Nationally Representative Trends Of Overall Physical Activity And Its Subtypes Among US Adults With Diabetes, Hypertension, And Dyslipidemia: Findings From NHANES 2007-2020

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BACKGROUND

ACC/AHA guidelines[1] recommend at least 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity activity per week to improve glycemic, blood pressure, and lipid management in patients with diabetes, hypertension, and dyslipidemia, and improve long-term cardiovascular (CV) outcomes. these optimal physical activity goals.

OBJECTIVE

We sought to evaluate the type and amount of physical activity practiced by people with CV risk factors.

QUESTIONS

1. What proportion of people with various CV risk factors met the ACC/AHA guidelines for physical activity?
2. How did people with various CV risk factors differ in the type of physical activity practiced?

METHODS

We used publicly available NHANES 2007-2020 US Population Data[2] to identify US adults ≥18 years of age with cardiovascular risk factors of diabetes (DM), hypertension (HTN), or dyslipidemia (HLD) and their self-reported physical activity. These risk factors were diagnosed based on standardized questionnaire focusing on diagnosis by clinician or receipt of relevant therapies for the treatment of these conditions. We disaggregated self-reported physical activity into vocational, recreational, and transportational physical activity. We defined adequate physical activity according to AHA guidelines and assessed trends using weighted logistic regression models and complex survey methods.

RESULTS

Based on 40,336 adult participants of NHANES during 2007-2020 who reported their physical activity, an estimated 68% (95% CI: 67-69) of US adults adhered to the physical activity recommendations in 2017-2020 compared with 62% (60-64) of those with hypertension, 57% (53-61) of those with DM, and 66% (63-69) of those with dyslipidemia. From 2007-2020, overall physical activity significantly increased among US adults and those with hypertension and DM, but not among those with dyslipidemia. Among those at risk for CVD, vocational, recreational, and transportational physical activity accounted for 51-54%, 35-38%, and 10-13% of overall physical activity, respectively, in 2017-2020.

RESULTS

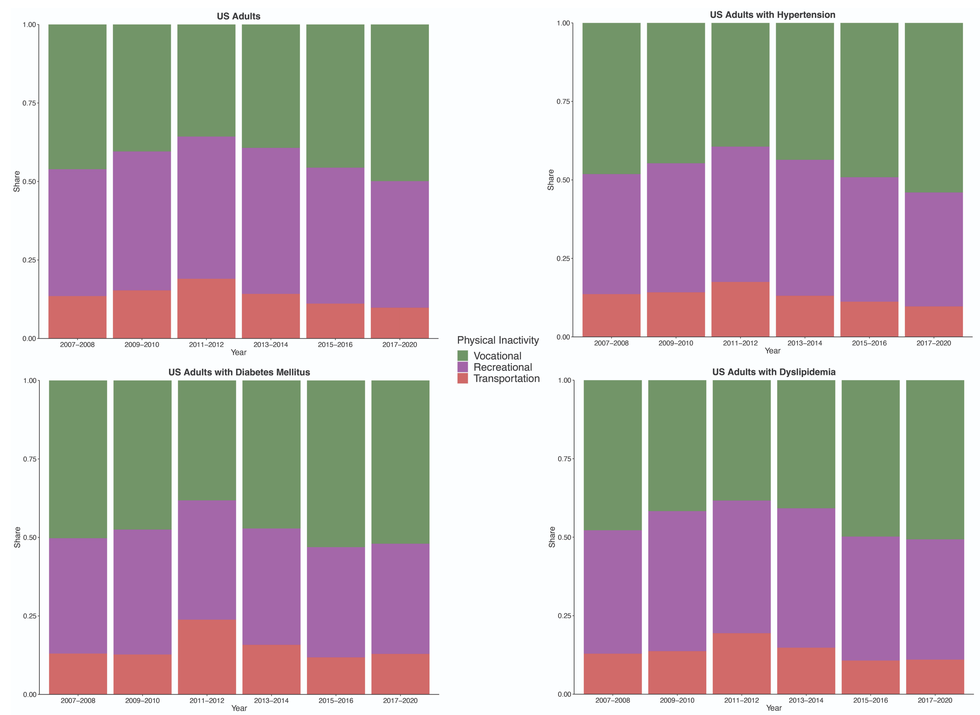

Figure 1 – Physical Activity by Subtype amongst US Adults with CV Risk Factors

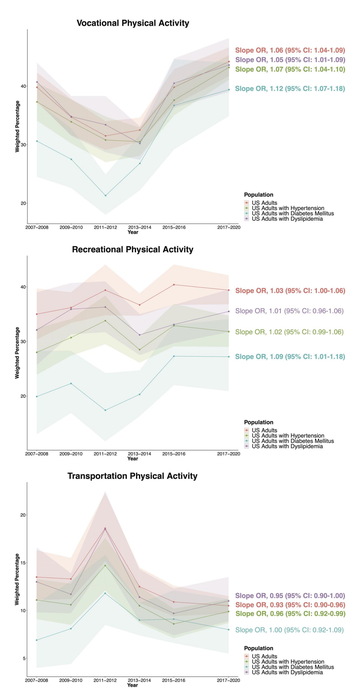

Figure 2 – Trends in Physical Activity by Subtype among US Adults with CV Risk Factors

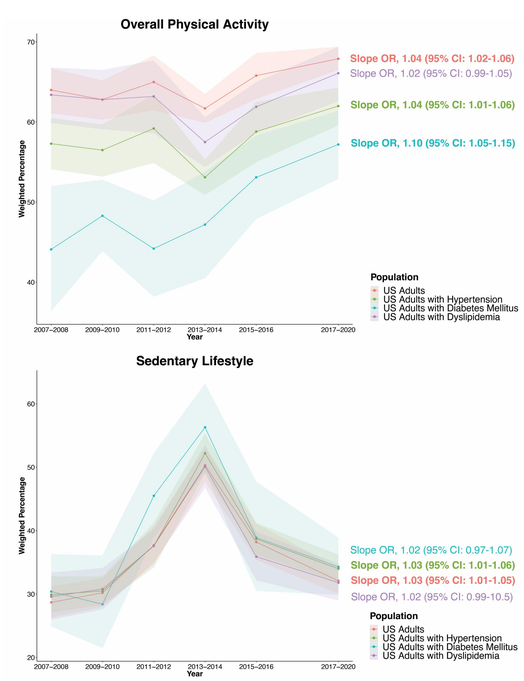

Figure 3 – Trends in Overall Physical Activity and Sedentary Lifestyle amongst US Adults with CV Risk Factors

SUMMARY

- US adults are doing more vocational activity, but less transportation activity.
- From 2007 to March 2020, physical activity and sedentary lifestyle (>=8 hours of sitting time per day) significantly increased among US adults and those with HTN.
- US adults with DM showed improved patterns of physical activity. (Physical activity significantly increased among US adults with DM, while sedentary lifestyle remained unchanged.)
- Physical activity and sedentary lifestyle remained unchanged among US adults with dyslipidemia.
- US adults with HTN or DM had consistently lower levels of physical activity compared with US adults. However, the trend of sedentary lifestyle was not different between US adults and those with HTN, DM, and dyslipidemia.
- Patients with CV risk factors fall behind in recreational activities. (Trends of vocational and transportation physical activity were similar between the study groups. However, patients with HTN or DM had significantly lower levels of recreational physical activity compared with US adults.)
- Sedentary lifestyle (>=8 hours of sitting time per day) is associated with higher CV mortality, but this association was attenuated if the person has ~60 minutes of moderate activity every day.[3] We found that ~70% of US adults had both sedentary lifestyle and low physical activity which put them at higher risk for CV mortality.

LIMITATIONS

One of the major limitations of this study include self-reporting bias as incurred through the use of NHANES data.

CONCLUSIONS

While those with CV risk factors had lower physical activity, with a thirdof them not adhering to physical activity recommendations, overall physical activity improved during 2007-2020. Vocational physical activity accounts for half of the overall physical activity among those at risk for CVD.

REFERENCES

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3. Ekelund U, Brown WJ, Steene-Johannessen J, Fagerland MW, Owen N, Powell KE, Bauman AE, Lee IM. Do the associations of sedentary behaviour with cardiovascular disease mortality and cancer mortality differ by physical activity level? A systematic review and harmonised meta-analysis of data from 850 060 participants. Br J Sports Med. 2019 Jul;53(14):886-894. doi: 10.1136/bjsports-2017-098963. Epub 2018 Jul 10. PMID: 29991570.