

Population Estimates for Snapchat Users

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Global Assumptions

There are two categories of assumptions—informational assumptions and calculation assumptions.

The information assumptions are general; they will not be indicated every time that they are made.

The calculation assumptions are specific to how we calculated estimates of harm. They will be indicated whenever they are made in the calculation process.

Information Assumptions

Uniformity Assumptions

Geographic Uniformity Assumption

Not every statistic made it clear whether it was examining U.S. only people.

We assumed that any number wasn't explicitly listed as being applicable to U.S. people only could be applied bluntly to U.S. users as well.

For example, if 30% of all users (location unspecified) did X, then 30% of U.S. users did that thing (and 30% of British users would also do X, 30% of Canadian users would do X, etc.).

Age Uniformity Assumption

Similarly, if an age range was not provided with a statistic, we assumed that the statistic would apply uniformly to all age groups. (I.e., if X% of Snapchat users did Y, then that's X% of 13 year olds, X% of 17 year olds, X% of 24 year olds, etc.)

We realize that behavior across age ranges may be more variable than behavior at the same age across geographies, but this assumption provides a starting point with which to generate an estimate.

Teenager Definition Assumption

If the definition of teenager was left unspecified in a statistic, we defined it as ages 13 to 17.

This matches Pew's definition of "teenager" for the statistics we reference.

Additionally, this also makes sense because of the ages that end in "teen" (13 to 19), 18 to 19 is a legal adult. Thus, 13 to 17 is both a teenager and a minor.

Calculation Assumptions

Age Bucket Assumption

Each age bucket of the ACS estimates covers 5 years (i.e., the 10 to 14 age bucket covers ages 10, 11, 12, 13, 14).

We will assume that any given age in the age bucket is 20% of the total population of that bucket. (I.e., the number of 13 year olds can be calculated as 20% of the population ages 10 to 14.)

Because in reality there will not be exactly the same number of 10, 11, 12, 13 and 14 year olds (for example, given the 10 to 14 year olds age bucket), we will assume a margin of error/uncertainty in this calculation.

We will assume the same margin of error for this calculation as is used for the overall bucket; for example, if the 10 to 14 age bucket is X number of people +/- Y margin of error (given as a percentage), we will assume that the number of 13 year olds is Z number of people +/- Y margin of error (given as a percentage).

Reported Statistics Margin of Error Assumption

In general, the harms statistics reported in court cases and other sources do not include a margin of error with the calculation. If a margin of error was not included with a statistic, we shall assume a 1% margin of error for the figure.

Avoiding False Precision Assumption

To avoid false precision in our estimates, we will reduce significant figures in our intermediate calculations and our final estimates (i.e. 21,107,910 would be rounded to 21.1 million).

Nearby Year Assumption

In the section below, we calculate the number of Snapchat users in a particular year in a particular age group.

Such data does not exist for all years for all age groups; these calculations are themselves estimates combining U.S. Census population data with a percentage of users (i.e., reported in research surveys, news articles, etc.)

We ultimately end up with numbers for Snapchat users in a handful of years.

Thus, if we didn't have a direct number of Snapchat users in a particular year, we picked an adjacent year to use.

We believe this provides sufficient fidelity in estimates because:

- As shown in Estimate 2 below, the population of Snapchat users in the ages 13 to 17 age group (a particular group of interest) does not change significantly between 2019

and 2023

- The population is similar enough over that five year period that we opted not to interpolate numbers for years we were missing data
- Our ACS population estimates are reported for an entire year
 - Thus, we have to assume that in January of a year and December of the same year, we have the same population
- Meanwhile, any given statistic is reported in either a month and a year, or just a year is provided
 - If we had a statistic for a particular harm or behavior reported with reference to, for example, Dec 2018, but we have population data and a calculated number of Snapchat users only for 2019 (spanning Jan 2019 to Dec 2019), we believe the number of Snapchat users from Dec 2018 to Jan 2019 is close enough that we can use the 2019 Snapchat users figure with the Dec 2018 statistic (this happens in, for example, Estimate 4)

Formulas for Error Propagation

Given Measurements

$$x = x_{best} \pm \Delta x$$

$$y = y_{best} \pm \Delta y$$

Note that Δx is an absolute uncertainty and $\frac{\Delta x}{x_{best}}$ is a relative uncertainty.

Addition and Subtraction

$$q = x + y$$

Such that:

$$q = q_{best} \pm \Delta q$$

$$q_{best} = x_{best} + y_{best}$$

We cannot be certain that the uncertainties are random and independent, thus:

$$\Delta q = \Delta x + \Delta y$$

Multiplication and Division

We want to find:

$$q = x \cdot y$$

Such that:

$$q = q_{best} \pm \Delta q$$

Thus:

$$q_{best} = x_{best} \cdot y_{best}$$

$$\frac{\Delta q}{q_{best}} = \sqrt{\left(\frac{\Delta x}{x_{best}}\right)^2 + \left(\frac{\Delta y}{y_{best}}\right)^2}$$

$$\text{relative uncertainty of } q_{best} = \sqrt{(\text{relative uncertainty of } x_{best})^2 + (\text{relative uncertainty of } y_{best})^2}$$

[Reference](#)

Number of Snapchat Users

Estimate 1: How many young people are using Snapchat?

2023 – Pew reported that 60% of 13 to 17 year olds used Snapchat in 2023; we estimate this as 13.1 million \pm 1.04% people

- **SOURCE:** [Pew Research, Dec 2023](#): “TikTok, Snapchat and Instagram remain popular among teens: Majorities of teens ages 13 to 17 say they use TikTok (63%), Snapchat (60%) and Instagram (59%). For older teens ages 15 to 17, these shares are about seven-in-ten.”

From the [2023 ACS 1-Year Estimate](#):

Age	U.S. Total Population Estimate	Margin of Error (#)	Margin of Error (%)
10 to 14 years	21,203,879	+/- 52,238	\pm 0.1%
15 to 19 years	22,168,390	+/- 39,656	\pm 0.1%

We need to trim these age buckets to get ages 13 to 17. **Apply the Age Bucket Assumption, the Avoiding False Precision Assumption, and see Formulas for Error Propagation section.**

Age	U.S. Total Population Estimate
13 to 14 years	$((21.2 \cdot 10^6) \pm 0.1\%) \cdot (40\% \pm 0.1\%)$

	$q_{best} = (21.2 \cdot 10^6) \cdot 0.4 = (8.5 \cdot 10^6)$ $\frac{\Delta q}{q_{best}} = \sqrt{(0.1\%)^2 + (0.1\%)^2} = 0.14\%$ $q_{best} \pm \Delta q = (8.5 \cdot 10^6) \pm 0.14\%$
15 to 17 years	$((22.2 \cdot 10^6) \pm 0.1\%) \cdot (60\% \pm 0.1\%)$ $q_{best} = (22.2 \cdot 10^6) \cdot 0.6 = (13.3 \cdot 10^6)$ $\frac{\Delta q}{q_{best}} = \sqrt{(0.1\%)^2 + (0.1\%)^2} = 0.14\%$ $q_{best} \pm \Delta q = (13.3 \cdot 10^6) \pm 0.14\%$
Total	$((8.5 \cdot 10^6) \pm 0.14\%) \cdot ((13.3 \cdot 10^6) \pm 0.14\%) =$ $= (21.8 \cdot 10^6) \pm 0.28\%$

So we've calculated there were $(21.8 \cdot 10^6) \pm 0.28\%$ 13 to 17 year olds in 2023.

Now we must find 60% of 13 to 17 year olds. **Apply the Reported Statistics Margin of Error Assumption, and see Formulas for Error Propagation section.**

$$((21.8 \cdot 10^6) \pm 0.28\%) \cdot (60\% \pm 1\%)$$

$$q_{best} = (21.8 \cdot 10^6) \cdot 0.6 = (13.1 \cdot 10^6)$$

$$\frac{\Delta q}{q_{best}} = \sqrt{(0.28\%)^2 + (1\%)^2} = 1.04\%$$

$$q_{best} \pm \Delta q = (13.1 \cdot 10^6) \pm 1.04\%$$

In 2023, Pew estimated that 60% of 13 to 17 year olds in the U.S. were using Snapchat. We estimate this to be 13.1 million people \pm 1.04% ages 13 to 17.

Conclusion: we estimate that from 2019 to 2023 there were about 14.8 million \pm 1.04% (2019) to 13.1 million \pm 1.04% (2023) 13 to 17 year olds on Snapchat in the U.S.

Note that although this is a decrease, social media users migrate to different platforms. TikTok grew in popularity significantly from 2018 to 2022

Estimate 2: Number of Snapchat U.S. Users Ages 8 to 12

2021 – 13% of 8 to 12 year olds were estimated to use Snapchat in 2021; we estimate this as 2.74 million people \pm 1.04%

- SOURCE:** [Nevada v. Snap pg. 70-71 para. 202](#): “202. However, Snapchat’s age verification systems are ineffective at best. For the first two years of its existence, Snapchat did not even purport to limit user access to those 13 or older.[183]¹ Users were not required to input a date of birth when creating an account.[184]² And Defendants’ executives have admitted that Snapchat’s age verification ‘is effectively useless in stopping underage users from signing up to the Snapchat app.’[185]³ Not surprisingly, underage use is widespread. As of 2021, 13% of children aged 8-12 use Snapchat.[186]⁴”

From Census [2021 ACS 1-Year Estimate](#):

Age	U.S. Total Population Estimate	Margin of Error (#)	Margin of Error (%)
5 to 9 years	20,010,813	+/- 69,083	\pm 0.1%
10 to 14 years	21,821,492	+/- 72,184	\pm 0.1%

¹ Team Snapchat, iOS Update: Bug Fixes and More!, Snapchat Blog (June 22, 2013), <https://web.archive.org/web/20130627073951/http://blog.snapchat.com:80/> (last visited Jan. 27, 2024).

² *Id.*

³ Isobel Asher Hamilton, *Snapchat admits its age verification safeguards are effectively useless*, Bus. Insider (Mar. 19, 2019), <https://www.businessinsider.com/snapchat-says-its-age-verification-safeguards-are-effectively-useless-2019-3#:~:text=Snapchat%20admits%20its%20age%20verification%20safeguards%20are%20effectively%20useless&text=Snap%20executives%20Stephen%20Collins%20and%20up%20to%20the%20Snapchat%20app> (last visited Jan. 27, 2024).

⁴ Rideout, V., et al., *The Common Sense Census: Media Use by Tweens and Teens*, 2021 (2022), https://www.common sense media.org/sites/default/files/research/report/8-18-census-integrated-report-final-web_0.pdf (last visited Jan. 27, 2024).

We need to trim these age buckets to get ages 8 to 12. **Apply the Age Bucket Assumption, the Avoiding False Precision Assumption, and see Formulas for Error Propagation section.**

Age	U.S. Total Population Estimate
8 to 9 years	$((20.0 \cdot 10^6) \pm 0.1\%) \cdot (40\% \pm 0.1\%)$ $q_{best} = (20.0 \cdot 10^6) \cdot 0.4 = (8.0 \cdot 10^6)$ $\frac{\Delta q}{q_{best}} = \sqrt{(0.1\%)^2 + (0.1\%)^2} = 0.14\%$ $q_{best} \pm \Delta q = (8.0 \cdot 10^6) \pm 0.14\%$
10 to 12 years	$((21.8 \cdot 10^6) \pm 0.1\%) \cdot (60\% \pm 0.1\%)$ $q_{best} = (21.8 \cdot 10^6) \cdot 0.6 = (13.1 \cdot 10^6)$ $\frac{\Delta q}{q_{best}} = \sqrt{(0.1\%)^2 + (0.1\%)^2} = 0.14\%$ $q_{best} \pm \Delta q = (13.1 \cdot 10^6) \pm 0.14\%$
Total	$((8.0 \cdot 10^6) \pm 0.14\%) \cdot ((13.1 \cdot 10^6) \pm 0.14\%) =$ $= (21.1 \cdot 10^6) \pm 0.28\%$

So we've calculated there were $(21.1 \cdot 10^6) \pm 0.28\%$ 8 to 12 year olds in 2021.

Now we must find 13% of 8 to 12 year olds. **Apply the Reported Statistics Margin of Error Assumption, and see Formulas for Error Propagation section.**

$$((21.1 \cdot 10^6) \pm 0.28\%) \cdot (13\% \pm 1\%)$$

$$q_{best} = (21.1 \cdot 10^6) \cdot 0.13 = (2.74 \cdot 10^6)$$

$$\frac{\Delta q}{q_{best}} = \sqrt{(0.28\%)^2 + (1\%)^2} = 1.04\%$$

$$q_{best} \pm \Delta q = (2.74 \cdot 10^6) \pm 1.04\%$$

It was reported that as of 2021, 13% of 8 to 12 year olds were using Snapchat. We estimate this to be 2.74 million people in the U.S. \pm 1.04% ages 8 to 12.