

Behaviorally-verified sampling vs. self-claimed sampling:

A STUDY ON DATA QUALITY,
EFFECTIVENESS AND ACCURACY



Executive Summary

This white paper summarizes research by 84.51° comparing data quality between self-claimed and behaviorally-verified consumer survey sampling methods. The study reveals significant discrepancies between self-claimed and behaviorally-verified sampling methods. While both methodologies aim to capture the consumer perspective, there is evidence that research incorporating behaviorally-verified respondents has significant advantages in data quality and integrity.

Without verification through behavioral data, self-claimed sampling methodologies rely on respondents to accurately portray their habits, shopping behaviors and preferences. This research found concerning gaps in respondent integrity of reporting these behaviors. For example, **60% of self-claimed respondents were misclassified into the wrong buyer groups and 75% were found to have zero purchases in the category they claimed to purchase.**

Furthermore, the research found that self-claimed respondents were more likely to fail traditional quality checks, including straightlining, speeding and attention checks.

There are no perfect sampling methodologies. Behaviorally-verified sampling requires access to data, expertise in both the data available and the right way to design the sample frame and an ability to reach out to those consumers in the behavioral database.

While no sampling methodology is without limitations, relying solely on unvalidated self-claimed sampling methods carries a high degree of risk for market researchers and other key stakeholders. The downstream implications of the misclassification of consumers could directly impact the insights used to shape high-stakes business investments.

Ultimately, this study urges scrutiny of any sampling methodology's suitability and biases. In a sea of data, brands must continually evaluate sources and data quality to glean consumer truth.



Introduction

Think your consumer insights are guiding you in the right direction? Think again. New research shows brands may be basing major business decisions on fundamentally flawed data. How? Far too many surveys rely on self-claimed sampling which requires respondents to report behavior that is nearly impossible to accurately recall.

Across study types and metrics, from concept testing to ad measurement to brand attitudes and loyalty, key metrics were elevated by double digits when comparing self-claimed respondents to behaviorally-verified respondents.

In concept tests, self-claimed respondents elevated key metrics such as purchase intent and ad ratings by 22% on average versus their behaviorally-verified counterparts. While both methodologies aim to capture consumer perspective, there is evidence that behaviorally-verified respondents have significant advantages on data quality and integrity.

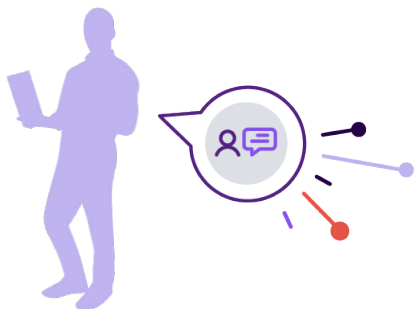
Businesses that utilize self-claimed sampling methodologies risk making key decisions based on flawed data. This study sounds the alarm on the surprising fragility of the most traditional sampling methodology for consumer research.



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Self-claimed vs. behaviorally-verified respondents - what's the difference?



SELF-CLAIMED RESPONDENTS

Self-claimed respondents are recruited for research based on their own self-reported purchases, behaviors or preferences. As part of the research study, screener questions are asked to determine the respondents' eligibility for the research. These questions commonly include things like age, sensitive occupation, shopping habits, brand usage, etc. The respondents' eligibility is not verified through objective first-party data or behavioral evidence but through the responses they give in an individual survey.

Key limitations of self-claimed sampling include reliance on respondents' ability to accurately remember and report their shopping habits, an inability to screen for complex behavioral patterns and uncertainty whether respondents' memories reflect their true behaviors.



BEHAVIORALLY-VERIFIED RESPONDENTS

Behaviorally-verified respondents are confirmed to meet specific behavioral criteria.

Behaviorally-verified respondents are identified based on actual purchase behavior from loyalty card or other transaction data to verify they qualify for the desired shopper profiles. Behaviorally-verified research has a higher incidence of respondents qualifying for the study because they exhibit specific attributes, characteristics or behaviors due to the pre-qualification based on their actual purchase data. This also ensures insights come from real people versus bad actors, bots or click farms.

Key limitations of behaviorally-verified sampling is that it requires access to data, expertise in both the data available and the right way to design the sample frame and an ability to reach out to those consumers in the behavioral database.

Methodology

RESEARCH GOAL: UNDERSTAND HOW SAMPLE QUALITY IMPACTS RESEARCH OUTCOMES.

Specifically, we sought to compare differences between behaviorally-verified and self-claimed sampling methodologies and how this affects results across a wide variety of research.

The sample for this study consisted of:

- 900 behaviorally-verified buyers (Cell 1)
- 900 matched self-claimed respondents (Cell 2)
- 900 self-claimed respondents (Cell 3)

See Figure A.

Figure A

	CELL 1: Behaviorally-Verified Buyers	CELL 2: Matched Self-Claimed	CELL 3: Self-Claimed
Definition	Buyers selected based on actual category shopping behavior and then qualified by confirming self-claimed purchase .	Buyers qualified based on self-claimed category shopping . Survey answers were then matched back to actual category shopping behavior to assess the say versus do gap.	Buyers qualified based on self-claimed category shopping .
Confirmed Kroger shopper	✓	✓	✗
Confirmed category shopper	✓	✗	✗
Claimed category shopper	✓	✓	✓

For this study, 84.51° recruited both behaviorally-verified and non-verified (self-claimed) respondents for the purposes of evaluating differences in survey responses among both groups.

For cells with behaviorally-verified respondents, 84.51° recruited to the identified shopper specifications utilizing our unique ability to behaviorally-verify consumers based on prior purchase behavior.

Cell 1 was comprised of Kroger shoppers selected based on actual category shopping behavior and then qualified by confirming self-claimed purchase.

For cell 2 (matched self-claimed) and cell 3 (self-claimed), respondents came from The Kroger Co. trade area (based on zip codes). Invited respondents were balanced to the most recent national US Census information for age, gender and income.

Key sub-groups for the analysis included: Age, Income, Employment, Brand Usage and Retailer Shopped. This online survey was fielded in April and May 2023 and the 84.51° Real Time Insights solution was used for this study.

CATEGORY SELECTION CRITERIA

To ensure a robust study with results that can be applied across all grocery, we chose three distinct categories that varied across key metrics including:

- Different household penetration levels
- Different purchase cycle lengths
- Differentiated brands with varying levels of awareness and purchase levels

We measured three brands per category for a total of nine brands. (See Figure B.)



Figure B

Categories selected to represent different shopping dynamics



CONVENIENT MEALS

Purchase cycle
30 days



COOKIES AND CRACKERS SNACK MULTI-PACKS

Purchase cycle
43 days



ORAL CARE

Purchase cycle
52 days

Past 3-month category purchase

300 behaviorally-verified buyers

300 matched self-claimed

300 self-claimed

Each category included 900 respondents claiming a past purchase within the last 3 months for a total of 2,700 respondents.

What the research shows about self-claimed respondents

Our study found that a majority of self-claimed respondents failed to meet the survey criteria. For example, 75% of the self-claimed respondents who stated they bought the category at Kroger in the past 3 months actually had zero sales and units in the same timeframe as shown by behavioral data. (See Figure C).

This varied by category type with faster moving categories showing even more concerning results – 85% of individuals who passed the screener had no category purchases. Even in the categories that have longer purchase cycles and memory might be a bit better, the research showed more than 50% of self-claimed respondents hadn't purchased the required category. (See Figure D).

Figure D

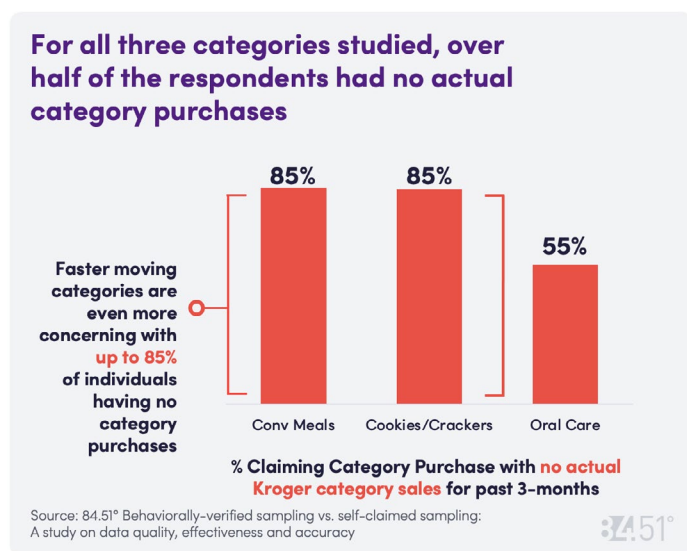


Figure C



What are survey quality checks and why do they matter?



Traditional or common survey quality checks aim to identify and eliminate responses from bots, spammers and inattentive participants.

Behaviors that are flagged by quality checks include:

STRAIGHTLINING: When participants select the same response for multiple questions, they may not be paying attention. However, legitimate responses can resemble straightlining, so it's important to carefully review the responses.

ATTENTION CHECKS: To confirm that respondents are paying attention, they will be asked to perform a specific action, such as to "mark #2." Wrong answers suggest random or inattentive responses.

SPEEDERS: Participants who complete surveys too quickly may not be reading questions fully. Typically, any survey finished in less than two to three minutes for a 10-minute survey warrants scrutiny.

Additional checks can include gibberish detectors in open-ended fields, conflicting logic checks between related questions, and decoy/fake answers interspersed in choice lists. When several checks are failed, the participant's responses may warrant removal. However, no single quality check definitively identifies "bad" responses, so other factors, such as the survey design, should be taken into consideration.

We found that self-claimed respondents exhibit survey behavior that is consistent with poor quality. This includes both failing traditional quality checks as well as overstating their behavior to get through the screener to ensure they qualify for the study:

Figure E

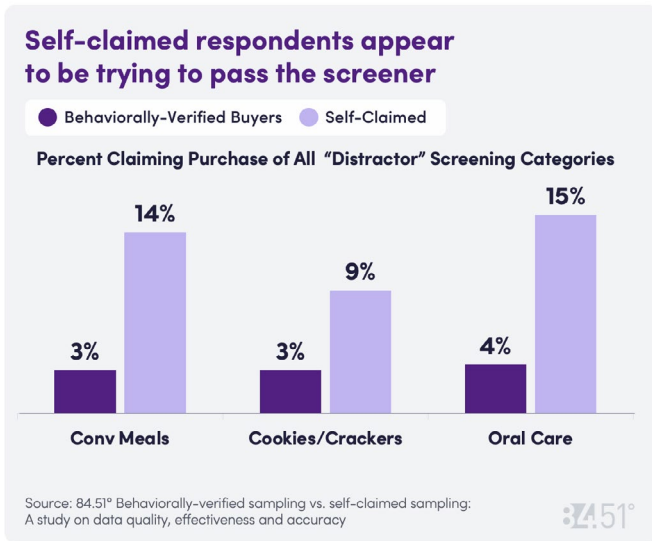
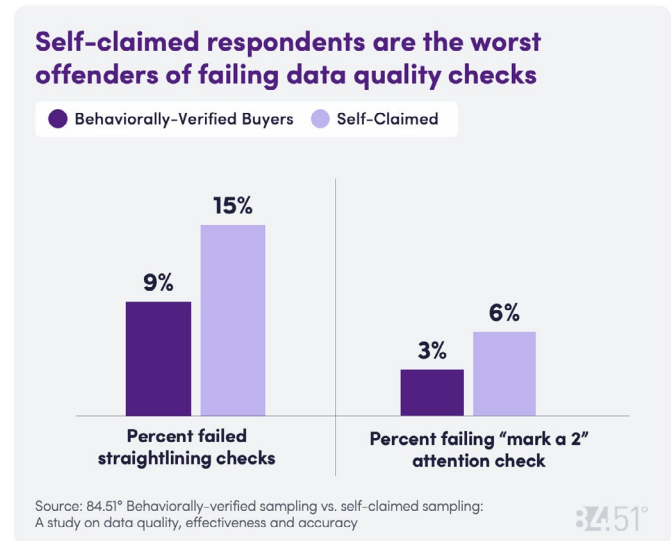
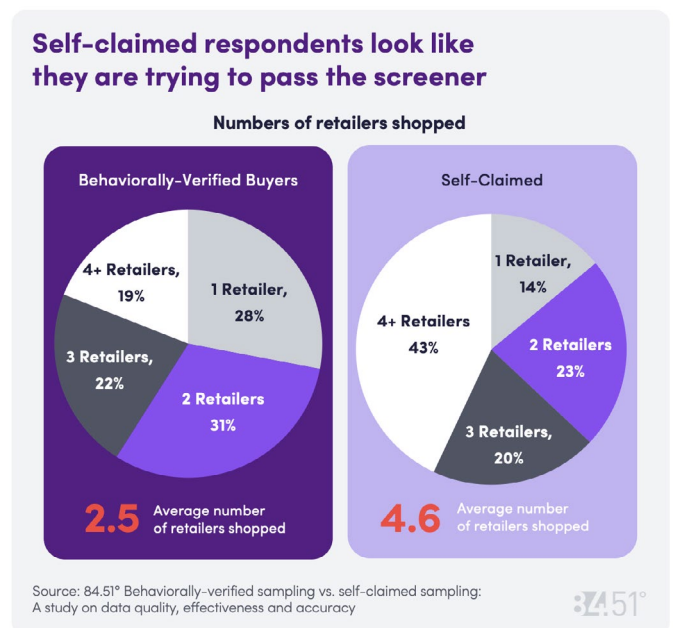


Figure F



- For self-claimed respondents, more than 10% claimed to buy all categories when transactional data shows that less than 1% of shoppers actually do this. (See Figure E).
- Self-claimed respondents are **1.6 times more likely to straightline** responses and **1.8 times more likely to fail attention checks**. (See Figure F).
- Self-claimed respondents claimed to shop at close to **double the number of retailers** for specific categories compared to behaviorally-verified respondents. (See Figure G).

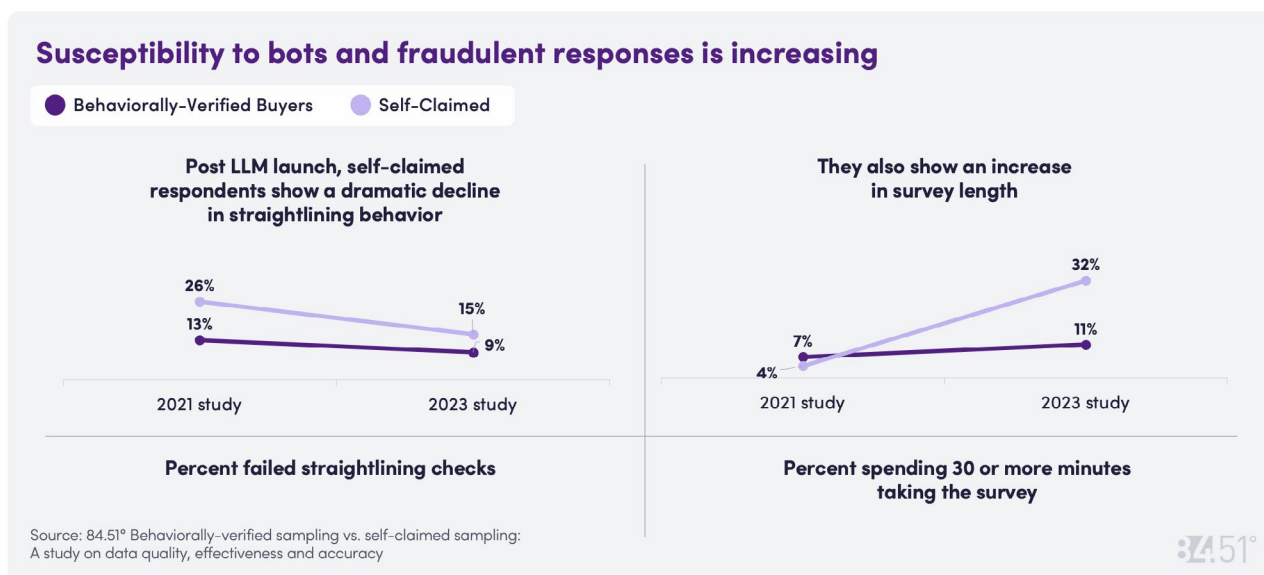
Figure G



WE HAVE EVIDENCE BOTS ARE GETTING SMARTER - CURRENT QUALITY CHECKS WON'T WORK FOR MUCH LONGER

Surveys using self-claimed sampling methods are more easily infiltrated by artificial intelligence or participants providing false information. Since the launch of large language models (LLM) through generative AI, self-claimed respondents have shown increases in time to take surveys and dramatic declines in other common, telltale behavior such as straightlining. (See Figure H).

Figure H



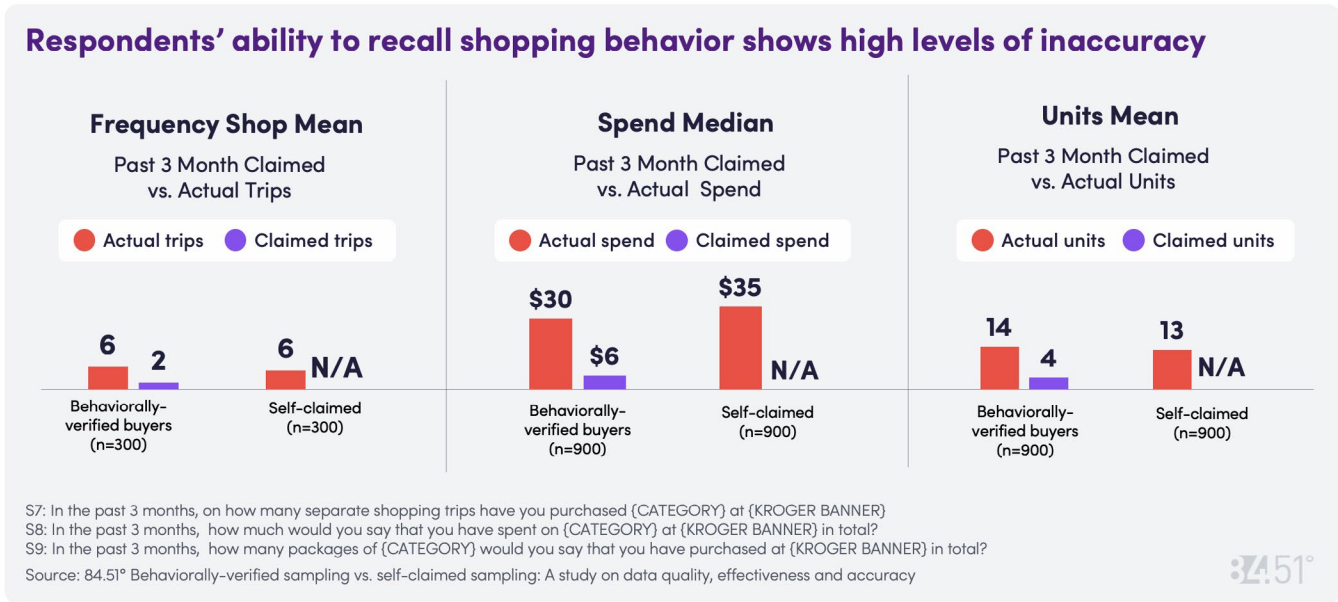
SELF-CLAIMED RESPONDENTS ARE ASKED TO DO THE IMPOSSIBLE

Asking survey respondents to accurately recall granular details about past spending and units purchased presents inherent risks. Our research shows consumers struggle to precisely remember specific behavioral details over time. (See Figure I).

However, many surveys still rely wholly on self-claimed respondents accurately self-reporting their historic purchase quantities and frequencies. Given what we know about the fallibility of memory, it is unrealistic to expect any consumer to perfectly recollect nuanced data like units purchased, dollars spent or even visits to the category.

While easy to collect, unverified, recall-based responses should raise red flags around misrepresenting true purchase patterns. For precise insights, research sampling methodologies must move beyond memory and incorporate verification through behavioral data.

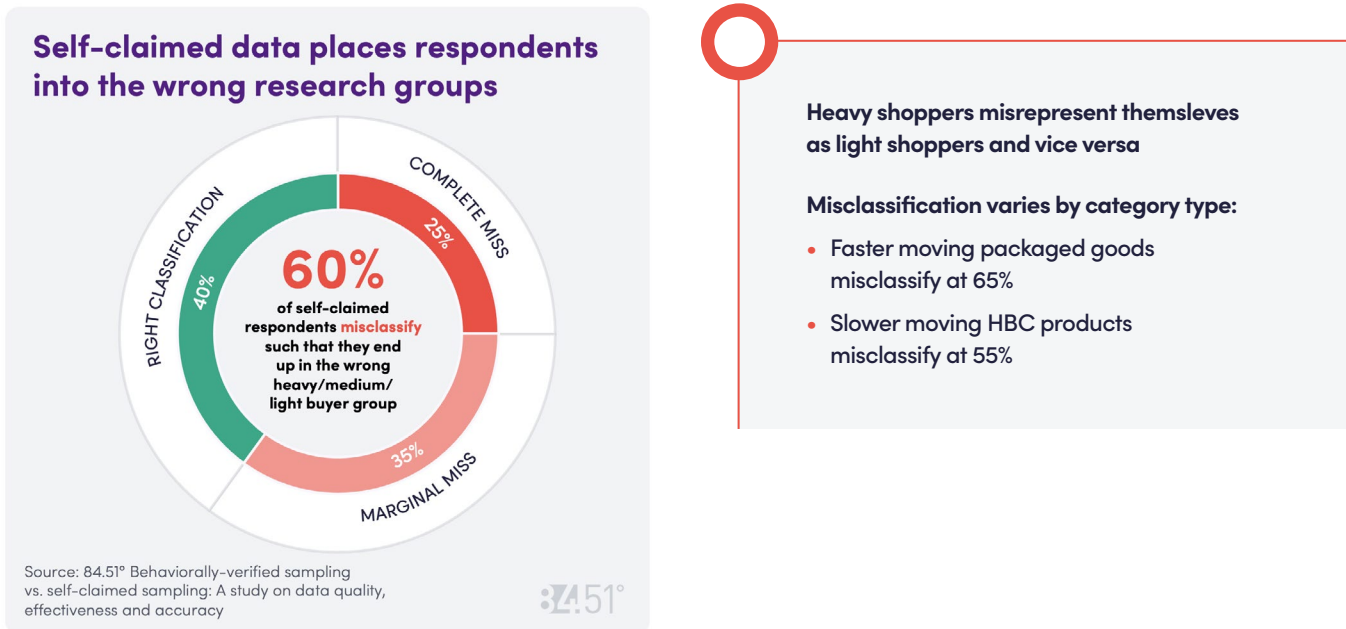
Figure I



OTHER RISKS THAT ARE INHERENT IN SELF-CLAIMED SAMPLING INCLUDE:

Unreliable identification of shopper groups: In our findings, self-claimed respondents were inaccurately grouped into buyer profiles such as loyal/non-loyal or heavy/medium/light engagement in the category. This could greatly skew insights on specific shopper groups from these types of surveys. (See Figure J).

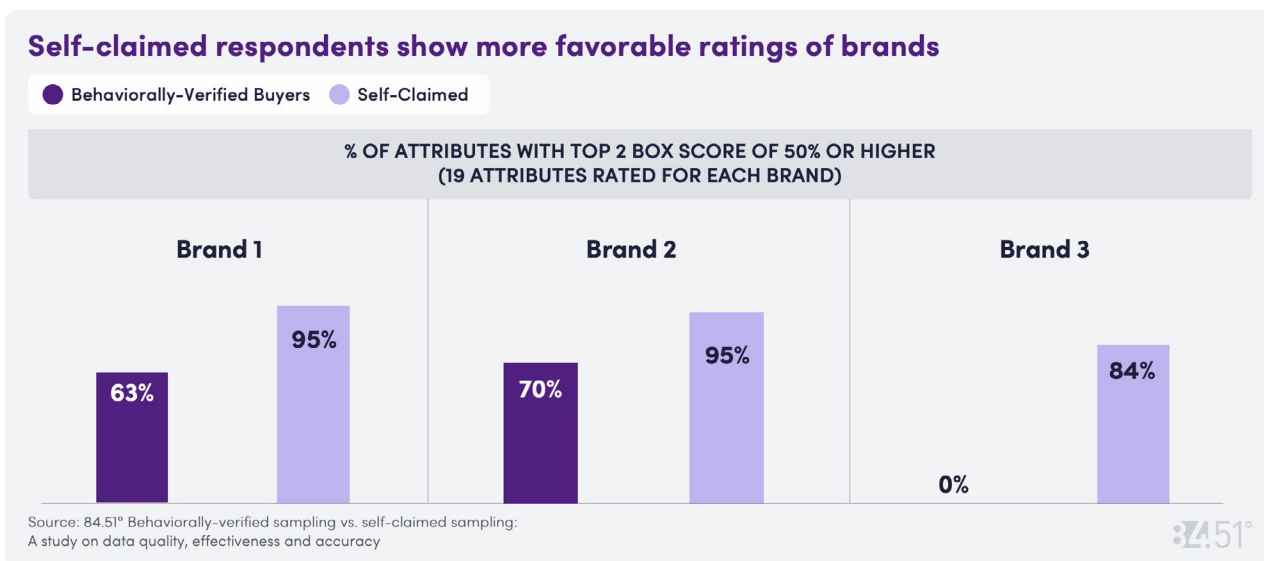
Figure J



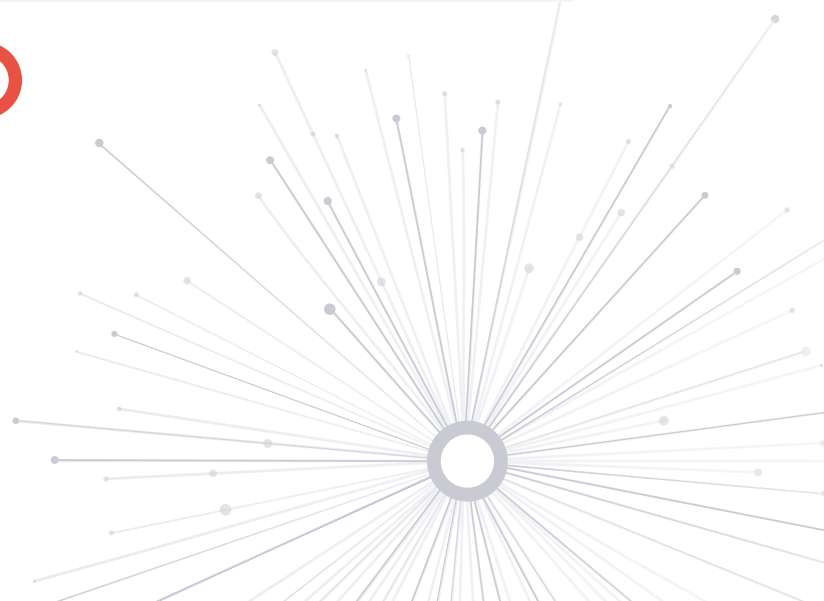
Diluting insights from actual buyers: Heavy category shoppers identified in self-claimed data have much higher ratings of brands in the category likely due to their lack of engagement compared to heavy category shoppers created from behavioral data. (See Figure K). Survey respondents who “claim” to be heavy buyers of a brand but are not, lack the experience and true understanding of the brand compared to actual heavy buyers.

In other words, the feedback of self-claimed respondents who lack a true understanding of the brand is likely to drown out the feedback of actual heavy buyers, leading to erroneous conclusions, such as believing there are few opportunities for improvement.

Figure K



While self-claimed respondents may be easier to recruit for and have shorter stand-up times, the quantity of data collected must be weighed against the quality and integrity of the insights gathered.



Is there a difference in survey results among behaviorally-verified and self-claimed sampling methodologies?

THE RESEARCH SHOWED RESULTS ELEVATED BY DOUBLE-DIGITS ACROSS KEY CONSUMER RESEARCH METRICS:

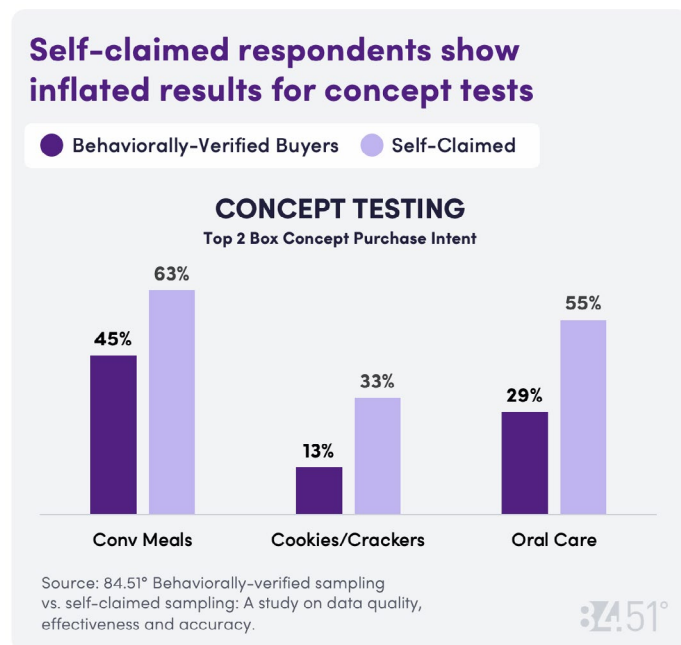


PURCHASE INTENT

For each of the categories included in the study, a concept test was included measuring purchase intent for a recently launched new product in convenient meals, cookies/crackers and oral hygiene. Survey respondents were asked, “How likely are you to buy [product] if it were available in the stores where you normally shop?” (See Figure L).

A consistent pattern emerged — purchase interest was significantly elevated by 22% among self-claimed respondents versus their behaviorally-verified counterparts across the studied categories. This significant overstatement could misguide decisions around product launches, marketing investments and more.

Figure L



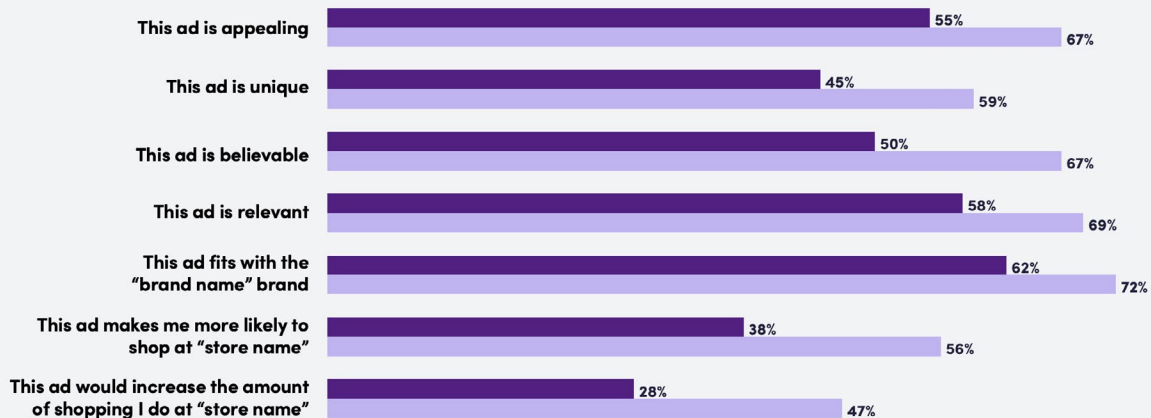
AD RATINGS

Additionally, the study included an ad test where respondents watched an ad and then rated the ad on several attributes. Consistent with the concept testing results, the study showed that self-claimed respondents had results elevated across all attributes by an average of 14% compared to behaviorally-verified respondents. Over-estimated confidence in an ad could trigger costly decisions to invest in ineffective campaigns that lead to a lower share of voice. (See Figure M).

Figure M

Self-claimed respondents showed elevated ratings across ad testing

● Behaviorally-Verified Buyers ● Self-Claimed



CQ15_TOP2: Thinking about the advertisement you just saw, how much do you agree with the following statement
*Top 2 box on 7 point scale
Source: 84.51° Behaviorally-verified sampling vs. self-claimed sampling:
A study on data quality, effectiveness and accuracy

84.51°

Self-claimed respondents had results **ELEVATED ON AVERAGE**

by 14%

when comparing top 2 box self-claimed to behaviorally-verified shoppers



BRAND ATTRIBUTES

The study also included a section to mimic a brand’s attitudes and usage (A&U). This included asking respondents to rate different brands across attributes. There were significant gaps between responses from behaviorally-verified respondents versus self-claimed respondents when looking at top 2 box ratings for given brands on attributes. Additionally, different leading brands emerged across critical attributes such as, “is offered at a fair price,” leading to different brand priorities or competitive threat assessments. (See Figure N).



Figure N

Rank order of brands changed on the most actionable attributes



	Behaviorally-Verified Buyers	Self-Claimed
I would be upset if it was no longer available	BRAND A	BRAND B
Is offered at a fair price	BRAND A	BRAND B
Has clear information on the package	BRAND A	Parity no difference between Brand A and Brand B
Is offered in a package size that meets my needs	BRAND B	
Is a product for all ages (adults and kids)	BRAND B	
Is a good value for the money	BRAND A	BRAND B
Has products that are convenient for my lifestyle	BRAND A	BRAND B

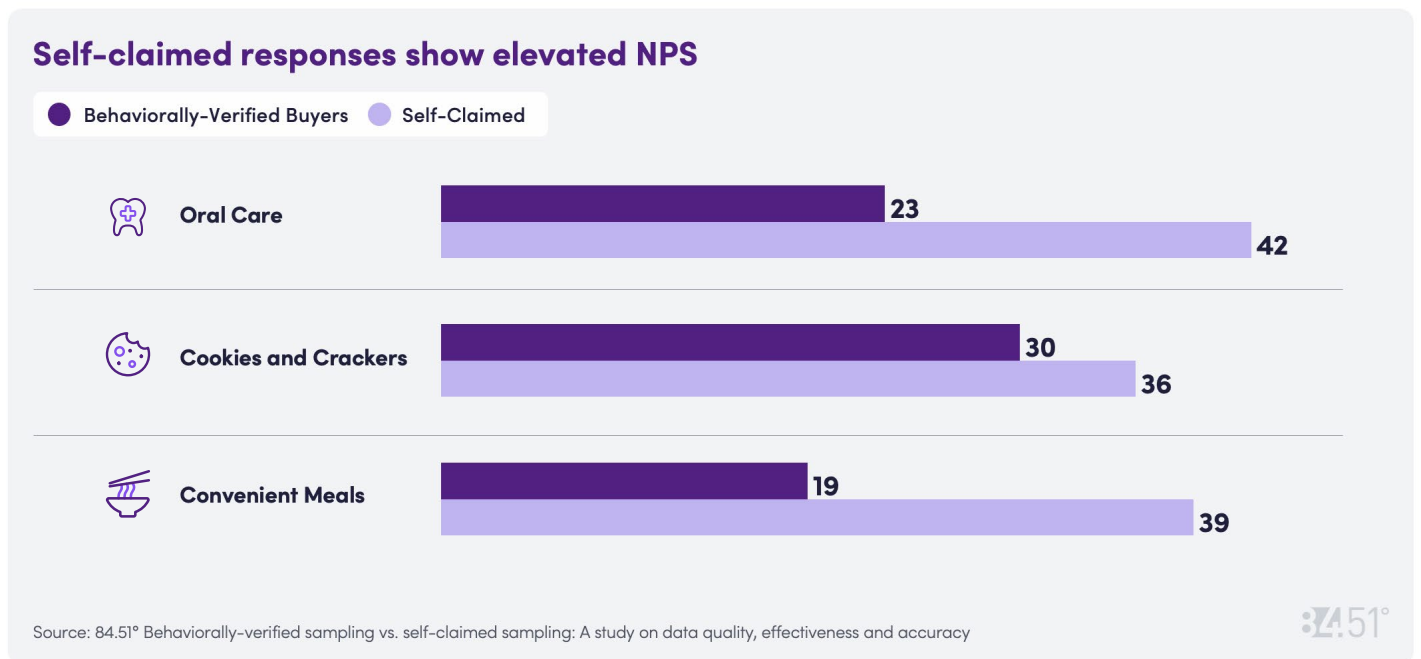
CQT1_BRAND PERCEPTIONS: How much do you agree with the following statement? (n=300)
 Source: 84.51° Behaviorally-verified sampling vs. self-claimed sampling:
 A study on data quality, effectiveness and accuracy



NET PROMOTER SCORE (NPS)

The study also included the Net Promoter Score (NPS) loyalty metric which uses the likelihood of customers recommending a brand to others to calculate the percentage of customers in different engagement groups to then get to the NPS calculation. The results for NPS were elevated by an average of 14 points when comparing self-claimed respondents to behaviorally-verified respondents. (See Figure O).

Figure O



The elevated ratings from self-claimed respondents across different key metrics illustrate the risk of relying on self-claimed sampling methods. Without purchase verification, product concepts, ad ratings, brand attributes and NPS results can show evaluated scores that skew results and business decisions. Behaviorally-verified respondents better represent the voice of authentic shoppers for more realistic and actionable insights.

The benefits of using behaviorally-verified research

When conducting surveys for market research, it's crucial to hear from a sample that closely reflects your intended audience. Getting responses from consumers that don't match your ideal respondent profile can negatively skew results. So how do you ensure you're surveying the right respondents?

One solution is to use behaviorally-verified research. Here's why it's a game changer:

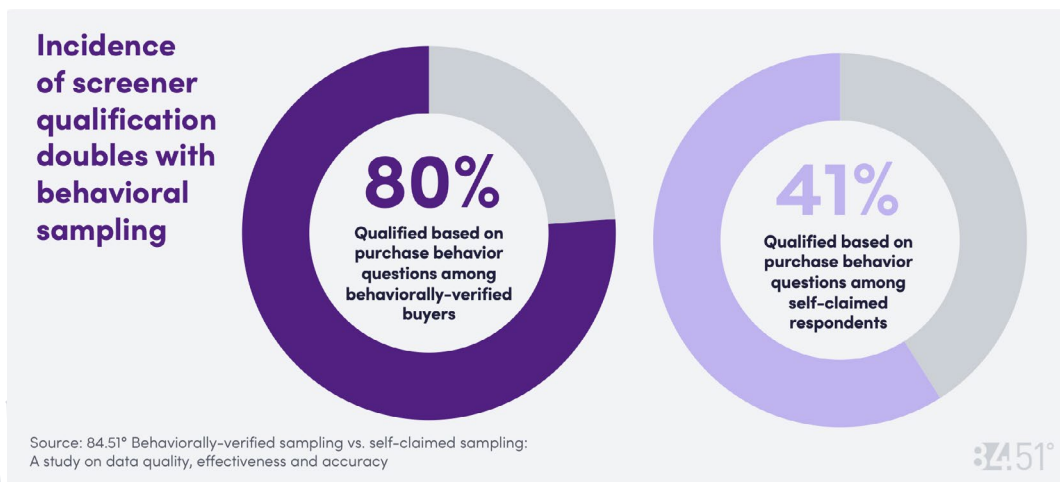
Real customers are surveyed

Behaviorally-verified research recruits respondents who have actually purchased relevant categories and/or brands or displayed specific behaviors in a category (e.g., declining spend) confirmed by transaction data. This means avoiding needing to ask respondents to remember unrealistic behavior and also bad actors from getting in your final survey sample.

Data quality is greatly improved

Behaviorally-verifying respondents upfront eliminates surveying those who are unlikely to qualify, increasing the survey incidence and for low incidence sampling (See Figure P), the speed to final sample is improved. Plus, behaviorally-verified respondents show they are engaged and paying attention while passing quality checks and spending longer amounts of time taking the survey.

Figure P



Overall, behaviorally-verified research gives greater confidence that research insights reflect the real needs and preferences of a brand's genuine customers. The ability to survey only consumers who demonstrably match the intended audience leads to better-informed business strategies and saves significant marketing expenses.

Best practice recommendations



HOW CAN YOU USE THIS INFORMATION TO IMPROVE OUTCOMES?

- When vetting research providers, request that they include a detailed description of measures they use to understand the validity and quality of the respondents in the final survey.
- Verify respondents through purchase data or other behavioral records whenever feasible to ensure relevance and accuracy.
- If using self-claimed sampling methods, scrutinize results closely and look for signs of elevated metrics or mismatched shopper groups.
- Carefully evaluate and re-design self-claimed quality checks – advances in AI may allow fraudulent responses to mimic human patterns.
- Monitor respondent engagement throughout the survey and scrub results from straightliners or respondents who otherwise failed quality checks.



Conclusion

This research underscores the immense value of hearing the voice of actual customers. Self-claimed respondents cannot replicate the authenticity of insights informed by actual purchase behavior verified by transaction data.

Brands lose their competitive edge the moment they lose touch with the core needs and values of their customers. Behaviorally-verified research enables cutting through the noise to connect with real people whose responses help determine the success or failure of your business. In a world where customers no longer equate loyalty with exclusivity, it's even more crucial to know what customers' purchasing priorities are.

The ability to recruit proven, relevant customers is not merely a methodological detail – it is foundational to providing products, services, messaging and experiences that fulfill customer needs.

Leading brands recognize behaviorally-verified respondents are essential to bring the voice of the customer into decision making. They reflect a commitment to listen to the customer over assumptions or an inward-facing orientation. Brands who embrace behaviorally-verified research signal their devotion to letting customers guide the way.

This study is a call to action to elevate research and data quality standards industry-wide. But even more so, it is a reminder that business excellence stems from insights humanized through the authentic customer lens. No metric can replace the value of truly knowing your customers – behaviorally-verified research helps get you there.

84.51° is a retail data science, insights and media company. We help The Kroger Co., consumer packaged goods companies, agencies, publishers and affiliates create more personalized and valuable experiences for shoppers across the path to purchase.

Powered by cutting edge science, we utilize first-party retail data from over 62 million U.S. households sourced through the Kroger Plus loyalty card program to fuel a more customer-centric journey using 84.51° Insights, 84.51° Loyalty Marketing and our retail media advertising solution, Kroger Precision Marketing.



84.51° CONSUMER RESEARCH

84.51° Consumer Research delivers quality research you can act on with confidence. Learn from real shoppers selected with comprehensive, verified purchasing behavior at Kroger stores. Our best-in-class ability to reach consumers based on actual shopper behavior, not claimed, uncovers an authentic understanding of shopper motivations, attitudes and preferences grounded in our expert understanding of the retail and CPG industries.

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