Understanding Social Determinants of Health among Montanan Adults Montana Behavioral Risk Factor Surveillance System 2022 and 2023 dataset

Introduction

Social Determinants of Health (SDOH) are the non-medical factors that influence health outcomes and include the conditions in which individuals are born, grow, live, work, and age (Centers for Disease Control and Prevention, 2024). Understanding and monitoring SDOH measures is critical to developing strategic and productive programs that address health disparities (Town et al., 2024).

Methods

This report analyzes Montana Behavioral Risk Factor Surveillance System (Montana BRFSS) data for survey years 2022-2023 and analyzed SDOH indicators and high SDOH scores affecting adults in Montana. The SDOH indicators are used to calculate the SDOH score to determine a "high SDOH score" status, which is defined as reporting four of more SDOH indicators (Center for Disease Control and Prevention, 2023). The higher the SDOH score, the greater the social disadvantage experienced and the higher the likelihood of adverse health effects (Centers for Disease Control and Prevention, 2024). For detailed information on data collection and analysis procedures of SDOH indicators, SDOH scores, and MT BRFSS methodology, refer to Appendix A.

Results

Individual SDOH Indicators

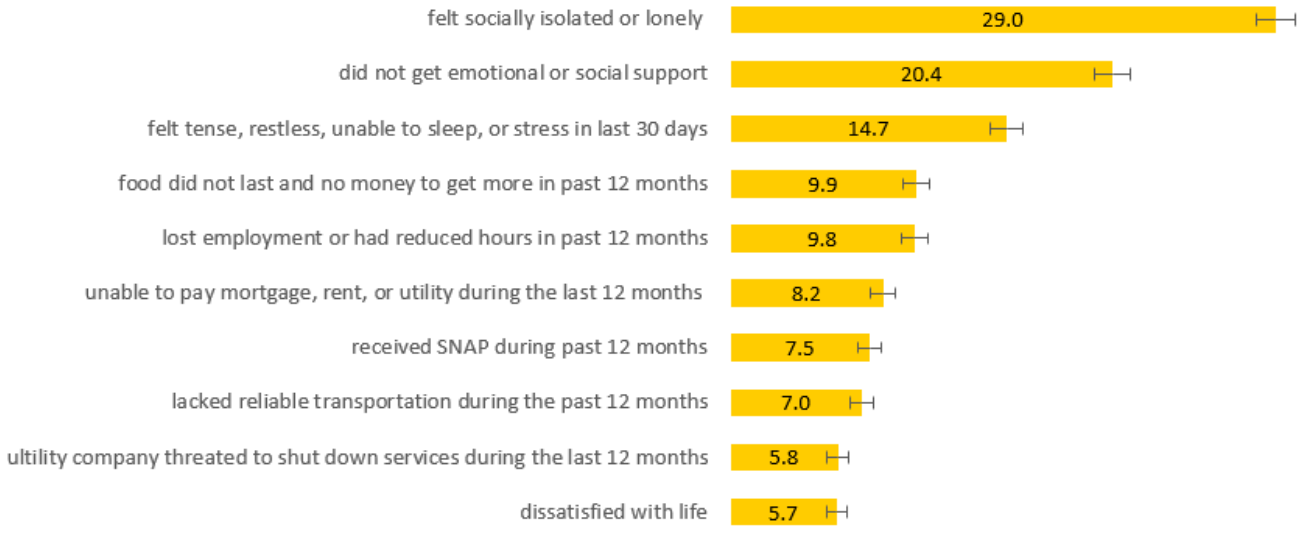
Individual SDOH indicators among adults in Montana are examined at the state level, including life satisfaction, social support, food security, and housing stability (Figure 1).

Key takeaways include:

29.0 percent of adults in Montana report always/usually/sometimes feeling lonely or isolated from others in the last 12 months.

5.7 percent of adults in Montana report being dissatisfied or very dissatisfied with their lives in the last 12 months.

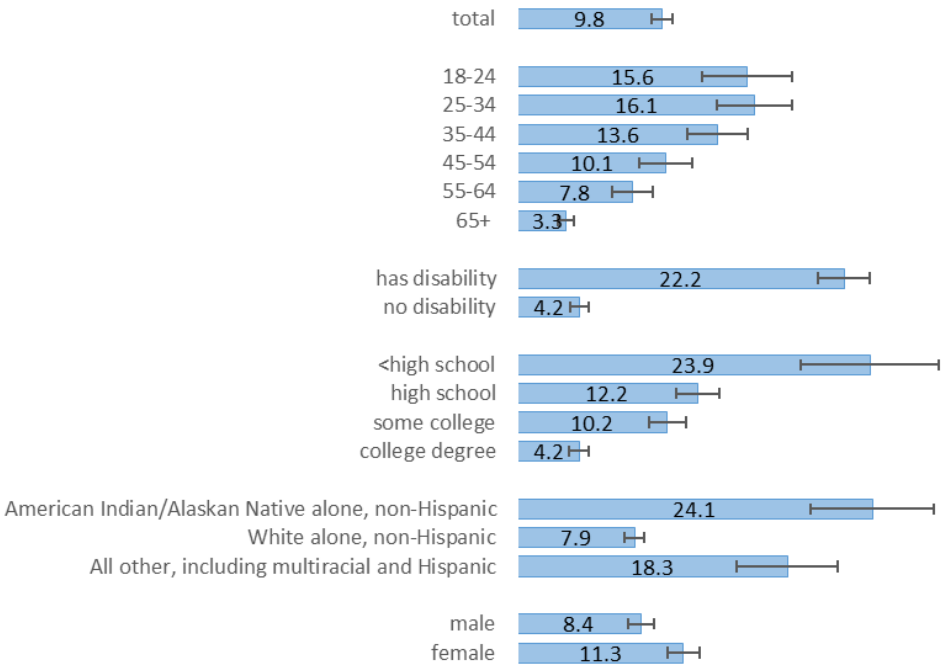
FIGURE 1: PERCENT OF ADULTS IN MONTANA REPORTING SDOH INDICATORS, 2022-2023



High SDOH Scores by Demographics

Analysis reveals disparities in SDOH scores across age groups, disability status, education levels, racial groups, and sex (Figure 2). Individuals aged 18-24 and 25-34 years old report high prevalence of SDOH scores compared to other age groups, with the highest burden of SDOH belonging to those in the 25-34 age group (16.1 percent). Among individuals living with a disability, 22 percent reported a high SDOH score. American Indians/Alaskan Natives report the greatest prevalence of high SDOH scores among racial groups at 24.1 percent. The prevalence of high SDOH score decreased with increasing educational attainment. Females report a significantly higher SDOH scores than males, with 11.3 percent of this group affected (Figure 2).

FIGURE 2: PERCENT OF ADULTS IN MONTANA REPORTING A HIGH SDOH SCORE (4+), 2022-2023



Recommendations

Findings highlight the necessity for tailored public health initiatives to mitigate adverse SDOH and intentionally designed interventions specific to demographic subgroups. State and local health departments should prioritize community-specific strategies to address these disparities. Increased collaboration between healthcare providers, policymakers, and community organizations will be vital to providing necessary resources to individuals with high SDOH scores and improving health outcomes.

The World Health Organization has identified four interlocking universal strategies to address social determinants of health. These strategies include addressing economic inequality while investing in social infrastructure and public services, overcoming structural discrimination, managing challenges and opportunities from changing environmental conditions and technological advancements to promote health equity, and establishing bureaucratic committees to address these issues affecting population health (World Health Organization, 2025).

Investing in public services to address SDOH and improve health outcomes is supported by a vast variety of literature and research. In a 2017 study using 2004-2011 data from 173 countries, findings indicate that a 1 percent increase in health spending per capita decreases infant mortality rates, decreases under 5 mortality rates, and increases life expectancy (Sun, D. et al 2017). A report published by the U.S. Assistant Secretary of Planning and Evaluation (ASPE) demonstrated that SDOH, particularly poverty, employment, education, housing, food access, transportation, and environmental conditions, account for up to 50 percent of county-level variation in health outcomes, far exceeding the impact of clinical care alone (Whitman, A. et al 2022). Peer-reviewed assessments of hospital and health-system initiatives show that programs targeting housing stability, food insecurity, transportation, and care coordination are essential for whole-person care and measurably advance health equity (Rangachari and Thapa, 2025). A 2024 analysis in the American Journal of Preventive Medicine demonstrates that multisector SDOH interventions are not only effective but also cost-effective, improving community health while reducing long-term healthcare spending (Honeycutt, A. et al 2024). Additional evidence demonstrates that strategies aimed at dismantling structural racism, through policy reform, equitable resource allocation, and community-driven systems change, lead to measurable reductions in health inequities and improved outcomes across communities (Bailey, Z. et al 2017).Together, this literature demonstrates that implementing multi-level evidence-based programs is a highly effective and necessary strategy for improving SDOH.

The Social Determinants of Health Program within the Montana Department of Public Health and Human Service's Chronic Disease Prevention and Health Promotion Bureau develops resources specifically tailored to Montana. One such resource developed by the program titled *Addressing Health Equity and Social Determinants of Health in Healthcare Settings* can be found at https://dphhs.mt.gov/assets/publichealth/ChronicDisease/SDOH/HealthEquityResourceGuide.pdf.

Conclusion

This analysis of Montana BRFSS data identifies the overall burden of high SDOH across the state and higher prevalence among subgroups. Within demographics, the top subgroups with high SDOH scores are American Indian/Alaskan Natives (24.1 percent), those with less than a high school diploma (23.9 percent), those living with a disability (2.2 percent), those aged 25-34 (16.1 percent), and females (11.3 percent). These findings underscore the urgent need to address SDOH and improve population health. By focusing on vulnerable groups and fostering equitable access to resources, Montana can take significant steps toward reducing health disparities and achieving better health outcomes for all.

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Appendix A Montana BRFSS Data Collection and Analysis Procedures for SDOH

This report utilized data from the 2022 and 2023 Montana BRFSS survey. The BRFSS is a system of health-related telephone surveys that has collected data annually among MT adults since 1984. Survey respondents are chosen via random-digit telephone dialing including both land line and cell phone numbers. Eligible respondents are non-institutionalized adults 18 years or older. Non-institutionalized is defined as not residing in a penal institution, mental facility, or home for the aged. Information is collected on a variety of health conditions, health practices, and risk behaviors. Select prevalence estimates are not reported due to low precision; this included estimates with fewer than 50 respondents, with half-width confidence intervals greater than 10 percent, or with a relative standard error greater than 30 percent. Prevalence estimates were obtained using cross tabulation tables. All statistical analyses were performed using SAS 9.4 software. Analyses were conducted to account for the complex sampling design.

In 2022 and 2023, Montana BRFSS included the Social Determinants and Health Equity CDC optional module, comprised of ten questions to assess SDOH. This module was prompted to all survey respondents. Responses to each question are coded as 0 (no SDOH indicator) and 1 (SDOH indicator) for a summed score, with a cumulative score of 4 or higher categorized as having a high SDOH score. There was one question change from 2022 to 2023 with language changing from "socially isolated" to "lonely"; results are still able to be compared and combined.

1. In general, how satisfied are you with your life? Are you...
   Satisfied/Very satisfied = 0. Dissatisfied/Very dissatisfied = 1.
2. How often do you get the social and emotional support that you need? Is that…
   Always/Usually = 0. Sometimes/Rarely/Never = 1.
3. How often do you feel socially isolated from others? Is it... /How often do you feel lonely? Is it...
   Rarely/Never = 0. Always/Usually/Sometimes = 1.
4. In the past 12 months have you lost employment or had hours reduced?
   No = 0. Yes = 1.
5. During the past 12 months, have you received food stamps, also called SNAP, the Supplemental Nutrition Assistance Program on an EBT card?
   No = 0. Yes = 1.
6. During the past 12 months how often did the food that you bought not last, and you didn't have money to get more? Was that..
   Rarely/Never = 0. Always/Usually/Sometimes = 1.
7. During the last 12 months, was there a time when you were not able to pay your mortgage, rent or utility bills?
   No = 0. Yes = 1.
8. During the last 12 months was there a time when an electric, gas, oil, or water company threatened to shut off services?
   No = 0. Yes = 1.
9. During the past 12 months has a lack of reliable transportation kept you from medical appointments, meetings, work, or from getting things needed for daily living?
   No = 0. Yes = 1.

10. Stress means a situation in which a person feels tense, restless, nervous or anxious or is unable to sleep at night because their mind is troubled all the time. Within the last 30 days, how often have you felt this kind of stress? Was it...

    Sometimes/Rarely/Never = 0. Always/Usually = 1.