

Prevalence of Frequent Mental Distress and Physical Inactivity Among Adults Aged 18–29 Years — United States, 2012–2024

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Abstract

Poor mental health accounts for an estimated \$300 billion in medical, pharmaceutical, and workplace- and suicide-related costs in the United States each year; promoting physical activity is an evidence-based approach to improving mental health. Identifying geographic groups with high prevalences of frequent mental distress and physical inactivity could help focus strategies that improve both outcomes. Young adults aged 18–29 years experience the highest prevalence of mental health conditions compared with other adult age groups. Using 2012–2024 data for adults aged 18–29 years from the Behavioral Risk Factor Surveillance System, CDC calculated frequent mental distress and physical inactivity prevalences nationally and by state or territory (jurisdiction). Nationwide, from 2012 to 2024, statistically significant overall increases in the prevalences of frequent mental distress (from 12.7% to 21.3%) and physical inactivity (from 15.9% to 16.8%) were observed. These national changes reflect jurisdiction-level changes from 2012 to 2024, because the prevalence of frequent mental distress increased and physical inactivity prevalence remained unchanged or increased in nearly every jurisdiction. However, examining year-to-year national changes revealed substantial recent declines in both frequent mental distress (during 2022–2023 and 2023–2024) and physical inactivity (during 2023–2024). Improving these outcomes can help prevent chronic diseases, reduce health care costs, and improve overall quality of life. Opportunities exist to improve mental health and increase physical activity concurrently through strategies that include social support groups for physical activity or changes to the physical environment. Such approaches might help sustain recent improvements in mental health and physical activity and lead to overall improvements in health.

Introduction

Poor mental health is a costly public health concern among U.S. adults. Among various mental health disorders, major depressive disorder alone in the United States accounted for \$326.2 billion in medical, pharmaceutical, and workplace- and suicide-related costs in 2018 (expressed in 2020 U.S. dollars) (1). In recent decades, among all adults, those aged 18–29 (2) and 18–25 years have reported higher prevalences of poor mental health than have those in other age groups. The [Physical Activity Guidelines for Americans](#) recognize that physical activity can improve mental health by reducing symptoms of anxiety and depression and improving well-being, cognition, and sleep. Inadequate physical activity is also costly, contributing to an estimated \$192 billion (expressed in 2019 U.S. dollars) in adults' annual health care costs, after adjusting for body mass index (3).

A strong association has been found between having ever received a diagnosis of a depressive disorder and experiencing frequent mental distress (4), [defined as](#) ≥14 mentally unhealthy days during the past 30 days, during which the person has experienced poor mental health because of stress, depression, or problems with emotions. [CDC's approach to supporting mental health](#) emphasizes improving conditions where persons work, live, learn, and play. Identifying jurisdictions with

INSIDE

597 [Notes from the Field: Investigation of Unapproved Botulinum Toxin Product Administered at a Medical Spa — Colorado, 2025–2026](#)

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increasing prevalences of frequent mental distress and physical inactivity among young adults can help focus evidence-based strategies that can improve both outcomes (e.g., social support and community design for physical activity) in areas of highest need. To identify these areas of highest need, national and jurisdiction-level prevalences of and trends in frequent mental distress and physical inactivity were examined among U.S. adults aged 18–29 years during 2012–2024 using data from the [Behavioral Risk Factor Surveillance System \(BRFSS\)](#).

Methods

Data Source and Primary Measures

BRFSS, a state-based landline and cellular telephone survey of noninstitutionalized U.S. civilian residents aged ≥18 years, collects data on health-related risk behaviors, chronic diseases and conditions, health care access, and use of preventive services in all 50 states, the District of Columbia (DC), and participating U.S. territories. Data from 2012 to 2024 were analyzed, limited to years with consistent physical inactivity question placement.* Frequent mental distress was defined as

any response of ≥14 days to the question, “Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?” Physical inactivity was defined as a negative response to the question, “During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?”

Study Participants

The analysis included data from 2012 to 2024 for 424,558 respondents aged 18–29 years. A total of 7,256 respondents with missing answers or who answered “I don’t know” or refused to answer questions on frequent mental distress, physical inactivity, or age were excluded[†] ([Supplementary Table 1](#)).

Data Analysis

National prevalences of frequent mental distress and physical inactivity were estimated for each study year, as were year-to-year and overall (2012 to 2024) changes. For jurisdiction-level

*Years of data included in the analysis are 2012 (response rate = 49.1% for the landline telephone–administered survey and 35.3% for the cellular telephone–administered survey), 2014 (response rate = 48.7% [landline] and 40.5% [cellular]), 2016 (response rate = 47.7% [landline] and 46.4% [cellular]), 2018 (response rate = 53.3% [landline] and 43.4% [cellular]), 2020 (combined landline and cellular weighted response rate = 47.9%), 2021 (combined response rate = 44.0%), 2022 (combined response rate = 45.0%), 2023 (combined response rate = 44.7%), and 2024 (combined response rate = 43.9%). [BRFSS Annual Survey Data | CDC](#).

[†]The demographic characteristics (sex and race or ethnicity) of included and excluded respondents were calculated across all years. Most differences between included and excluded respondents were small except for the percentage of Hispanic or Latino (Hispanic) and non-Hispanic White (White) populations (17.8% of included and 21.9% of excluded [Hispanic], and 59.6% of included and 51.1% of excluded [White] respondents). Sex and race or ethnicity were not variables in the main study, because the study’s aims were to describe prevalence over time and geography.

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analyses (50 U.S. states, DC, Guam, and Puerto Rico),[§] 2024 prevalence estimates and change in prevalence from 2012 to 2024 for both outcomes were calculated. Change estimates were considered statistically significant if the 95% CI of the percentage point difference excluded zero.[¶] All analyses were conducted in R (version 4.4.0; R Studio) using survey weights to account for the complex sampling design and nonresponse.^{**} This activity was reviewed by CDC, deemed not research, and conducted consistent with applicable federal law and CDC policy.^{††}

Results

National Trends in Frequent Mental Distress and Physical Inactivity (2012–2024)

Frequent mental distress. During 2014–2022, the prevalence of frequent mental distress increased statistically significantly in each study year (from 12.4% to 23.7%) (Figure 1). This increase was followed by a 1.2 percentage point (95% CI = 0.2–2.2) statistically significant decrease to 22.5% in 2023 and another 1.2 percentage point (95% CI = 0.3–2.2) statistically significant decrease to 21.3% in 2024. The 2024 national prevalence of frequent mental distress among adults aged 18–29 years corresponds to an overall 8.6 percentage point (95% CI = 7.7–9.4) statistically significant increase from 12.7% in 2012.

Physical inactivity. During the first 2 years of the analysis period, the prevalence of physical inactivity increased statistically significantly, by 1.3 percentage points (95% CI = 0.4–2.1), from 15.9% in 2012 to 17.1% in 2014. Subsequent year-to-year differences were not statistically significant until the last year of the analysis period, when prevalence declined by 1.6 percentage points (95% CI = 0.7–2.6), from 18.4% in 2023 to 16.8% in 2024. The 2024 national prevalence of physical inactivity (16.8%) corresponds to a 1.0 overall percentage point (95% CI = 0.1–1.8) statistically significant increase from 2012.

Jurisdiction-Level Prevalences of Frequent Mental Distress and Physical Inactivity (2024)

In 2024, the jurisdiction-level prevalences of frequent mental distress among young adults were highest in Oregon (30.2%), Nevada (27.9%), and Louisiana (27.1%) and lowest

in Puerto Rico (6.1%), Guam (14.7%), and Hawaii (14.8%) (Figure 2) ([Supplementary Table 2](#)). Physical inactivity prevalences were highest in Puerto Rico (33.8%), Guam (28.5%), and Mississippi (22.1%) and lowest in DC (11.3%), Nevada (11.3%), Montana (11.4%), and Colorado (11.8%).

Jurisdiction-Level Changes in Prevalences of Frequent Mental Distress and Physical Inactivity (2012–2024)

During 2012–2024, among the 53 jurisdictions included in the analysis, 47 (88.7%) experienced an overall statistically significant increase in prevalence of frequent mental distress (Figure 3) ([Supplementary Table 2](#)). Physical inactivity prevalence increased statistically significantly in six (11.3%) of the 53 jurisdictions over the observed time frame; although prevalence declined significantly in Texas, the other jurisdictions had no significant change.

Discussion

In 2024, more than one in five (21.3%) young adults reported frequent mental distress, and one in six (16.8%) reported getting no physical activity outside of work in the past month, representing overall increases in both outcomes since 2012. These trends were generally reflected in jurisdiction-level analyses, where in most jurisdictions outcomes were either unchanged or increased from 2012 to 2024. However, year-to-year national trends revealed decreases in more recent years in prevalences of both frequent mental distress (during 2022–2023 and 2023–2024) and physical inactivity (during 2023–2024).

The recent improvements in frequent mental distress align with other recent national trends. For example, [prevalences of other indicators of mental health \(e.g., major depressive disorder\) among persons aged 18–25 years also declined between 2021 and 2024](#). Both frequent mental distress and physical inactivity could have been affected by the COVID-19 pandemic in the early 2020s through increased loneliness and health anxiety (5) and reduced opportunities for physical activity (6). Recent declines in frequent mental distress and physical inactivity might reflect reductions in these contributing factors as the pandemic waned.

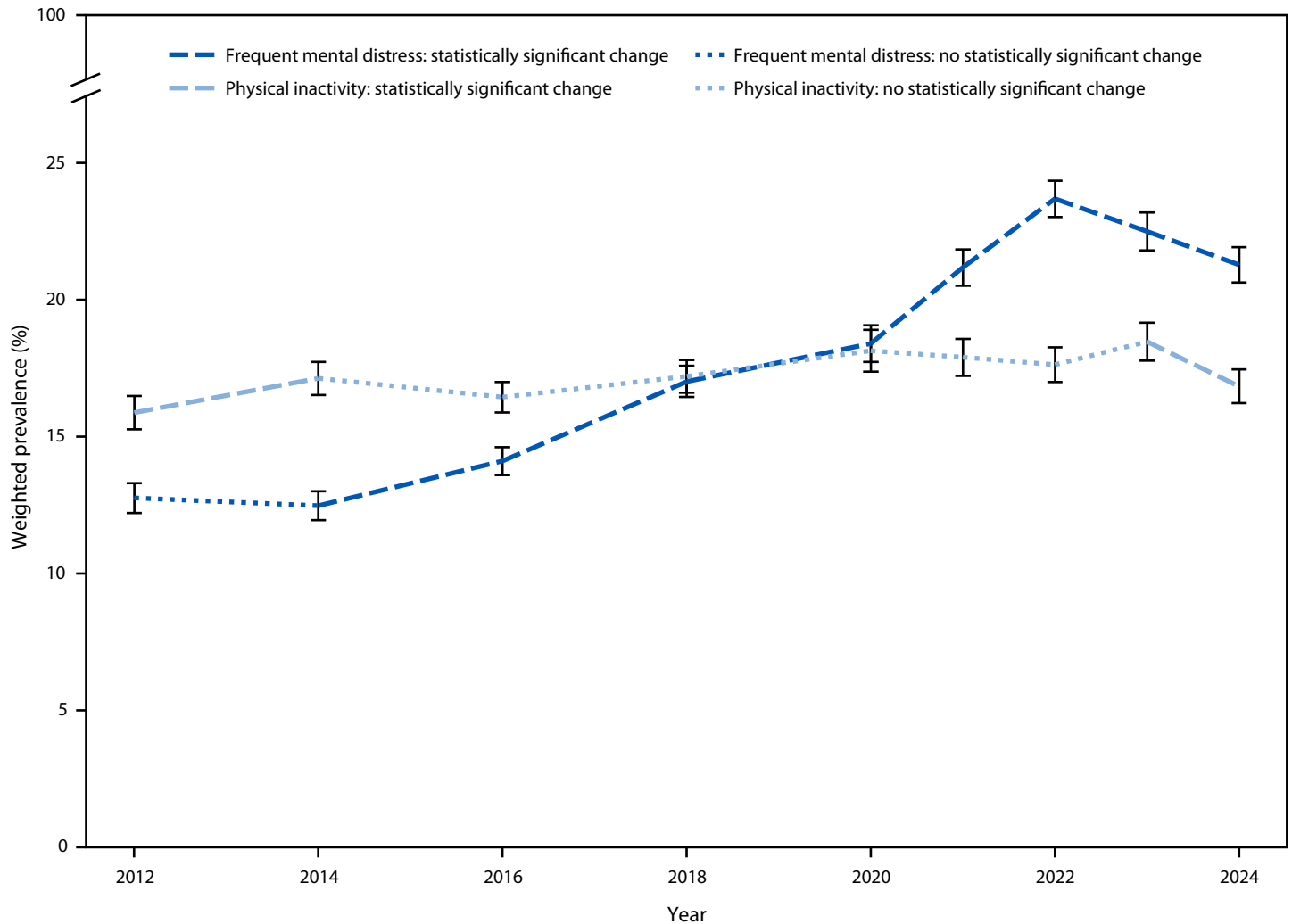
Improving mental health and lowering the prevalence of physical inactivity can help prevent chronic diseases, reduce health care costs, and improve overall quality of life. One report suggests that from 2010 to 2018, direct medical, pharmaceutical, and workplace- and suicide-related costs for major depressive disorders (which are strongly associated with frequent mental distress) (4) among adults aged 18–25 years increased by 73.7% (from \$16.4 million to \$28.5 million, expressed in 2020 U.S. dollars) (1). Not meeting the aerobic physical activity guideline (which includes physical inactivity) is associated

[§] Tennessee did not collect sufficient data for BRFSS 2024 to meet the minimum requirements for inclusion in the public-use dataset. For Tennessee, 2023 prevalence estimates and change in prevalence during 2012–2023 are reported instead of 2024 prevalence estimates and change in prevalence during 2012–2024.

[¶] SE of the change estimate was calculated as the square root of the sum of the squared SEs from the 2 years compared. The 95% CI for the change estimate was calculated as the change estimate plus or minus 1.96 times SE of the change estimate.

^{**} A report describing the weighting methodology is available on the BRFSS website for each data year (e.g., for year 2024: [Complex Sampling and Weights and Preparing 2024 BRFSS Module Data for Analysis](#)).

^{††} 45 C.F.R. part 46.102(l)(2), 21 C.F.R. part 56; 42 U.S.C. Sect. 241(d); 5 U.S.C. Sect. 552a; 44 U.S.C. Sect. 3501 et seq.

FIGURE 1. Prevalence* of frequent mental distress† and physical inactivity§ among adults aged 18–29 years — Behavioral Risk Factor Surveillance System, United States,¶ 2012–2024

* With 95% CIs indicated by error bars.

† Any response of ≥ 14 days to the question, "Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?"

§ A negative response to the question, "During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?"

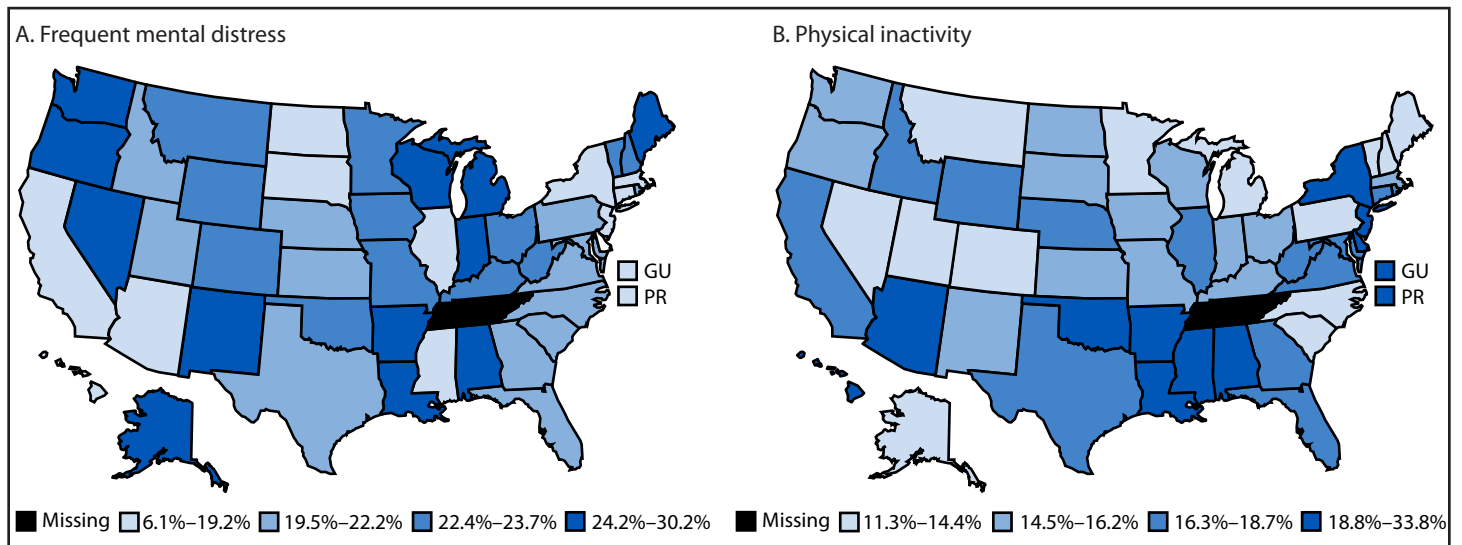
¶ National estimates are obtained from respondents from the 50 U.S. states, the District of Columbia, Guam, and Puerto Rico with available Behavioral Risk Factor Surveillance System data.

with \$192 billion (expressed in 2019 U.S. dollars) in annual health care expenses among U.S. adults (3). Reductions in mental health symptoms or disorders (e.g., depression and anxiety) (7) and participation in [regular physical activity](#) are associated with improved quality of life.

Opportunities exist to concurrently improve mental health and physical activity to sustain recent improvements. Although the relationship between these two outcomes can be bidirectional (e.g., poor mental health could be a barrier to physical activity) (8), the [Physical Activity Guidelines for Americans](#) recognize that physical activity improves cognition and reduces

the risk for depression and anxiety. Thus, concurrent improvements in both mental health and physical activity to sustain recent improvements are possible. For example, referrals to spend more time in nature by a health or social professional can promote physical activity, and time in nature also promotes mental well-being, even in the absence of physical activity (9). [Walking groups and buddy systems](#) can increase physical activity and [forge social connectedness](#). In addition, community design interventions, including increasing neighborhood walkability and access to green spaces, have been linked to [increases in physical activity](#) and improved mental health (10).

FIGURE 2. Weighted prevalences of frequent mental distress* (A) and physical inactivity† (B) among adults aged 18–29 years, by jurisdiction — Behavioral Risk Factor Surveillance System, United States, 2024§



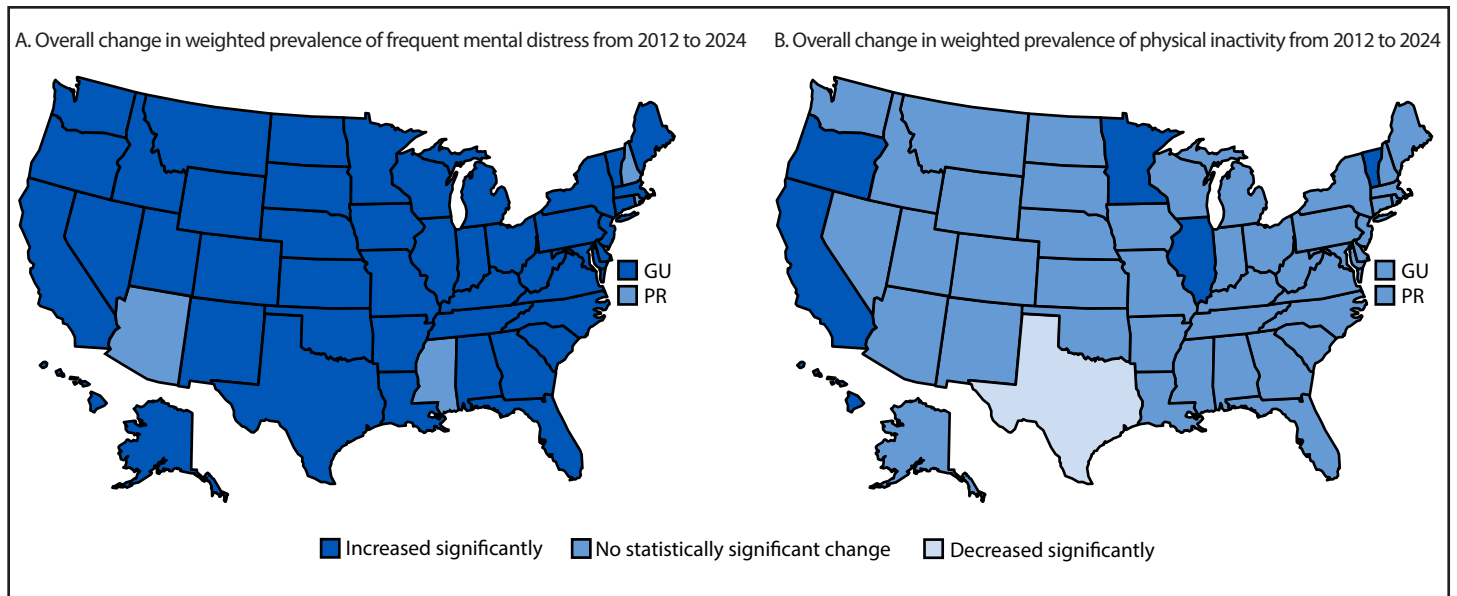
Abbreviations: GU = Guam; PR = Puerto Rico.

* Any response of ≥ 14 days to the question, "Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?"

† A negative response to the question, "During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?"

§ In 2024, Tennessee did not collect enough data to meet the minimum requirements for inclusion in the public-use dataset.

FIGURE 3. Change in weighted prevalences of frequent mental distress* (A) and physical inactivity† (B) among adults aged 18–29 years, by jurisdiction — Behavioral Risk Factor Surveillance System, United States, 2012–2024§



Abbreviations: GU = Guam; PR = Puerto Rico.

* Any response of ≥ 14 days to the question, "Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?"

† A negative response to the question, "During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?"

§ Because 2024 data for Tennessee were unavailable, prevalence estimates were compared from 2012 to 2023.

Summary**What is already known about this topic?**

Young adults have the highest incidence of certain mental health conditions. Increasing physical activity has been demonstrated to improve mental health.

What is added by this report?

During 2012–2024, the overall reporting of both frequent mental distress and physical inactivity increased nationally among young adults aged 18–29 years; these outcomes either remained unchanged or increased in most jurisdictions. In 2024, 21.3% of young adults reported frequent mental distress and 16.8% reported physical inactivity. Analyses of year-to-year trends identified substantial declines in both outcomes among young adults in 2024.

What are the implications for public health practice?

Improving mental health and reducing physical inactivity among young adults through evidence-based strategies could improve public health.

Limitations

The findings in this report are subject to at least five limitations. First, the self-reported outcomes were subject to reporting and social desirability biases, possibly resulting in underestimates of frequent mental distress and physical inactivity. Second, single-item survey questions measuring the multifaceted constructs of mental health and physical activity do not capture more complex details (e.g., type and severity of mental health conditions, duration of physical activity, or job-related physical activity). Third, jurisdictional estimates should be considered exploratory, because the CIs for many jurisdictions were wide, and multiple comparisons increased the likelihood of chance findings. Fourth, the analysis did not explore whether a respondent reported both frequent mental distress and physical inactivity, which limited analysis and interpretation to the independent prevalence estimates of these distinct but often interrelated health outcomes. Finally, the cross-sectional design prevents inferences regarding causality, especially considering the recognized bidirectional association between mental health and physical activity (8).

Implications for Public Health Practice

Despite recent declines in the prevalences of frequent mental distress and physical inactivity among U.S. adults aged 18–29 years in recent years, a substantial percentage of young adults report frequent mental distress and physical inactivity. Implementing strategies that can improve both physical activity and mental health, including several in [CDC's Active People, Healthy Nation Initiative](#), might reinforce these recent

declines. Relevant examples include promoting increased time in nature, using social support groups to increase physical activity, and designing safe and convenient access to supportive community environments for physical activity.

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References

- Greenberg PE, Fournier A-A, Sisitsky T, et al. The economic burden of adults with major depressive disorder in the United States (2010 and 2018). *Pharmacoeconomics* 2021;39:653–65. PMID:33950419 <https://doi.org/10.1007/s40273-021-01019-4>
- Vahratian A, Blumberg SJ, Terlizzi EP, Schiller JS. Symptoms of anxiety or depressive disorder and use of mental health care among adults during the COVID-19 pandemic—United States, August 2020–February 2021. *MMWR Morb Mortal Wkly Rep* 2021;70:490–4. PMID:33793459 <https://doi.org/10.15585/mmwr.mm7013e2>
- Matjasko JL, Chen Z, Whitfield GP, Whitsell LP, Rose K, Roy K. Inadequate aerobic physical activity and healthcare expenditures in the United States: an updated cost estimate. *Am J Health Promot* 2025;39:1085–7. PMID:40645609 <https://doi.org/10.1177/08901171251357128>
- Rashid M, Islam MM, Li A, Shifa N. Frequent mental distress among adults in the United States and its association with socio-demographic characteristics, lifestyle, and chronic health condition. *J Public Health Dev* 2022;20:146–62. <https://doi.org/10.55131/jphd/2022/200112>
- Lee YE, Seo JH, Kim ST, et al. Psychological factors associated with COVID-19 related anxiety and depression in young adults during the COVID-19 pandemic. *PLoS One* 2023;18:e0286636. PMID:37267377 <https://doi.org/10.1371/journal.pone.0286636>
- Watson KB, Whitfield GP, Huntzicker G, et al. Cross-sectional study of changes in physical activity behavior during the COVID-19 pandemic among US adults. *Int J Behav Nutr Phys Act* 2021;18:91. PMID:34233691 <https://doi.org/10.1186/s12966-021-01161-4>
- Hohls JK, König H-H, Quirke E, Hajek A. Anxiety, depression and quality of life—a systematic review of evidence from longitudinal observational studies. *Int J Environ Res Public Health* 2021;18:12022. PMID:34831779 <https://doi.org/10.3390/ijerph182212022>
- Schuch F, Vancampfort D, Firth J, et al. Physical activity and sedentary behavior in people with major depressive disorder: a systematic review and meta-analysis. *J Affect Disord* 2017;210:139–50. PMID:28033521 <https://doi.org/10.1016/j.jad.2016.10.050>
- Nguyen P-Y, Astell-Burt T, Rahimi-Ardabili H, Feng X. Effect of nature prescriptions on cardiometabolic and mental health, and physical activity: a systematic review. *Lancet Planet Health* 2023;7:e313–28. PMID:37019572 [https://doi.org/10.1016/S2542-5196\(23\)00025-6](https://doi.org/10.1016/S2542-5196(23)00025-6)
- Sallis JF, Spoon C, Cavill N, et al. Co-benefits of designing communities for active living: an exploration of literature. *Int J Behav Nutr Phys Act* 2015;12:30. PMID:25886356 <https://doi.org/10.1186/s12966-015-0188-2>

Notes from the Field

Investigation of Unapproved Botulinum Toxin Product Administered at a Medical Spa — Colorado, 2025–2026

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In 2002, the Food and Drug Administration (FDA) approved the use of cosmetic botulinum neurotoxin (BoNT) to treat medical and aesthetic conditions, including facial wrinkles (1). In 2024, 9.8 million persons received cosmetic BoNT injections in the United States. Adverse events have been documented after injection of BoNT that has been improperly procured, injected by a person without the proper medical credentials, or that has [not been approved by FDA for use in the United States](#) (2–4). During January 2026, Rocky Mountain Poison and Drug Safety (RMPDS) alerted public health authorities of a woman (patient A) reporting symptoms consistent with BoNT adverse effects and illness; her symptoms began 5 days earlier, on the same day she received a BoNT injection from a licensed medical provider at a medical spa.[†] Patient A reported seeking medical care for these adverse effects on the same day that she reported her symptoms to RMPDS, at which time her primary care provider determined treatment was not recommended. Patient A's signs and symptoms had improved by the time she contacted RMPDS, and she did not require hospitalization. The Colorado Department of Public Health and Environment (CDPHE), in collaboration with CDC, FDA, and the local public health agency, launched an investigation.

Investigation and Outcomes

Identification of Symptomatic Patients

CDPHE and the local public health agency visited the medical spa to evaluate injection safety practices, identify BoNT products administered, and collect product samples for CDC testing. CDPHE sent a text message survey to 52 medical spa patients identified by the provider as having received BoNT at the spa during December 2025–January 2026 to inquire about treatment details and posttreatment signs and

symptoms[§]; 27 (47%) patients responded, including two additional symptomatic patients (patients B and C), who were interviewed by telephone. This activity was reviewed by CDC, deemed not research, and conducted consistent with applicable federal law and CDC policy.[¶]

Receipt of Non-FDA-Approved BoNT Products by Symptomatic Patients

Patients A, B, and C verified receiving an injection of the same non-FDA-approved product by naming the product they received; however, none of the three had been aware that [the product was not FDA approved](#). None of the patients required hospitalization. Patient A sought medical care and reported improvement by the time of the interview (Table). Patients B and C reported similar symptoms that had resolved without medical attention. All three patients were women who received injections from the same lot of a non-FDA-approved BoNT product in the upper brow, glabella, or upper lip ≥1 day of each other and reported symptoms of numbness and tingling, muscle weakness, dysphonia, blurred vision, or neck stiffness on the day of treatment. Although approved in other countries, the administered product is not approved for use in the United States. The BoNT that the medical spa provider reported administering to these symptomatic patients was verified by the manufacturer, confirming that the lot number corresponded to their product records. The product with the lot number administered to the affected patients was not available for testing. CDC testing of a different lot number of the non-FDA-approved product obtained from the medical spa did identify the presence of active BoNT type A but did not identify elevated levels of botulinum toxins or contaminants.

Medical Spa Assessment Findings

Both FDA-approved and non-FDA-approved products were found on-site at the medical spa. The medical spa provider reported that non-FDA-approved products were purchased through an online supplier. Other facility assessment findings

[§] Patients were asked about the following posttreatment signs and symptoms: pain, swelling, or bruising at the injection site; headache or influenza-like symptoms; droopy eyelids or crooked eyebrows; crooked smile or drooling; watery or dry eyes; infection at the injection site; muscle weakness; vision problems (including blurry or double vision); severe fatigue; difficulty talking or swallowing; difficulty breathing; allergic reaction; increased heart rate or chest pain; feelings of pins and needles, numbness, or tingling; and loss of bladder control. [LETYBO \(letibotulinumtoxinA-wlbg\) Label | FDA](#), [BOTOX \(onabotulinumtoxinA\) Label | FDA](#)

[¶] 45 C.F.R. part 46, 21 C.F.R. part 56; 42 U.S.C. Sect. 241(d); 5 U.S.C. Sect. 552a; 44 U.S.C. Sect. 3501 et seq.

*These authors contributed equally to this report.

[†] In Colorado, a medical spa is a facility or medical practice providing cosmetic, aesthetic, wellness, longevity, or lifestyle treatments involving the administration or use of prescription drugs, including injectable and sterile drug products.

TABLE. Characteristics of symptomatic patients who received unapproved botulinum neurotoxin injections — Colorado, 2025–2026

Characteristic	Patient A	Patient B	Patient C
Sex	Female	Female	Female
Injection site	Upper brow and glabella	Upper brow and upper lip	Upper brow and glabella
Injection dose (total)*	24 units	3 units	10 units
Time from injection to symptom onset	≥24 hrs	≥24 hrs	≥24 hrs
Signs and symptoms	Numbness and tingling in the arms and legs, neck stiffness, dysphonia, headache, and blurred vision	Dysphonia, headache, and blurred vision	Dyspnea, headache, and leg and arm muscle weakness
Outcome	Recovered; sought outpatient health care	Recovered; did not seek health care	Recovered; did not seek health care

* Information regarding the doses administered was provided by the medical spa provider from clinical notes. Botulinum neurotoxin products are priced and purchased by unit; differences in the number of units administered might reflect a patient request for the amount to be administered, promotional offers from the medical spa, or administration during multiple appointments. Total dosage during multiple appointments is displayed.

Summary

What is already known about this topic?

Use of counterfeit or unapproved botulinum neurotoxin (BoNT) can result in serious illness.

What is added by this report?

In 2026, a Colorado poison center report identified use of a BoNT product not approved by the Food and Drug Administration (FDA) at a medical spa; subsequent public health investigation revealed patient safety issues including adverse effects after administration of the unapproved product.

What are the implications for public health practice?

Persons should be encouraged to seek BoNT treatment only from licensed providers administering FDA-approved products. Public health investigations of reports of posttreatment adverse events are important to ensure compliance with regulations and patient safety.

included inappropriate use of a preservative-containing diluent, use of single-dose vials for multiple patients, inadequate temperature monitoring, and storage and use of reconstituted and unlabeled product past the beyond-use date** (*1*). The provider received a public health order to immediately stop using the unapproved products, and a formal complaint against the provider's license was submitted to the Colorado Department of Regulatory Agencies. After initiation of the public health investigation, the provider reported ceasing use of the unapproved products.

Preliminary Conclusions and Actions

Three persons experienced transient neurologic symptoms after injections of an unapproved BoNT product by a licensed provider in Colorado. The clinical features reported included both adverse reactions listed on the package insert of the product and reactions that were not listed on the package insert. Based on findings from the site investigation, potential causes include unknown product concentration, product

** Investigations of adverse events after BoNT administration have noted numerous deviations from FDA recommendations for drug dose, dilution, handling, injection site, and storage.

contamination, improper preparation, and improper administration or storage of the product (*1*). This response highlights the importance of communication and collaboration among poison centers, health care providers, and public health authorities in reporting patients with symptoms after receiving BoNT injections ([FDA | MedWatch Online Voluntary Reporting Form 3500](#)). Follow-up public health investigations are important to ensuring regulatory compliance and patient safety. In addition to being subject to other federal laws and regulations, medical spas might be regulated as dispensers under the Drug Supply Chain Security Act (DSCSA).^{††} On April 1, 2026, [FDA issued a warning letter to a medical spa in Texas](#) for obtaining botulinum toxin product in violation of DSCSA. In Colorado, administering non-FDA-approved products can be grounds for disciplinary action against a licensed provider by the Department of Regulatory Agencies, the state's agency responsible for licensing professionals.

BoNT purchased from an unauthorized supplier might not be FDA approved and might be counterfeit, contaminated, improperly stored, or otherwise unsafe (*5*). Persons should be encouraged to seek treatment only from licensed providers administering [FDA-approved BoNT products](#). Providers should not purchase or administer [unapproved BoNT products from unauthorized sources](#).

^{††} As defined by DSCSA, dispensers are persons who are authorized to dispense or administer prescription drugs to humans.

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References

1. Food and Drug Administration. Botox Cosmetic (onabotulinumtoxinA) [package insert]. Silver Spring, MD: U.S. Department of Health and Human Services, Food and Drug Administration; 2009. https://www.accessdata.fda.gov/drugsatfda_docs/label/2009/103000s5109s5210lbl.pdf
2. Lamere L, Cope J, Breazu R, et al. Notes from the field: severe illnesses after self-injection of botulinum toxin purchased online—New York, Texas, and Wisconsin, 2025. *MMWR Morb Mortal Wkly Rep* 2025;74:593–6. PMID:41296617
3. Thomas CM, McElroy R, Yackley J, et al. Notes from the field: illnesses after administration of presumed counterfeit botulinum toxin in nonmedical settings—Tennessee and New York City, March 2024. *MMWR Morb Mortal Wkly Rep* 2024;73:609–11. PMID:38990782 <https://doi.org/10.15585/mmwr.mm7327a3>
4. de Oliveira GV, Chakraborty D, Kroumpouzou E, Kroumpouzou G. Counterfeit botulinum toxin and cosmetic iatrogenic botulism: emerging threats that require regulatory reform. *J Skin* 2025;9:2574–83. <https://doi.org/10.25251/kkby0454>
5. Pickett A, Mewies M. Serious issues relating to the clinical use of unlicensed botulinum toxin products. *J Am Acad Dermatol* 2009;61:149–50. PMID:19539854 <https://doi.org/10.1016/j.jaad.2008.12.042>

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