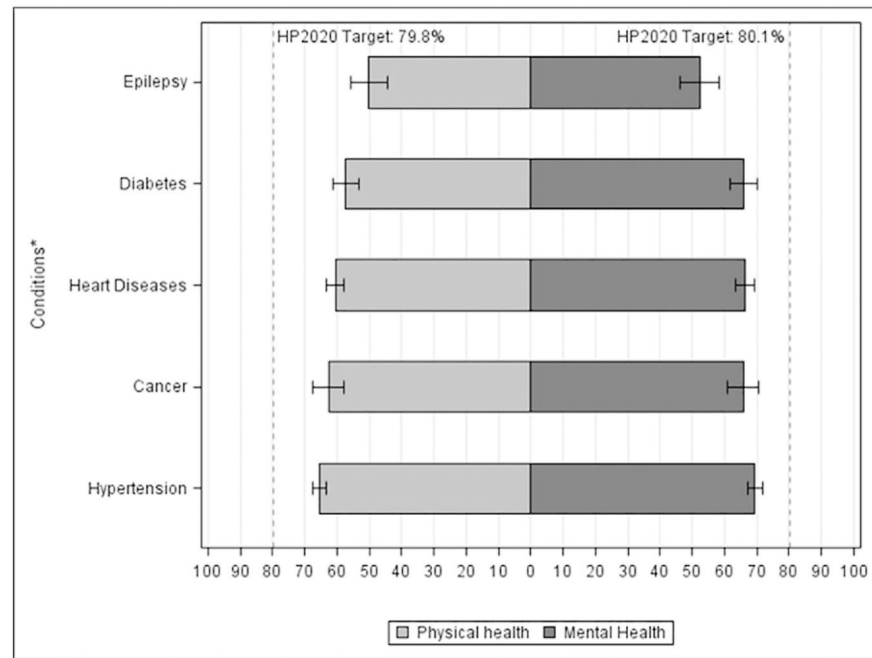
Similar to those reported in Kobau et al. [6], this study has several limitations including the possibility of recall or reporting biases among survey respondents. The data are cross-sectional so associations between study outcomes and epilepsy are not necessarily causal. Participation in NHIS requires English fluency and functional capacity, so that the study may have excluded some adults. Finally, we examined epilepsy history to facilitate comparisons with adults with a history of other common conditions examined—as it was not possible to confirm whether survey respondents had each condition when surveyed. Strengths of the study include the large, nationally representative sample of adults with epilepsy; use of age standardization to avoid confounding by age, use of a conservative statistical approach; and the use of psychometrically robust health assessment measures. Health and social service providers can implement and enhance existing evidence-based clinical interventions and public health programs and strategies shown to improve outcomes in epilepsy. These estimates can be used to assess improvements in the Healthy People 2020 Health-Related Quality of Life and Well-Being Objective throughout the decade.

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**Fig. 1.**

The age-adjusted¹ percentage of adults with select chronic conditions who reported good or better physical and mental health² (using the PROMIS Global Health Scale); 2010 US National Health Interview Survey³ Notes: 95% confidence interval for the age-standardized percentage of each point estimate shown in the graph. All estimates are reliable because they have relative standard errors (RSE) $\leq 20\%$. * These conditions were measured by a “yes” response to each of the following survey questions: “Have you ever been told by a doctor or other health professional that you have a seizure disorder or epilepsy?” “[If female, other than during pregnancy] Have you ever been told by a doctor or health professional that you have diabetes or sugar diabetes?” “Have you ever been told by a doctor or other health professional that you had ... coronary heart disease” “Have you ever been told by a doctor or other health professional that you had ... cancer or a malignancy of any kind?” “Have you ever been told by a doctor or other health professional that you had ... hypertension, also called high blood pressure?”¹Estimates are standardized to the age groups (18–24, 25–34, 35–44, 45–54, 55–64, 65+) in the projected 2000 U.S. population. ²Physical and mental global scales are assessed through eight Patient Reported Outcome Measurement Information System (PROMIS) measures. The physical health scale includes fatigue and pain in the past seven days, everyday physical activities, and general physical health. The mental health scale includes emotional problems in the past seven days, satisfaction with social activities/relationships, general quality of life, and general mental health. After we recoded and rescored each PROMIS item based on the study by Hays, et al. [3], both physical and mental scales range from 4 to 20 points. Fifteen points are used as the cutoff point for good and better physical health, and fourteen points for good and better mental health. ³Estimates are based on household interviews of a nationally representative sample of the noninstitutionalized US civilian population in the 2010 National Health Interview

Survey. This analysis used the Sample Adult file, was weighted using sample adult respondent weights, and accounted for this Survey's complex design.