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# Understanding and Attenuating Overreported TV News Exposure: Testing Anonymity, Self-Affirmation, and Cognitive Survey Manipulations

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**ABSTRACT**

Research has demonstrated time and again that peoples' self-reports of news exposure are heavily inflated and the reasons for this overreporting remain unclear. In three online survey experiments conducted in Israel, we manipulated the survey procedure to test cognitive and motivational explanations, and attempted to attenuate inflated reports of news exposure. While increasing or decreasing the anonymity of the survey (the ultimate test for social desirability) did not affect participants' responses, a self-affirmation manipulation reduced reported exposure. A memory-aid manipulation also reduced reported television news exposure, suggesting that the cognitive mechanism possibly relates to memory failure.

Media exposure is a key variable in communication research that is fundamental to the investigation of communication effects (De Vreese & Neijens, 2016). Given the centrality of media exposure as a pivotal construct in communication research, valid and reliable measurement of this construct is crucial for research to make progress (Peter et al., 2019). While automated data collection is becoming more common, self-reporting is the most widely used approach in academic research, given that automated tracking data cannot measure more sophisticated constructs such as perceptions, beliefs and attitudes and given that there is still various data that cannot be collected in automated systems. Much automatically tracked data is unfortunately also still unavailable for academic scholars.

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Despite the immense importance of self-reports of exposure, research has demonstrated time and again that peoples' self-reports about their news exposure are heavily inflated (Guess, 2015), with some scholars demonstrating that survey respondents are overreporting news exposure by a factor of three (Prior, 2009). Two main explanations for this biased reporting were mentioned in the literature: Motivational explanations refer mainly to social desirability biases, and cognitive explanations argue that people fail to accurately report because they either forget or confuse their news exposure with other incidences of exposure, or otherwise misunderstand the reference to specific news programs, or types of news program (e.g., "evening news"). Scholars have attempted to reduce overreporting using various manipulations of exposure survey questions, tapping these theoretical mechanisms, and measuring the extent to which these manipulations can reduce overreporting (e.g., Prior, 2009).

The present investigation continues this line of research. We argue that in the context of the measurement of news exposure, research has thus far failed to test the simplest and most conventional manipulation of social desirability, namely a manipulation of respondents' anonymity in the survey. We also argue that research thus far focused on one type of motivational explanations, external impression management, and ignored the possibility that overreported exposure may serve a self-integrity motive. This later potential possible explanation suggests that people overreport news exposure in order to affirm their self-value. We hypothesize and test the effects of both anonymity and self-affirmation manipulations on subsequent reporting of news exposure in three survey experiments in the Israeli context.

## Over-Reports of News Exposure

It has long ago been noted that people have a hard time to accurately assess their news exposure, given that it is difficult to recall such a low-salience behavior, often performed in the background of other behaviors (Price & Zaller, 1993). Research has demonstrated time and again that people's self-reports about their news exposure are heavily inflated. For example, Price and Zaller (1993) reported that while Arbitron Ratings data indicate that about 6% of US adults listen to the National Public Radio, 35% of respondents to the National Election Study survey said they did so. Research also shows that while the use of open-ended exposure questions produces more accurate reports, overreporting was still evident when such open-ended questions were used (Guess, 2015). Even when using simpler exposure questions (e.g., watched versus did not watch TV) scholars have found that news exposure is overreported (Dilliplane et al., 2013). The same phenomenon was found in referring to overreporting of news exposure in online contexts (De Vreese & Neijens, 2016). Evidence also demonstrates that other genres, not only news,

and other types of exposure, not just on TV, are inaccurately reported (see, e.g., Karnowski et al., 2019, in context of mobile media exposure; Wonneberger & Irazoqui, 2017 in the context of general television exposure). Some of the research projects observed individual level differences between automatically tracked exposure and survey self-reports, and not only compared aggregate level differences between people-meter data and survey samples. In sum, the literature at large demonstrates overreporting of news exposure, and inaccurate reporting of other types of exposure.

One result of the overreporting of news exposure is that much of what we know about news effects may stem not from actual differences in exposure, but from invalid self-reports. One example of the consequences of inflated news exposure reports concerns the claim that exposure to ideological news results with political polarization. Prior (2013) demonstrates that the number of self-reported Fox News or MSNBC viewers is at least three times larger than that revealed by automatic tracking. He claims that it makes much sense that partisans "forget, underestimate or fail to admit their exposure to 'the other side,' but are happy to report following 'their side.'" If this is the case, it may be that the observed association between ideological exposure and polarization stems not from a media effect but rather from biased self-reporting.

## How People Answer Survey Questions about Their News Exposure

Survey methodologists have developed models describing the process of answering survey questions (e.g., Tourangeau et al., 2000, pp. 7–15). In short, the process consists of five stages: First, respondents interpret and comprehend the survey question. Second, they recall the behavior they were asked about. In the third stage, they retrieve the answer (e.g., estimate the frequency of this behavior). Fourthly, they map their answer onto the response categories, and fifthly, they edit their response, that is, report either a candid or socially desirable answer. As explained by Prior (2009, p. 895), the case of news media exposure presents respondents with a very clear question. Evidence he provides points out that people understand the definition of concepts such as "network news" invoked by survey questions. Mapping the response onto the survey categories also does not pose a serious problem for survey respondents, as argued by Prior (2009, p. 895), as the questions often use simple response categories (e.g., number of days in the past week). As Prior explains, the main possible obstacles faced by survey respondents in the context of self-reports on exposure include social desirability, that relates to the fifth stage in the model (and to motivational principles in human behavior), and recalling and estimating the frequency of exposure that related to stages 2 and 3 of the model (relating to cognitive motives).

## Motivational Principles

Motivational (impression management) principles relate to the human motivation to perceive the self in a positive manner and to project a positive image on the environment. According to this principle, people overreport news exposure in order to feel, or to impress the interviewer, that they are better citizens. Social desirability had long-ago been acknowledged as a factor that comes into play in the reports of news exposure (Price & Zaller, 1993). Support for social desirability comes from the fact that many survey respondents view exposure to news very positively, as a civic obligation (McCombs & Poindexter, 1983), and from significant associations between TV news exposure and measures of social desirability (Eveland et al., 2009).

However, Prior (2009) argued that it is possible to negate social desirability as an explanation. His test for the social desirability explanation was based on the "list experiment." In his design, respondents were requested to count the number of things they did yesterday out of a list. In one condition the list contained four items (had a cup of coffee, made a phone call, went to the movies and took a shower). In the second condition, the list contained a fifth item "watched a news program on television." The rationale is that the difference between these groups implies the rate of those conducting the sensitive behavior (in our case, news exposure), without directly asking about it, and comparing this estimate to a "direct question" condition can indicate the presence or absence of a social desirability bias.

Given a difference of .71 between the mean number of behaviors in the two list conditions, Prior estimated a 71% news exposure rate. However, the difference between this list-based estimate and a 66% news exposure rate in the direct question control condition, was insignificant and in the wrong direction. Thus, Prior deduced that social desirability does not underlie overreporting of news exposure. However, it is possible to argue that these results do not suffice to reject social desirability altogether. The list technique was developed to confront under-reporting that results from the fear to report socially undesirable behaviors (illegal drug use or racial prejudice or exposure to pornography), not to tackle overreporting of desirable behaviors. Prior's null finding indeed fails to provide support to the social desirability hypothesis, but he argues from the null when claiming that social desirability does not affect respondents' self-reports. Wonneberger & Irazoqui, 2017, p. 274) further suggest that perhaps social desirability does not affect reports of the frequency of television exposure (as argued by Prior, 2009), but it does affect self-reports of viewing duration (that is, audience estimates of the length of exposure).

To better understand the role of social desirability in news reports, a much simpler technique than the one used by Prior (2009) should be used. If social desirability comes into play, then manipulating the anonymity of the

interview should impact reports about news exposure. Anonymity manipulations have been acknowledged as the benchmark in demonstrating social desirability effects (Tourangeau et al., 2000). A famous anonymity manipulation involves highlighting that the identity of the respondent is known to the interviewer in the non-anonymous condition compared to highlighting the fact the interviewer will not be able to identify the respondent, in the anonymous condition (Tal-Or & Drukman, 2010). Given that social desirability makes intuitive sense as an explanation for overreporting news exposure and given that it is accepted as an explanation for other cases of "good citizenship" behaviors such as voter turnout, it is hypothesized that (H1) self-reports of news exposure will be lower (and thus more valid and accurate) when anonymity of the survey is stressed, compared to situation of a non-anonymous surveys.

However, past research focused on the *external* impression management function of social desirability. The list technique used by Prior (2009) is not designed to account for self-preservation and self-integrity management. What if people overreport their news exposure not in order to impress the interviewer but in order to restore their self-integrity, that is perhaps threatened by their relatively low level of news exposure?

If survey response is a self-enhancement mechanism, then it is possible to attenuate it using experimental manipulations. Self-affirmation theory portrays people as driven to a large extent by a desire to maintain self-integrity. Cohen and Sherman (2014) define self-affirmation as an "act that manifests one's adequacy and thus affirms one's sense of global self-integrity" (p. 337). They explained that affirming the self, especially in a situation of psychological threat, helps people deal with the threat in a constructive way (Taylor & Walton, 2011) and reduces defensive responses to the threat. Self-affirmation theory sees self-integrity motives as "so strong that mundane events can threaten the self as well and instigate defensive responses to protect it" (Sherman & Cohen, 2014, p. 335). In other words, even mundane events such as not watching the news (a behavior that civics classes tell us is desirable in order to fulfill our roles as good citizens) can at least temporarily threaten a person's feeling that she (or he) is a good enough person (to use the language of Cohen & Sherman, 2014, p. 4).

We know from social psychological research that threatening one's self-integrity can trigger responses aimed at self-integrity restoration. However, one important finding from this research tradition demonstrates that such restoration attempts are less prevalent after people's self has already been recently affirmed using other mechanisms (Tal-Or & Tsfati, 2007). Therefore, this investigation utilizes a conventional manipulation of respondents' state self-esteem from social psychological research (e.g., by making them elaborate on an important value) and subsequently measures the effects of this manipulation on their news exposure reports. If self-protection

mechanisms are indeed interchangeable (as demonstrated by psychological research), and if biased reporting regarding news exposure is indeed a self-preserving bias (as argued by media scholars), then self-reports of exposure should be smaller after the self has been affirmed (Harris & Napper, 2005). It is hypothesized (H2) that a self-affirming manipulation would reduce over-reporting, compared to control.

## Cognitive Principles

Cognitive principles relate to the ability of respondents to accurately recall or infer the correct answer. Dilliplane et al. (2013) claim that media exposure measures place high cognitive burden on survey respondents. Prior (2009) mentions lack of sufficient cognitive effort on the part of respondents (satisficing), and confusion between different episodes of the exposure, and especially incorrectly recalling incidents of media exposure as occurring in the relevant period (telescoping). If people simply have a hard time remembering, then the "source confusion" paradigm from memory studies (Dougherty & Franco-Watkins, 2003) suggests that providing them with information about the context may produce more valid reports. The source-monitoring memory aids manipulations tested here will, for example, instruct respondents to recall what they were doing last evening when asked about their exposure to evening news. Such an approach has been successfully applied to survey research in reducing overreporting of voter turnout (Belli et al., 1999; see also, Waismel-Manor & Sarid, 2011). These prior investigations show that respondents fail to accurately report their latest vote because they confuse it with a previous vote or with their original intention to vote, and that asking respondents to think about election day helps correct these biases. Based on this approach and on memory research, we hypothesize (H3) that such manipulations will result in more accurate self-reports of news exposure, compared to control.

Research has demonstrated that informing participants about potential biases and their unconscious nature reduces these participants' own biases (e.g., Pronin & Kugler, 2007). It is proposed, in line with this framework, that providing respondents with information about their potential biases might likewise attenuate biased reporting. Belli et al.'s (1999) manipulation included references to potential problems in reporting. e.g., part of their manipulation told respondents that "we also sometimes find that people who thought that they had voted actually did not vote. Also, people who usually vote may have trouble saying for sure whether they voted in a particular election" (p. 106). This wording does not actually frame such mistakes as biases, and thus may work to portray such errors as common and thus normative. Further, Belli et al.'s (1999) study did not isolate the effect of this part of their manipulation from the other (cognitive and motivational)

parts. Finally, Belli et al.'s (1999) study referred to voting turnout and thus, we do not know about the benefits of this strategy in the context of news exposure. Given that research has demonstrated that providing participants with information about biased processing reduces subsequent biases (Tsfati & Huino, 2014), it is hypothesized (H4) that information about biases in human reporting will result with more valid and accurate responses.

## Overview of Studies

In what follows, we report on three studies, conducted in Israel. Study 1, conducted in May 2019, utilized a 1*6 unifactorial design (Anonymity: high, low, self-affirmation, self-threat, memory cues, and control) to test H1, H2 and H3. Study 2, conducted in July 2020, utilized a 1*4 unifactorial design (Self-affirmation, self-threat, possible bias in responses, and control) to test H2 and H4. Study 3, also conducted in July 2020, again utilized a 1*4 unifactorial design (Anonymity: high, low, we ask about yesterday, and control) to test H1 and H3. In all studies, we compare the exposure answers provided after the manipulations with the answers from a control group, that was asked a regular question about their exposure to the 8 o'clock main news editions last night. We focused on the main evening news editions as they enjoyed the highest ratings (e.g, the combined ratings of all morning news shows in May 2019 was about 17% and the combined ratings of all late-night news shows was 15%, much lower than the 8 o'clock evening news editions reported below), and thus the focus on these shows very likely minimizes the gap between self-reported and automatically tracked exposure. This presents a more stringent test of our arguments.

Given that the effects reported by Prior (2009) were small in magnitude, all studies utilized relatively large samples, with cell sizes varying around 300. Similarly to Prior (2009), who compared self-reported exposure to ratings data, in all studies we also used the Israeli Audience Research Board (IARB) rating estimates as a benchmark. Their data, collected by Kantar Media, is based on a sample of 700 households in which exposure was measured automatically using people-meter. Each individual in the household is requested to click a button indicting their exposure when the TV set is on, and the system automatically tracks and registers exposure to the channel. For the sake of the current investigation, we obtained ratings estimates for the adult population, that were weighted according to the current Israeli Central Bureau of Statistics population parameters.

Our data analysis in each of the study proceeded in three steps. First, in order to substantiate that indeed survey participants overreport their news exposure, we compared reported exposure in each experimental condition to the IARB ratings data using nonparametric chi-square tests. Second, we conducted a unifactorial Analysis of Variance (ANOVA) to test for the effect of the experimental condition on exposure. Lastly, we conducted Dunnet

tests to test for the hypotheses, comparing between each of the conditions, and the control condition. Post hoc tests comparing between all conditions are presented in the online appendix in each of the studies.

## Study 1

Study 1 tested H1, H2 and H3 using manipulations of anonymity, self-affirmation, and memory aids. It thus included six conditions: low-anonymity, high-anonymity, affirmation, control-affirmation (threat), memory-aid and a control condition. Data collection (final n = 1,829) was conducted on May 13, 2019 by Panel4All, an Israeli online survey research company that maintains a large and diverse panel of Israeli adult respondents, receiving periodic invitations to complete surveys in exchange for economic incentives (e.g., gift cards). Details about sampling and the sample are provided in the online appendix.

### *Anonymity Manipulation*

As explained above, the purpose of the anonymity conditions was to manipulate participants' impression that their identity is known or unknown to the investigators. While self-administered questionnaires that are completed on a computer are known to provide participants with a sense of anonymity (Tourangeau et al., 2000), we assumed that we can still manipulate this construct by increasing or decreasing respondents' sense of anonymity. In the "low-anonymity" condition participants were asked to provide their full name. They were told that their response will be checked with the survey company and promised that their answer "will be used only for research purposes." Out of 319 respondents in the low-anonymity condition, only 16 did not provide their full names. Removing those respondents had only negligible effects on the means and significance tests reported below. In the "high-anonymity" condition, participants read the following statement: "we wish to make it clear that this research is completely anonymous. We are not collecting any identifiable details such as name, address, IP address or telephone number. We will also not receive such data from the survey company or in any other way." They were asked to approve that they read the statement in each of the conditions. Control participants did not read any statement regarding anonymity and were not asked to provide any personal details.

### *Affirmation Manipulation*

Our manipulation of self-affirmation was designed following Cohen et al. (2007; Study 2). Participants in the affirmation condition were asked to think and write a few sentences about the value of kindness and helping others and

about a situation in which they offered kindness or help and made someone feel better [with an explanation that "It could be a nice thing that you said or did, or some help you offered a person in need." Following Cohen et al. (2007), our study also included a threat condition, in which the self-integrity was threatened to examine if this would result with inflated reports of news exposure. Participants in this condition were asked the very same request to think and write about the value of kindness, but in this condition the request was followed by an instruction to write a few sentences about a situation in which they hurt someone, or in which they could have offered help and did not (the text explained that "it could be something you did or said or did not do; assistance that you prevented from someone who needed it"). Previous studies demonstrated the validity of this and similar manipulations, and in particular that they affect state-self integrity but not other constructs such as mood (see, Napper et al., 2009).

### Affirmation Manipulation Check

Participants in both affirmation conditions were asked "to what extent the thought about this event makes you feel good or bad about yourself?" Answer categories varied between "Feel very bad about myself" coded "1," and "feel very good about myself" coded "5." As expected, participants in the affirmation condition scored higher ($M$ = 4.25, $SD$ = .84) on this item compared to participants in the threat condition ($M$ = 2.51, $SD$ = 1.07; $t$ (495.11) = 20.85, $p < .001$).

### Memory Aid Manipulation

In the memory aid condition participants read the following text: "In the following questions you will be asked about your exposure to the news yesterday. To help you remember which program you watched yesterday, try to think about what you did or where you were last night. To be precise, try to think of other things you did last night, such as what time you had dinner and whether you were at home." We also asked respondents to tell us in short, "whether it was a regular or a special evening and why?[1]"

### Measurement of the Dependent Variable: News Exposure

After the various manipulations, all participants were asked the same exposure question: "How much time, if at all, did you spend watching the 08:00 pm TV news yesterday evening? This refers to the main edition on Channels

[1]Given that the previous literature guiding this manipulation (e.g., Belli et al., 1999), the manipulation did not include such a contrasting condition probably because it is hard to think of one.

12, 13, 20 or 11, and not to other current affairs programs aired on other times.[2]" Answer categories were "did not watch" (coded "1"), "watched less than 3 minutes" ("2"), "watched only a few minutes (more than 3 minutes and less than 15 min; '3')," "watched more than 15 minutes" ("4"). For the sake of comparison with the Israeli Audience Research Board (IARB) ratings data, in which exposure is defined as at least 3 minutes watched, we also dichotomized this variable collapsing the first two categories, and the other two categories.

## Results

The rate of news exposure (below three minutes or three minutes and more, as defined by the IARB) by condition is presented in the online appendix. As the table demonstrates, respondents in all conditions overreported their news exposure, compared to the people-meter. For example, the rate of participants in the control group reporting they watched at least 3 minutes of one of the main news editions yesterday was 55.7%. The parallel figure based on people-meter data was 27.7%.[3] Non-parametric chi-squared tests demonstrated that the differences between each of the conditions and the IARB estimates were statistically significant. If we accept people-meter data as at least a somewhat valid and reliable indicator of the population parameter, this means that the assumption of this study, that audiences overreport their news exposure, holds in the context of the current study.

To test our hypotheses, a one-way ANOVA was conducted with condition as the independent variable and the news exposure question as the dependent variable. Results were significant $F(5, 1828) = 4.030$. $p = .001$. Post hoc multiple comparisons between all experimental conditions are presented in the online appendix. Dunnett tests demonstrated that, in contrast to the expectation of H1, news exposure in both anonymity conditions (for high anonymity $M = 2.611$, $SD = 1.281$; $p = 1.00$;. for low anonymity $M = 2.426$, $SD = 1.256$, $p = .149$), did not significantly differ from reported exposure in the control condition ($M = 2.631$, $SD = 1.262$).

In line with H2, Dunnett tests showed that the affirmation condition ($M = 2.309$, $SD = 1.279$,$p = .008$; *Cohen's d* = .25), significantly differed from the control condition ($M = 2.631$, $SD = 1.262$). However, the significant difference of the threat condition ($M = 2.304$, $SD = 1.232$,$p = .008$; *Cohen's d* = .26), was in the reverse condition to that hypothesized.

[2]All of these channels air their main news edition on 8pm on week days. No other editions in the Hebrew language are broadcast on other channels.

[3]News reach refers to the cumulative percentage of the population who watched the main news programs for at least three minutes on all four channels mentioned above. Audience members who switched between several channels and news programs were counted only once.

To examine a possible explanation for this unexpected finding, we wondered whether some of the participants failed to complete the manipulation questions. That is, the manipulation was intended to threaten participants' state self-esteem by making them think of something bad they have done. If they did not do that, why should the manipulation be successful? When examining the open-ended responses, it turned out that 109 respondents (out of the 263 in the threat condition) gave answers such as "I don't know," "I don't remember" or "I only do good deeds." When omitting these 109 respondents and rerunning the analysis the ANOVA was again significant $F(5, 1716) = 3.418$. $p = .004$, and the threat condition ($M = 2.359$, $SD = 1.254$) did not significantly differ ($p = .110$) from the control condition in the Dunnett test, though this insignificant difference may stem from the reduced sample size.[4] In line with H3, the memory aid condition ($M = 2.377$, $SD = 1.281$) significantly differed ($p = .044$; Cohen's $d = .20$) from the control condition ($M = 2.631$, $SD = 1.262$).

## Study 1 Discussion

In sum, the current study provided support for the hypotheses regarding the memory aid and affirmation manipulations but failed to provide support for anonymity. The fact that anonymity manipulations did not affect self-reported news exposure may imply that external impression management has little effects, but self-integrity restoration, as operationalized by the affirmation manipulation did result with the expected effects on reported exposure. However, the threat condition unexpectedly resulted with lower overreporting, compared to control, a fact that could be attributed to the fact that many respondents failed to elaborate on wrongdoings. Study 2 tests H4 and in addition, attempts to correct the problem with the threat manipulation via changes in question wordings.

## Study 2

Data collection in study 2 was conducted on July 4, 2020, by Panel4All. Details about data collection and the sample are provided in the online appendix. Chi-square tests showed that that age, education, and religiosity were equally distributed across the experimental conditions. However, there were significant differences in the distribution of gender (such that the

[4]Only 12 participants in the affirmation condition (compared to 109 in the threat condition) failed to provide a valid answer to the affirmation manipulation question (that is failed to remember and report an event in which they helped someone). Removing these participants did not have any impact on the pattern of results, and had only negligible impact on the mean of reported exposure and on the statistical tests.

distribution was 49.4% males in the "possible biases in response" condition, compared to roughly 41.0% in the three other conditions; $\chi^2$ (3) = 11.12, $p$ = .01). Thus, we controlled for gender in the analyses below.

The measure of the dependent variable (news exposure) and the affirmation manipulation were identical to the ones used in Study 1. However, in the threat condition, we added an example to the wording of the manipulation in Study 1, with the intention of encouraging more participants to elaborate. After asking respondents to write a few sentences about a situation they could have offered help but did not, we added "it could be something you did or said or did not do; or assistance that you prevented from someone who needed it, like not helping a beggar in the street, or not helping a stranded car on the side of the road." Compared to study 1, relatively fewer people avoided answering this question (41.44% in Study 1 compared to 20.69% in Study 2). As in Study 1, participants in the affirmation condition scored higher ($M$ = 4.28, $SD$ = .80) on the manipulation check item compared to participants in the threat condition ($M$ = 2.64, $SD$ = .79; $t$(892) = 30.42, $p < .001$).

In order to test H4, the present study also included a condition that provided information about possible biases in survey response. Participants in this condition read a few sentences explaining about possible response biases. "The following questions relate to your media exposure yesterday. Some people misreport their exposure in their answers in order to impress the interviewers or to feel good about themselves. Others confuse yesterday with other days or between programs."

## Results

As in Study 1, respondents in all conditions again overreported their news exposure, as detailed in the online appendix. Analysis of Variance was conducted with condition as the independent variable and the news exposure question as the dependent variable. As sex was not equally distributed across conditions, we controlled for sex in this ANOVA. Results were significant $F$ (3, 2169) = 4.68. $p$ = .03. Post hoc multiple comparisons between all experimental conditions are presented in the online appendix. The results for the self-affirmation manipulation were significant, as in Study 1. Dunnett tests showed that, in line with H2, the affirmation condition ($M$ = 2.570, $SD$ = 1.230,$p$ = *.008; Cohen's d* = .17), significantly differed from the control condition ($M$ = 2.785, $SD$ = 1.248). However, the significant difference of the threat condition ($M$ = *2.555, SD* = 1.231,$p$ = .005; *Cohen's d* = .18), was again (and despite improvements in the manipulation) in the reverse condition to that hypothesized. That is, threatening one's self also decreased (and not increased) self-reported news exposure.

When examining the open-ended responses, it turned out that 101 respondents (out of the 488 in the threat condition) gave answers such as "I don't know," "I don't remember" or "I only dogood deeds." When omitting these 101 respondents, and rerunning the ANOVA was again significant F (3, 2068) =3.578. p = .013, and the threat condition ($M$ = 2.607, $SD$ = 1.217) did not significantly differ ($p$ = .062; *Cohen's d* = .14) from the control condition in the Dunnett test, as in Study 1, though again this insignificant difference may stem from the reduced sample size .[5]

In contrast to H4, participants in the "biased response information" condition ($M$ = 2.704, $SD$ = 1.244) did not significantly differ from the control condition in their reported condition ($p$ = .578).

## Study 2 Discussion

Study 2 results replicated Study 1 findings regarding H2. However, although the wording used for the threat manipulation was successful in making respondents think about past events in which they did not help someone (and thus presumably lowered their self-state esteem) respondents in the threat condition did not underreport their exposure, in contrast to expectations (when removing those who did not answer the manipulation question from the analysis). Study 2 also examined H4. However, results did not support this hypothesis.

## Study 3

Study 3 data was again collected by Panel4all. The study was conducted on July 12, 2020. Details about data collection and the sample are provided in the online appendix. The measure of the dependent variable (news exposure) was identical to the one used in Studies 1 and 2.

Given that the anonymity manipulation did not produce significant results in Study 1, we attempted to strengthen the manipulation. In the "low-anonymity" condition participants were asked to provide their full name and then were told that their responses will not be kept anonymous (a stronger wording, mentioning lack of anonymity directly, compared to the indirect approach used in Study 1; and without providing the reassurance provided in Study 1 that their responses will be used for research purposes only). They were then asked to approve that their information will not be anonymous.

[5]Only 18 participants in the affirmation condition (compared to 101 in the threat condition) failed to provide a valid answer to the affirmation manipulation question (that is, failed to remember and report an event in which they helped someone). Removing these participants did not have any impact on the pattern of results, and had only negligible impact on the mean of reported exposure and on the statistical tests.

The "high-anonymity" condition was worded exactly as in Study 1. As in Study 1, control participants did not read any statement regarding anonymity and were not asked to provide any personal details.

The cognitive manipulation was different from the cognitive manipulation used in Study 1. Instead of asking participants to think about what they did last night we this time stressed that we focus on yesterday. This is in line with the arguments of Dillman et al. (2014), that argued that respondents speculate about why they are asked the questions that they are asked and try to answer what they perceive as the researchers' intent behind the question. In the context of news exposure, it is possible that respondents logically think that researchers are not really interested in the number of minutes they spent watching the news last night, but in their exposure in general. In order to try to correct such a response bias, it is possible simply to stress that the researchers are interested specifically in last night's exposure. To achieve this goal, our Study 3 cognitive manipulation was worded "Our study deals with your television exposure yesterday evening. It is important for us that your answer will relate specifically to your exposure yesterday, and not on any other evening." If such an emphasis in the manipulation results in more accurate reports, then it would be possible to deduce that respondents' speculations about the true goal of the questions are part of the mechanism underlying inflated self-reports. Our hypothesis for Study 3 (H3a) is that this manipulation will reduce overreporting compared to control.

## Results

As in Studies 1 and 2, respondents in all conditions again overreported their news exposure, as detailed in the online appendix. To test our hypotheses, a one-way ANOVA was again conducted with condition as the independent variable and the news exposure question as the dependent variable. Results for this test were not significant $F$ (3, 2147) =1.156. $p$ =.365. In contrast to the expectation of H1, the insignificant ANOVA reported above implies that news exposure in both anonymity conditions (for high anonymity $M$ = 2.77, $SD$ = 1.267; for low anonymity $M$ = 2.83, $SD$ = 1.230) did not significantly differ from reported exposure in the control condition ($M$ = 2.91, $SD$ = 1.219).

H3a was also not supported, as the ANOVA test reported above was not significant. Reported exposure in the "we ask about yesterday" condition ($M$ = 2.81, $SD$ = 1.211) did not significantly differ compared to the control condition ($M$ = 2.91, $SD$ = 1.219).

## General Discussion

In all three studies reported above, respondents overreported their news exposure, at least almost by a factor of 2, and sometimes by more than a factor of three, compared to people-meter data. This was the case in all the experimental and control conditions. This result replicates previous findings but also extends them. Most prior research utilized frequency questions (tapping the number of evenings in a typical week, or in the last week, in which respondents watched the evening news). Our study utilized a recency question – referring to a specific recent timing (the main news edition yesterday evening). This approach is more readily comparable to people-meter data, and the comparison to people-meter data does not necessitate transformations and assumptions, that are required when comparing frequency questions to the people-meter. Additionally, past research (Wonneberger & Irazoqui, 2017, p. 259; in the context of general television exposure, not news exposure) found higher rates of overreporting in frequency questions and under-reporting of viewing duration. That is, our evidence demonstrates that news exposure is overreported despite the fact we used a more appropriate comparison and a type of question that should be, according to prior research (Wonneberger & Irazoqui, 2017), less prone to overreporting biases.

Taken together, our results demonstrated that two types of manipulations affected self-reported news exposure. First, the self-affirmation manipulation significantly affected reported exposure in both Studies 1 and 2. Second, the memory aid manipulation reduced overreporting compared to control in Study 1. The anonymity manipulation failed to affect the DV in both Study 1 and Study 3 and another cognitive manipulation stressing that the question relates to yesterday and not any other evening did not significantly affect the DV in Study 3.

Anonymity manipulations are considered the gold standard in evaluating the role of external impression management in the literature about the psychology of survey response (Tourangeau et al., 2000). While we used a computerized survey, a survey mode that is less prone to social desirability biases, respondents in the non-anonymous condition read a statement that sharply differs from the regular terms of survey research, and were requested to provide their full name, a disclosure that by definition contrasts with anonymity. In Study 3 our manipulation went a step further and included active confirmation that the survey is not anonymous. The fact that such a manipulation did not significantly affect our dependent variable might suggest that perhaps external impression management does not shape reported exposure, a finding consistent with Prior (2009).

However, the fact that the affirmation manipulations were more successful compared to the anonymity manipulation suggests that self-integrity restoration may be more relevant as a motivational mechanism underlying the response bias at hand. Our results point out that it is not the need to impress others, but the need to affirm one's self-value that underlies the overreporting of news exposure. The theoretical mechanism underlying this finding seems to be related to the substitution of self-affirmation mechanisms. This points out that answering survey questions about exposure to news fulfills such a self-affirmation function, and previously answering another question that affirms oneself value reduces the subsequent need to self-affirm, as predicted by Cohen and Sherman (2014).

Interestingly, threatening one's self also reduced reported exposure, which is in contrast to the logic of our hypothesis. However, when focusing only on participants who actually completed the self-threat questions and mentioned an event in which they did not fulfill the central value of assisting someone in need, the difference between the threat condition and the control was not statistically significant. A possible explanation is that our threat manipulation did not actually create enough threat to the self. Participants were asked to think of an event in which they hurt someone or failed to offer help to someone in need, and the examples (in Study 2) were not helping a beggar in the street, or not helping a stranded car, and possibly, not being able to think about such a negative event (which happened to some 40% of the respondents) might had increased participants' self-worth. The thought of such events was perhaps not so self-threatening. Since our manipulation check item was asked only in the affirmation and threat condition, we cannot tell for sure whether the state self-esteem of participants in the threat condition was actually lower compared to control. Alternatively, it could be that their answer to the manipulation check question (worded "to what extent the thought about this event makes you feel good or bad about yourself?") reflected demand characteristics or a consistency effect rather than participants' self-esteem.

Our results also demonstrated that providing respondents with a memory aid manipulation, by asking them to think about what they did yesterday evening significantly improved their responses. However, a short explanation about survey biases (Study 2), and an explanation about the fact that we ask about yesterday in particular (Study 3), did not reduce overreporting. This probably suggests that the cognitive mechanism underlying the overreporting of news exposure is at least partly related to memory processes. It is also noteworthy that the effect of the memory aid manipulation was weaker than the effect of the affirmation manipulation, suggesting that, at least when it comes to a question about exposure to the main news edition last night, perhaps the role of self-maintenance mechanisms is more important compared to the role of memory failure.

While the effects of the affirmation and memory aid manipulations were statistically significant, these effects were small in size (in all cases, Cohen's d varied between .14 and .26). This is consistent with the modest effects reported by Prior (2009) and more generally, in research on the psychology of survey response (Tourangeau et al., 2000). However, scholars have repeatedly pointed out that small effects can have significant theoretical and practical significance (Rosnow & Rosenthal, 1992) and this is true in the current context of the measurement of news exposure. In both Study 1 and 2, the affirmation manipulation reduced 17.5% of the overreported exposure (4.9% of 28% overreported exposure in Study 1; 8.4% of 47.9% overreported exposure in Study 2). This substantial reduction in overreporting may have important implications, both for practical research (as broadcasters rely on survey research in addition to automated ratings data) and for academic purposes (as more accurate measures may affect estimates of media effects). The theoretical contributions explained above (e.g., regarding the importance of self-integrity restoration in explaining and correcting overreporting of news exposure) should also be viewed not only in terms of explained variance or effect sizes (that are obviously affected first and foremost by the real exposure), but in terms of the relatively large parts of overreported exposure reduced by the manipulations.

One of the limitations of the current exploration relates to the comparison between the IARB ratings data and the current data (which were recruited using an online panel), as these are different data sets that are differently recruited. However, we offer three possible rebuttals to this concern. First, when comparing our exposure questions to the people-meter data we weighted our data to census data, as does the IARB, which means that our comparisons are based on demographically identical samples. Second, while the IARB ratings sample is different from our sample, there are several similarities among them – in both, participants take part for an incentive, both are diverse and include relevant segments of the Israeli population and in both samples, not all respondents that have been invited to participate actually participated. Third, the differences between our exposure estimates and the people-meter figures were so immense that it is extremely unlikely that differences in sampling account for them.

Of course, the comparison to people-meter data assumes that this measurement method represents the population's exposure. This is of course a problematic assumption, especially when parts of the audience watch the news via streaming devices, social media, or other web-based platforms or mobile-apps, that are not tracked and measured by the people-meter. This problem adds to more traditional people-meter measurement problems (Webster et al., 2014). It is important to note, however, that the people-meter-based data are reported in this manuscript as a benchmark, in order to establish the assumption that news exposure is overreported (an assumption

that has already been substantiated elsewhere, e.g., Prior, 2009). Our main arguments and hypotheses tests rest on the comparison of reported exposure in the different experimental conditions, irrespective of the ratings data.

Another limitation has to do with the strength of the manipulations. The anonymity manipulation we used was probably weaker than the one used in face to face research (e.g., Tal-Or & Drukman, 2010). Despite the fact that affirmation manipulation produced a rather robust effect on the manipulation check item in the two studies in which it was utilized, it too produced a rather weak effect, perhaps because the thought of an event from the past in which participants helped someone in need produced only a modest effect on self-esteem. This manipulation affected survey response immediately, and subsequent items in the survey were not affected by it. This is to say, that the effects described above are weak and limited to the questions that immediately followed the manipulations.

Our theoretical approach separated between cognitive and motivational mechanisms. It should be acknowledged that research has documented that self-affirmation potentially affects cognitive functioning, for example, functioning in IQ and math tests (Martens et al., 2006, p. 8). Thus, while we treat affirmation as instigating a motivational process, we cannot rule out the possibility that our findings can be accounted for by the improved cognitive functioning resulting from the affirmation manipulation. On a deeper level, previous research tying affirmation to cognitive functioning (e.g., Wakslak & Trope, 2009) in effect shows that it is perhaps impossible to fully disentangle cognitive and motivational processes.

Despite these limitations, the findings carry immense importance for public opinion scholars. It is well known that attitudes and perceptions fulfill an internal ego-defensive function (e.g., Katz, 1960). Research on survey artifacts, however, focuses on the external impression management aspects of the survey response, typically under the framework of "social desirability." In contrast, research on survey artifacts generally pays only scant attention to the possibility that respondents' answers are motivated in part by their desire to be perceived positively by themselves, not only by someone else. The current exploration used psychological research about self-preserving biases and demonstrated that like these biases, answers to survey questions regarding news exposure are substitutable with other self-preserving mechanisms. Thus, our findings offer a novel and valuable pathway for the investigation of the psychological basis of survey response. Future research should examine the principles tested above in the context of additional survey biases.

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