National Health Statistics Reports

Number 206 ■ July 16, 2024

Perceived Social and Emotional Support Among Teenagers: United States, July 2021–December 2022

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Abstract

Objective—This report uses data from the National Health Interview Survey and National Health Interview Survey—Teen to estimate the prevalence of self-reported social and emotional support among teenagers ages 12–17 years, describe differences in health and well-being outcomes by level of support received, and compare teen- and parent-reported estimates for social and emotional support overall and by selected teen and family characteristics.

Methods—The percentage of teenagers who self-reported always or usually receiving social and emotional support by selected demographic characteristics, and potential differences in health outcomes by level of support, were estimated using data from the National Health Interview Survey—Teen collected from July 2021 through December 2022. In addition, data from the same time period from the National Health Interview Survey were used to compare parent-reported estimates of their teenager's social and emotional supports with the teenager's self-reported estimates.

Results—In 2021–2022, 58.5% of teenagers reported always or usually receiving the social and emotional support they needed. Differences were seen by several demographic characteristics including sex, race and Hispanic origin, sexual or gender minority status, highest parental education level, and family income level. Teenagers who always or usually received support were less likely to report poor or fair health, anxiety or depression symptoms, very low life satisfaction, and poor sleep quality. Parents consistently reported higher perceived levels of their teenager's social and emotional support compared with the teenager's self-report.

Keywords: adolescents • well-being • National Health Interview Survey (NHIS) • National Health Interview Survey—Teen (NHIS—Teen)

Introduction

The teen years represent a period of both biological and social transition, resulting in new and unique stressors (1,2). Teenagers with social and emotional

support are better equipped to handle these stressors and are less likely to experience a variety of adverse physical and mental health outcomes (3–7). While the level of social and emotional support received by teenagers varies by both teen and family characteristics (4,5,8–10), research based on nationally representative samples is lacking. Moreover, the reliance on parent-report in past studies may misrepresent the true level of support teenagers received, given the potential for high disagreement between teenagers and their parents based on differences seen in parent- and child-report of other measures (11–13).

To help address these gaps, data from the National Interview Survey-Teen (NHIS-Teen) were used. NHIS-Teen is a web-based, self-administered follow-back survey of teenagers ages 12-17 years who were selected as part of the National Health Interview Survey (NHIS) Sample Child interview. As part of the NHIS Sample Child interview, parents report information on behalf of the Sample Child, so the teenager is not reporting information about themselves. These same sampled teenagers were then invited to participate in NHIS-Teen with their parents' permission. This allows for both the estimation of outcomes relevant for teenagers and a better understanding of how parent and teen reporting may differ for specific topics.



Using data from both NHIS and NHIS-Teen, this report has several analytical goals: 1) to describe selfreported social and emotional support among teenagers ages 12–17 years and evaluate how the percentage of teenagers who always or usually receive this support varies by selected teen and family characteristics, 2) to study if differences in health and well-being outcomes exist between teenagers who always or usually receive support and those who do not, and 3) to compare teen- and parent-reported estimates of teenagers' perceived social and emotional support overall and by selected teen and family characteristics.

Methods

Data sources

Data used in this report come from two nationally representative sources: NHIS and NHIS—Teen, collected between July 2021 and December 2022.

NHIS is a primary source of information on the health of the U.S. civilian noninstitutionalized population. Detailed health interviews are collected about one randomly selected household adult (known as the Sample Adult), and, if present, one randomly selected household child (known as the Sample Child). Adults respond on their own behalf, while a parent or guardian answers on behalf of the child. Interviews are administered either by phone or in person by trained interviewers using computer-assisted personal interviewing. More information about the 2021 and 2022 NHIS sample designs, interviewing procedures, and survey content can be found in the NHIS survey description documents (14,15).

NHIS—Teen is a web-based, self-administered follow-back survey of adolescents ages 12–17 years whose parent completed the NHIS Sample Child interview about their teenager and provided permission for their teenager to be invited to participate in the survey. Eligible teenagers received an invitation letter and a series of scheduled reminders with instructions for completing a 15-minute online health survey. On average, teenagers completed the survey within 2–3 weeks of their parent's interview.

NHIS-Teen covers topics such as physical activity, screen time, friendships, bullying, and symptoms of poor mental health and resilience as reported by the teenagers themselves. Most of the questions in NHIS–Teen are similar to those asked of their parents in the NHIS Sample Child interview. However, NHIS-Teen has additional questions that are asked of teenagers but are not included in the NHIS Sample Child interview. The NHIS-Teen completion rate from July 2021 through December 2022 among teenagers was 45.9%. More detailed information about NHIS-Teen, including its methodology and recruitment strategy, has been published elsewhere (16).

Analytical sample

A total of 1,176 teenagers ages 12–17 years completed NHIS–Teen, and a total of 4,424 parents of teenagers ages 12–17 years completed the NHIS Sample Child interview between July 2021 and December 2022. Estimates based on parent-report included the full sample of eligible teenagers from the Sample Child interview to allow for population-based parent-report estimates.

Measures

Social and emotional support

Teenagers' perceived levels of social and emotional support were assessed using the survey question, "How often do you get the social and emotional support you need?" with the response options of "always," "usually," "sometimes," "rarely," and "never." Responses were divided into two groups: 1) always or usually, and 2) sometimes, rarely, or never. A parent answered a comparable question about the teenager's perceived level of social and emotional support when they completed the NHIS Sample Child interview.

Five health and well-being outcomes were selected from the questions asked of teenagers in NHIS—Teen that have previously been associated with social support (3–7). These outcomes included poor or fair health, anxiety symptoms, depression symptoms, very low life satisfaction, and poor sleep quality.

Question wording for these outcomes can be found in Technical Notes.

Teen and family characteristics

Teen and family characteristics are based on data provided by the teenager's parent as part of the NHIS Sample Child interview. The one exception is sexual or gender minority status, which is based on data provided by the teenager as part of the NHIS—Teen interview. Question wording for sexual or gender minority status and other teen and family characteristics can be found in Technical Notes.

Teen-level characteristics include sex, age group (12–14 or 15–17 years), race and Hispanic origin (Asian non-Hispanic [subsequently, Asian], Black non-Hispanic [subsequently, Black], White non-Hispanic [subsequently, White], or Hispanic), and sexual or gender minority status.

Family-level characteristics include geographic region (Northeast, Midwest, South, or West), urbanization level (large fringe and central metropolitan areas, medium or small metropolitan areas, or nonmetropolitan areas) (17), highest parental education level (high school or less, some college, or college degree or higher), and family income as a percentage of the federal poverty level (FPL) (less than 200% FPL, 200% to less than 400% FPL, or 400% FPL or more). The poverty variable used in this analysis was multiply imputed when information was missing (18,19).

Statistical analysis

First, the percent distribution of the frequency of self-reported social and emotional support was estimated overall. Second, the percentage of teenagers who always or usually received social and emotional support was estimated overall and for selected teen and family characteristics. Third, the percentage of teenagers who reported poor or fair health, anxiety symptoms, depression symptoms, very low life satisfaction, and poor sleep quality was compared between teenagers who always or usually received social and emotional support and those who sometimes, rarely, or never received support. Fourth, the percent distribution

of the frequency of perceived social and emotional support as reported by parents for their teenagers was estimated. Finally, differences in teen- and parent-report for support received always or usually were evaluated overall and by selected teen and family characteristics.

All estimates were weighted accounting for the complex sample design of NHIS-Teen using Stata SE Version 17.0 (20) and met the National Center for Health Statistics standards of reliability as specified in "National Center for Health Statistics Data Presentation Standards for Proportions" (21). Differences between percentages were evaluated using two-sided significance tests at the 0.05 level. Overall missing or unknown data for social and emotional support were low both among teen-report (1.6%) and parent-report (1.0%), resulting in an analytical sample of 1,157 for the NHIS-Teen and 4,379 for the NHIS Sample Child interview. Parent-reported estimates used the NHIS Sample Child weight (14,15), while teen-reported estimates used the NHIS-Teen weight (22).

Results

Social and emotional support

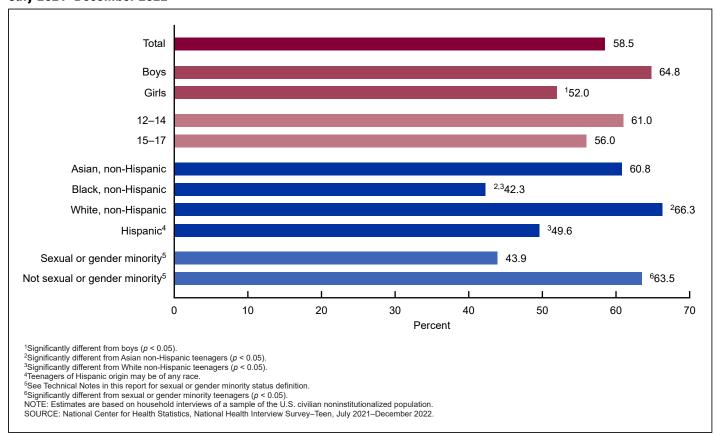
Overall, 27.5% of teenagers always received the social and emotional support they needed, while 31.0% usually, 21.7% sometimes, 12.5% rarely, and 7.4% never received the social and emotional support they needed. Percent distributions of teenreported social and emotional support by selected teen and family characteristics are included in Table.

Figure 1 presents the percentage of teenagers who always or usually received social and emotional support both overall and by teen characteristics. In total, 58.5% of teenagers always or usually received social and emotional support. Boys (64.8%) were more likely than girls (52.0%) to have always or usually received support. Although a higher percentage of teenagers ages 12–14 years (61.0%) always or usually received support than teenagers ages 15–17 years (56.0%), this observed difference was not significant. Black teenagers (42.3%) were

less likely than both Asian (60.8%) and White (66.3%) teenagers to have always or usually received support. Hispanic teenagers (49.6%) were also less likely than White teenagers to have always or usually received support, but the observed difference with Asian teenagers was not significant. Sexual or gender minority teenagers (43.9%) were less likely to have always or usually received support compared with teenagers who were not a sexual or gender minority (63.5%).

Figure 2 presents the percentage of teenagers who always or usually received social and emotional support by family characteristics. The percentage of teenagers who always or usually received support was lower among teenagers with parents with a high school diploma, GED, or less (51.9%) and teenagers with parents with some college or associate's degree (52.6%) compared with teenagers with parents with a bachelor's degree or higher (65.7%). The percentage of teenagers who always or usually received support was lowest among teenagers living in families

Figure 1. Percentage of teenagers ages 12–17 years who always or usually received the social and emotional support they needed, by sex, age group, race and Hispanic origin, and sexual and gender minority status: United States, July 2021–December 2022



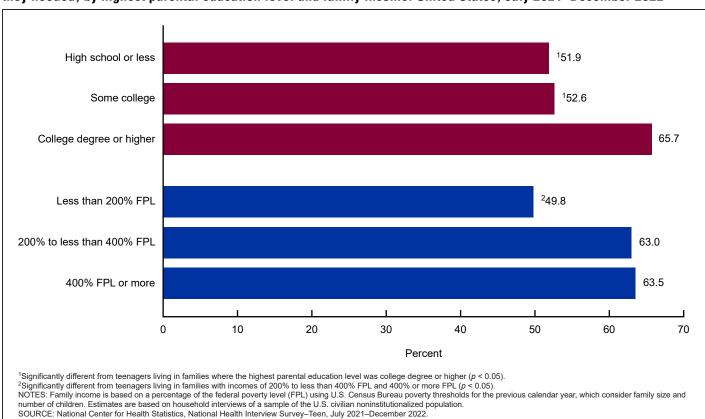


Figure 2. Percentage of teenagers ages 12–17 years who always or usually received the social and emotional support they needed, by highest parental education level and family income: United States, July 2021–December 2022

at less than 200% FPL (49.8%) compared with teenagers living in families at 200% to less than 400% FPL (63.0%) and 400% FPL or more (63.5%).

Figure 3 presents the percentage of teenagers who always or usually received social and emotional support by geographic characteristics. The percentage of teenagers who always or usually received support was not significantly different by region, with 63.2% among teenagers in the Northeast, 61.5% in the Midwest, 56.4% in the South, and 56.2% in the West. In addition, the percentage of teenagers who always or usually received support did not vary by urbanization level, with 58.6% among teenagers in large central or fringe metropolitan areas, 57.3% in medium or small metropolitan areas, and 60.9% in nonmetropolitan areas.

Health and well-being outcomes

Figure 4 compares the differences in the percentage of teenagers experiencing five health and well-being outcomes by level of support. Teenagers who always or usually received support were less likely to be in poor or fair health (4.8% compared with 13.8%), experience anxiety (12.9% compared with 33.1%) and depression symptoms (8.0% compared with 31.1%), have very low life satisfaction (1.0% compared with 13.9%), and have poor sleep quality (36.9% compared with 67.1%) compared with teenagers who did not always or usually receive support.

Teen- and parent-report comparison

Figure 5 compares the concordance in level of support between teen- and parent-report. Parents were more likely to say that their teenager always received the social and emotional support they needed (76.9% compared with 27.5%),

and less likely to say their teenager usually (16.2% compared with 31.0%), sometimes (4.0% compared with 21.6%), rarely (0.9% compared with 12.5%), or never (2.0% compared with 7.4%) received the social and emotional support they needed.

The Text table includes a detailed comparison of teen- and parent-reported estimates by selected teen and family characteristics. Overall, and for all subgroups, parents were more likely to report that their teenager always or usually received the support they needed compared with their teenager's perception of if they always or usually received the support they needed. The overall prevalence ratio comparing parents with their teenagers was 1.59, ranging from 1.40 among Asian teenagers and their parents to 2.27 among Black teenagers and their parents. Parents of sexual or gender minority teenagers also overestimated their teenager's perceived support, reporting more than double the amount of support than their teenagers reported (prevalence ratio of 2.11).

Figure 3. Percentage of teenagers ages 12–17 years who always or usually received the social and emotional support they needed, by region and urbanization level: United States, July 2021–December 2022

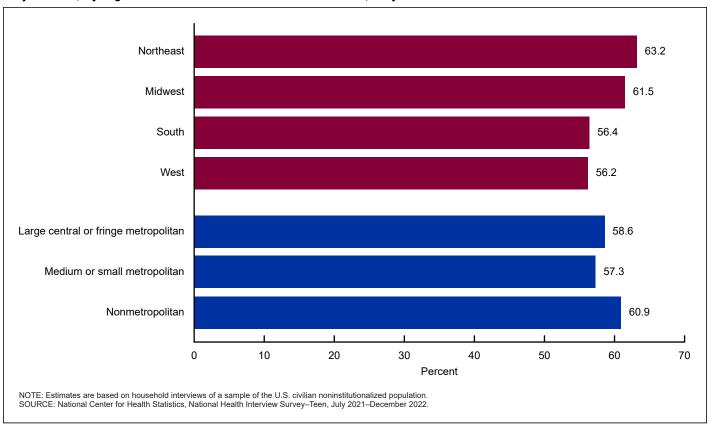
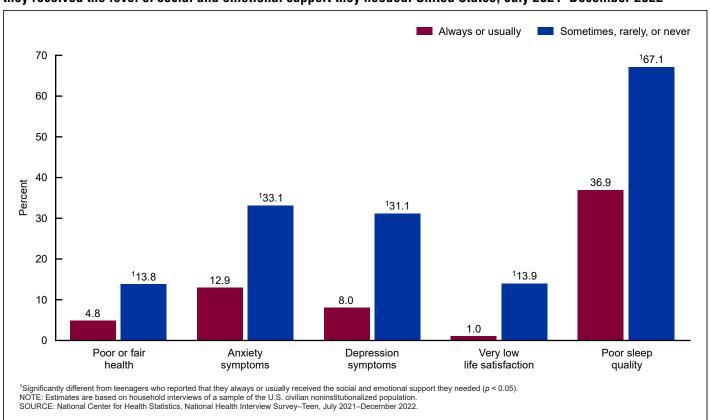


Figure 4. Percentage of teenagers ages 12–17 years with selected health and well-being outcomes, by how often they received the level of social and emotional support they needed: United States, July 2021–December 2022



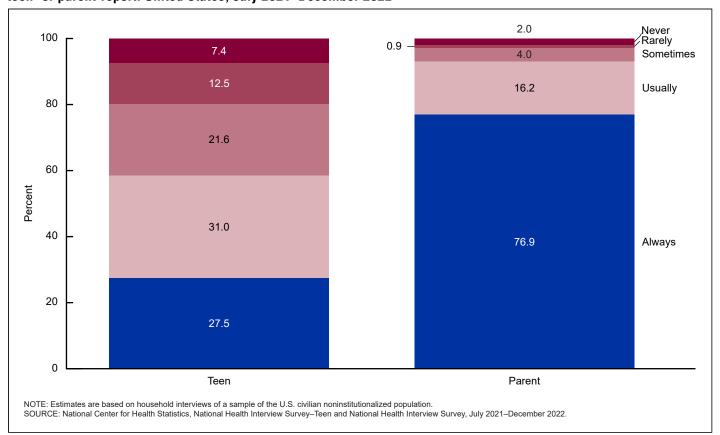


Figure 5. Percent distribution of how often teenagers received the social and emotional support they needed, by teen- or parent-report: United States, July 2021-December 2022

Discussion

About 3 in 5 teenagers (58.5%) always or usually received the social and emotional support they needed. The level of support differed by several key teen and family characteristics. Girls, Black and Hispanic teenagers, and sexual or gender minority teenagers were some of the least likely groups to have always or usually received the social and emotional support they needed. In addition, the percentage of teenagers who always or usually received social and emotional support differed by family income and parental education level, with higher education and family income being associated with higher rates of support. A nationally representative survey of adults found similar sociodemographic differences; however, women were more likely than men to have received higher levels of social and emotional support (23).

Adolescents who lack social and emotional support may be at risk of social isolation (24,25), which has been associated with poorer physical and mental health, life satisfaction, and sleep quality

(26–28). The rate of social isolation across the population has grown in recent years (29), and the U.S. Office of the Surgeon General recently released an advisory dedicated to the impact and importance of social connection and community (30).

A comparison of parent- and teenreported estimates strengthens the current literature showing notable discrepancies between parent- and teen-reports (11–13). Moreover, these discrepancies were not limited to any one subgroup of teenagers but were present to varying degrees regardless of the teen- and family-level characteristic examined. This suggests a systematic bias where parents consistently report higher levels of social and emotional support compared with their teenager's perception, and in doing so may underestimate their teenager's perceived need for social and emotional support. Differences in survey mode may impact discrepancies between parent- and teen-report because interviewers administer the parent interview, while the teen interview is self-administered. Previous research has found that interview mode may lead to social desirability biases for sensitive questions (31), where parents may be more likely to overreport positive outcomes in the presence of an interviewer. Finally, teenagers have evolving concepts of what constitutes social or emotional support that may not always align with those of their parents (32). Moreover, a definition for what constitutes an emotional or social support is not included in the question text in either NHIS or NHIS—Teen.

NHIS-Teen provides a unique opportunity to explore health outcomes as reported from teenagers directly within a nationally representative data set. Despite these strengths, several limitations should be acknowledged. Both NHIS-Teen and NHIS are cross-sectional surveys. As such, it is not possible to determine causation when exploring the association between social and emotional support and health and well-being outcomes. In addition, analyses were limited to a single indicator of the level of support received and consequently lacks context as it relates to the quality, number, and types of support a teenager perceives.

Text table. Percentage of teenagers ages 12–17 years who always or usually received the social and emotional support they needed, by selected characteristics and reporter: United States, July 2021–December 2022

Characteristic	Teen estimate	Parent estimate	Prevalence ratio
_	Percent (sta	_	
Total	58.5 (1.76)	93.1 (0.45)	1.59
Sex			
Boys	64.8 (2.49)	93.0 (0.64)	1.44
Girls	52.0 (2.59)	93.3 (0.62)	1.79
Age group (years)			
12–14	61.0 (2.64)	94.2 (0.57)	1.54
15–17	56.0 (2.57)	92.1 (0.67)	1.64
Race and Hispanic origin			
Asian, non-Hispanic	60.8 (5.74)	85.1 (2.18)	1.40
Black, non-Hispanic	42.3 (5.97)	95.9 (1.01)	2.27
White, non-Hispanic	66.3 (2.27)	95.1 (0.54)	1.43
Hispanic ¹	49.6 (3.86)	89.0 (1.13)	1.79
Sexual or gender minority ²			
Yes	43.9 (3.43)	92.7 (1.81)	2.11
No	63.5 (2.15)	93.8 (1.07)	1.48
Family income as a percentage of federal poverty level ³			
Less than 200%	49.8 (3.61)	90.2 (0.99)	1.81
200% to less than 400%	63.0 (3.22)	94.9 (0.67)	1.51
400% or more	63.5 (2.64)	94.7 (0.57)	1.49
Highest parental education level			
High school or less	51.9 (4.14)	88.5 (1.13)	1.71
Some college	52.6 (3.81)	95.2 (0.80)	1.81
College degree or higher	65.7 (2.27)	94.7 (0.54)	1.44
Urbanization level			
Large central or fringe metropolitan	58.6 (2.36)	91.4 (0.66)	1.56
Medium or small metropolitan	57.3 (3.00)	95.4 (0.66)	1.66
Nonmetropolitan	60.9 (5.67)	95.6 (0.89)	1.57
Region			
Northeast	63.2 (4.99)	93.1 (1.17)	1.47
Midwest	61.5 (3.74)	95.0 (0.74)	1.54
South	56.4 (2.87)	92.4 (0.80)	1.64
West	56.2 (3.16)	92.9 (0.85)	1.65

¹Teenagers of Hispanic origin may be of any race.

Conclusions

In this nationally representative sample of teenagers ages 12–17 years, receipt of social and emotional support varied by sociodemographic characteristics. Higher perceived levels of social and emotional support—as reported by the teenagers themselves—were associated with better physical and mental health and positive well-

being outcomes. However, the degree of support varied by whether the teenager or their parent reported this information. Parents were consistently more likely to report higher levels of their teenagers' level of social and emotional support compared with their teenagers, potentially underestimating the support their teenager believes they have received in their daily lives. These findings suggest that collecting the teenager's

perspective in addition to parent-reported data for social and emotional support has advantages for understanding why these differences may occur.

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²Because sexual or gender minority status is answered by the teenager, parent-reported estimates are limited to those for teenagers who completed NHIS–Teen. All other parent estimates come from the full sample of children ages 12–17 years from the 2021 and 2022 NHIS Sample Child interviews.

³Calculated using U.S. Census Bureau poverty thresholds for the previous calendar year, which consider family size and number of children.

NOTE: Estimates are based on household interviews of a sample of the U.S. civilian noninstitutionalized population.

SOURCE: National Center for Health Statistics, National Health Interview Survey–Teen and National Health Interview Survey, July 2021–December 2022.

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Table. Percent distribution of how often teenagers received the social and emotional support they needed, by selected teen and family characteristics: United States, July 2021-December 2022

Characteristic	Always	Usually	Sometimes	Rarely	Never	
	Percent (standard error)					
Total	27.5 (1.71)	31.0 (1.74)	21.7 (1.41)	12.5 (1.27)	7.4 (1.07)	
Sex						
Boys	33.3 (2.61) 21.5 (2.18)	31.5 (2.53) 30.4 (2.36)	16.4 (1.86) 27.1 (2.21)	10.7 (1.47) 14.3 (2.02)	8.1 (1.54) 6.6 (1.47)	
Age group (years)						
12–14	31.1 (2.47) 24.0 (2.48)	30.0 (2.54) 32.0 (2.41)	19.1 (2.07) 24.2 (2.04)	11.0 (1.69) 14.0 (1.92)	8.9 (1.74) 5.8 (1.29)	
Race and Hispanic origin						
Asian, non-Hispanic	24.5 (5.17) 18.3 (4.61) 33.1 (2.43) 22.3 (3.29)	36.3 (6.18) 24.0 (5.19) 33.2 (2.46) 27.3 (3.30)	18.3 (4.07) 29.5 (5.39) 19.7 (1.87) 23.2 (3.07)	* 14.4 (4.16) 10.0 (1.53) 15.9 (3.07)	13.9 (4.21) 4.0 (1.06) 11.3 (2.79)	
Sexual or gender minority ²						
Yes	14.3 (2.63) 31.7 (2.13)	29.6 (2.98) 31.8 (2.08)	30.9 (3.34) 18.1 (1.58)	18.6 (3.05) 10.5 (1.40)	6.6 (1.90) 7.9 (1.32)	
Family income as a percentage of federal poverty level ³						
Less than 200%	20.6 (2.79) 31.4 (2.95) 27.3 (2.31)	27.3 (2.31) 30.0 (3.43) 30.2 (2.89)	22.8 (2.67) 22.2 (2.69) 22.8 (2.12)	16.4 (2.97) 12.6 (1.98) 9.2 (1.41)	10.3 (1.87) * 3.7 (0.89)	
Highest parental education level						
High school or less	24.1 (3.84) 24.6 (3.33) 29.7 (2.31)	27.8 (3.78) 28.0 (3.65) 36.0 (2.32)	19.9 (3.10) 25.2 (3.00) 21.4 (1.95)	16.8 (3.39) 14.2 (2.58) 8.3 (1.22)	11.4 (2.79) 8.0 (2.43) 4.6 (1.02)	
Urbanization level						
Large central or fringe metropolitan	23.2 (2.22) 31.7 (2.79) 37.1 (5.86)	35.2 (2.44) 25.9 (2.64) 23.7 (4.94)	23.2 (1.98) 20.0 (2.40) 18.6 (3.77)	11.9 (1.65) 12.9 (2.15) *	6.5 (1.30) 9.4 (2.25) *	
Region						
Northeast Midwest South West	28.1 (4.70) 27.4 (3.87) 29.0 (2.86) 24.9 (2.74)	35.2 (4.92) 34.1 (3.91) 27.4 (2.79) 31.3 (3.01)	18.7 (3.88) 24.2 (3.07) 23.8 (2.37) 17.8 (2.41)	13.6 (3.56) 7.5 (1.99) 12.5 (2.09) 16.0 (2.75)	7.3 (1.66) 10.0 (2.54)	

^{*} Estimate does not meet National Center for Health Statistics standards of reliability.

Tenegers of Hispanic origin may be of any race.

2Because sexual or gender minority status is answered by the teenager, parent-reported estimates are limited to those for teenagers who completed NHIS—Teen. All other parent estimates come from the full sample of children ages 12–17 years from the 2021 and 2022 NHIS Sample Child interviews.

³Calculated using U.S. Census Bureau poverty thresholds for the previous calendar year, which consider family size and number of children.

NOTE: Estimates are based on household interviews of a sample of the U.S. civilian noninstitutionalized population.

SOURCE: National Center for Health Statistics, National Health Interview Survey-Teen and National Health Interview Survey, July 2021-December 2022.

Technical Notes

Definition of terms

Anxiety symptoms—Measured using the Generalized Anxiety Disorder-2 (GAD-2) scale (33). Teenagers were asked, "Over the last two weeks, how often have you been bothered by feeling nervous, anxious, or on edge?" and "Over the last two weeks, how often have you been bothered by not being able to stop or control worrying?" Response options were "not at all," "several days," "more than half the days," and "nearly every day," with scores assigned as zero, one, two, or three, respectively. Teenagers who scored three or more on the two questions combined were considered to have symptoms of anxiety per GAD-2 scoring guidelines. Teenagers who did not answer both questions were excluded.

Depression symptoms—Measured using the Patient Health Questionnaire-2 (PHQ-2) (34). Teenagers were asked, "Over the last two weeks, how often have you been bothered by having little interest or pleasure in doing things?" and "Over the last two weeks, how often have you been bothered by feeling down, depressed or hopeless?" Like the GAD-2, response options were "not at all," "several days," "more than half the days," and "nearly every day," with scores assigned as zero, one, two, or three, respectively. Teenagers who scored three or more on the two questions combined were considered to have symptoms of depression per PHQ-2 scoring guidelines. Teenagers who did not answer both questions were excluded.

Family income level—Presented as a percentage of the federal poverty level, which was calculated using the family's income in the previous calendar year, family size, and number of children using the U.S. Census Bureau poverty thresholds. These thresholds were used in creating the poverty ratios for NHIS respondents who provided a dollar amount or who supplied sufficient income information in the follow-up income bracketing questions. Family income was imputed when missing using a multiple imputation methodology (18,19). Multiple imputation accounts for the extra variability due to imputation in statistical analyses. For technical

information about the imputation model, data users can refer to the "Imputed Income Technical Document" available with the 2021–2022 file releases on the NHIS website under "Using the NHIS." Categories are less than 200%, 200% to less than 400%, and 400% or more.

Life satisfaction—Teenagers were asked, "Using a scale of 0 to 10, where 0 means 'very dissatisfied' and 10 means 'very satisfied,' how do you feel about your life as a whole these days?" Scores on this question were divided into four and under ("very low satisfaction") and five and higher ("higher life satisfaction") (35).

Parental education level—Reflects the highest grade in school completed by the teenager's parent or parents who lived in the household, regardless of the parent's age. Information on parents not living in the household was not obtained. If both parents lived in the household but information on one parent's education was unknown, the other parent's education was used. If both parents lived in the household and education was unknown for both, or no parents lived in the household, parental education is unknown. Parent's education information is missing for 2% of sample children (unweighted).

Physical health—Teenagers were asked, "Would you say your health in general is excellent, very good, good, fair, or poor?" Responses were divided into two groups: 1) poor or fair, and 2) good, very good, or excellent.

Race and Hispanic origin—
Teenagers were categorized as Asian non-Hispanic (subsequently, Asian), Black non-Hispanic (subsequently, Black), White non-Hispanic (subsequently, White), and Hispanic or Latino (subsequently, Hispanic). Teenagers categorized as Hispanic may be of any race or combination of races. Teenagers categorized as Asian, Black, or White indicated one race only. Analyses were limited to the race and Hispanic-origin groups for which data were reliable and sufficiently powered to make group comparisons.

Region—In the geographic classification of the U.S. population, states and the District of Columbia are grouped into the four U.S. Census Bureau-defined regions: Northeast, Midwest, South, and West. The Northeast region includes Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. The Midwest region includes Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. The South region includes Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. The West region includes Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

Sexual or gender minority status— Based on responses to questions about sexual orientation and gender identity and divided into two mutually exclusive categories, "not a sexual or gender minority" or "sexual or gender minority." Teenagers were asked about their sexual minority status using the question, "Which of the following best represents how you think of yourself?" Answer choices were "gay or lesbian," "straight, that is, not gay or lesbian," "bisexual," "something else," and "I'm not sure, or I don't know the answer." Only respondents who answered "straight, that is, not gay or lesbian" were considered to not be a sexual minority.

Teenagers were asked about their gender minority status with two questions: "What sex were you assigned at birth, on your original birth certificate?" (with the answer choices "male," "female," and "I don't know") and "How do you currently describe yourself?" (with the answer choices "male," "female," "transgender," "none of these," and "I'm not sure, or I don't know the answer"). Teenagers whose responses were consistent between the two questions were not considered to be a gender minority. Respondents who answered "I don't know" for the first question and "male" or "female" for the second question were considered missing, which occurred for 4.8% of teenagers.

Sleep quality—Teenagers were asked about sleep quality with the question, "In a typical week during the school year, how often do you wake up well-rested?" with the response options "never," "some days," "most days," and "every day." Responses were split into high sleep quality ("every day" or "most days") and low sleep quality ("some days" or "never").

Urbanization level—Based on the 2013 NCHS Urban-Rural Classification Scheme for Counties (17), which groups U.S. counties and county-equivalent entities into six urban-rural categories: large central metropolitan, large fringe metropolitan, medium metropolitan, small metropolitan, micropolitan, and noncore. Large central metropolitan and large fringe metropolitan are collapsed into large central or fringe metropolitan, medium and small metropolitan are collapsed into medium or small metropolitan, and micropolitan and noncore are collapsed into nonmetropolitan.

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National Health Statistics Reports ■ Number 206 ■ July 16, 2024

Suggested citation

Zablotsky B, Ng AE, Black LI, Bose J, Jones JR, Maitland AK, Blumberg SJ. Perceived social and emotional support among teenagers: United States, July 2021–December 2022. National Health Statistics Reports; no 206. Hyattsville, MD: National Center for Health Statistics. 2024. DOI: https://dx.doi.org/10.15620/cdc/156514.

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