

Validity of Self-Report Survey Data (or “But everyone lied on the survey...”)

Center for Health and Safety Culture

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Questioning the validity of survey data is often one of the first reactions when survey results are shared. It is important first to recognize this response for what it may be: an immediate reaction to information challenging someone’s existing beliefs. If someone believes that “everyone really does X around here,” then sharing data indicating that “most people here do NOT do X” is often hard initially to accept. One way to avoid accepting the new information is to simply choose to consider it as invalid. Nonetheless, it is important to be able to understand and convey that the science behind collecting data through self-reporting methods is valid and reliable.

The Science behind Collecting Self-Report Data

Self-report data are a critical component of all social science. Consequently, the validity of self-report data has been studied extensively. One report, *Assessment of factors affecting the validity of self-reported health-risk behavior among adolescents: evidence from the scientific literature* (see full citation below), provides an excellent review of over 100 studies examining the validity of surveys of adolescents regarding alcohol, tobacco and other drug use (as well as other health related behaviors).

Researchers have identified two critical factors to examine when assessing the validity of self-report data: cognitive issues and situational issues. Cognitive issues address whether the respondents understand the question and whether they have the knowledge or memory to answer it accurately. Survey designers carefully test language used on surveys and make sure respondents understand the terms. In addition, the respondent’s ability to accurately recall information also is tested. For example, researchers have found asking adolescents how many times in the past 12 months they have consumed alcohol results in inaccurate responses, but asking that same question for the past 30 days results in much more accurate responses and survey questions are framed accordingly.

Situational issues include the influence of the setting of the survey (at school, at home, etc.). Certain questions may have a socially desirable response (which also may change based on the setting). For example, at home, youth may be reluctant to admit they have gotten drunk if they perceive their parents can access their responses. However, at school, they may exaggerate their drinking if they perceive their peers can access their responses. Furthermore, some answers may disclose inappropriate or unlawful acts which could result in punishment. The research is clear that the “fear of reprisal” experienced by a respondent will influence the validity of the survey results. Therefore, the setting and way that the survey is administered is very important and typically accounted for in instructions to survey administrators. The best results occur when there is a strong sense of anonymity and little fear of reprisal.

There are several techniques used by researchers to measure the validity of survey designs:

- The **test / re-test method** has the participants repeat the survey after a brief period of time and compares the results. If significant variation occurs, then concerns are raised regarding validity.
- A second technique is to use **biochemical tests** of the survey respondents. Individuals complete surveys and report their use (or non-use) of a certain substance. After the survey, the participants are then tested using various biochemical techniques including analysis of hair, saliva or urine. While biochemical tests are not perfect, they provide another level of objective data for comparison.
- A third technique, called the **“bogus pipeline” technique**, informs survey participants that their responses will be validated with an objective test (like a biochemical test) after the survey. Although the test is never actually done, the perception of the testing may influence participants to be more honest. These responses are then compared to situations where such a test is not proposed to see if the responses are affected. If the responses are not affected, then there is less likelihood that situational issues decrease validity of responses.
- A fourth technique, called the **Random Response Test**, provides each participant with two sets of questions – one set with the real questions and one set with questions which are not sensitive or revealing. Participants are then randomly assigned to use one or the other set of questions in a fashion whereby the survey proctor does not know which questions are being answered by each participant. The responses are then analyzed for influence by situational issues.

All four of these techniques have been used to study the self-reported validity of adolescents about alcohol, tobacco, and other drug use and add to the collective validity and reliability of self-report survey data. Overall, the studies support that the results are accurate if the conditions of anonymity and lack of fear of reprisal are met.

Additionally, surveys analysts use various techniques to “clean” the surveys of responses by students who were not taking the survey seriously. These cleaning techniques can include using internal consistency measures (such as comparing responses to lifetime use, age of first use, and 30-day use), asking about the use of non-existent “fake” drugs, and self-reported honesty. These tests result in some surveys being removed from the sample and adding to validity/reliability of the results. The number of surveys removed is usually documented in the report and is typically less than 7%.

Other ways to assess the validity of a survey is to compare the results with other surveys (often called “triangulation”) as well as noting how results change over time. Surveys with results significantly different than other surveys or with significant changes in short amounts of time may be invalid.

Although students indicate they are honest, they doubt the honesty of their peers.

In a survey of over 7,000 high school students, 85% indicated that they were “very honest” in their responses; and yet, only 14% believed that **most of their peers** were very honest.

So while self-report data is often questioned by the public when results are shared, the validity of self-report survey data is backed by extensive scientific research and statistical analysis. It is important to be prepared for this response and ready to explain the science behind the validity of such data.

Ways to Respond to People who Challenge Validity of Self-Report Data

First, it is important to acknowledge that people who challenge the validity of the survey may be struggling with accepting the results. It is better NOT to argue with them, as this only makes them hold on to their position. It is best to share the science behind survey design and implementation and allow them time to reflect. Here are some ways to share the science and support the validity of the data:

- “Much of social science relies on self-reported information. Because of this, there has been extensive research regarding the validity of self-reported data. Researchers have found that self-reported data are accurate when individuals understand the questions and when there is a strong sense of anonymity and little fear of reprisal.”
- “These results are very similar to those found in other surveys as well as results gathered historically. This pattern of consistency supports the validity of the results.”
- “No survey is perfect, and there is always a certain margin of error. However, overall the results provide us with an accurate indication of what is occurring.”
- “Survey analysts use various techniques to identify students who are not taking the survey seriously. These surveys are removed from the sample and not included in the results.”

Source:

Brener ND, Billy JOG, Grady WR. Assessment of factors affecting the validity of self-reported health-risk behavior among adolescents: evidence from the scientific literature [pdf 200K]. *Journal of Adolescent Health* 2003;33:436-457.