Implications of Response Device Type for Sensitive Web Surveys: Examining Data Quality and Respondent Characteristics in a Survey of College Students

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Abstract

Mobile device use is increasingly common among young adults 18-29, 86% of whom report owning a smartphone (Anderson, 2015; Smith, 2015). As mobile use has increased so has mobile survey response. While research on the impact of mobile responding is mixed, there is some suggestion that it can lead to data quality issues such as increased break-offs (Mavletova, 2013). These data quality concerns may be compounded when surveys contain sensitive questions. Previous research found that respondents trust mobile devices less with regard to data confidentiality, but saw mixed results when examining response to sensitive items between mobile and non-mobile responders (Mavletova and Couper, 2013). However, this study focused on attitudes toward deviant behavior, alcohol consumption and income, and selected sample members from an online panel; findings may differ with other sensitive topics, such as sexual assault, and in young adult populations with higher rates of mobile use.

In this paper we explore differences in item nonresponse and breakoff rates for sensitive questions related to sexual harassment and assault to better understand how survey estimates may differ by device type (i.e., mobile, non-mobile). We also examine response device type by respondent characteristics (i.e., age, sex, year of study, and school). We conclude with a brief discussion of findings and the implications for the design of sensitive web surveys of college student populations.

Data are from the Campus Climate Survey Validation Study Pilot Test, a Bureau of Justice Statistics and Office of Violence Against Women sponsored web survey of college students at nine U.S. institutions. Over 23,000 respondents completed the survey among a random sample of approximately 50,000 students. The survey included questions that measured rates of unwanted sexual contact and campus climate related to sexual harassment and assault.

Key Words: Mobile, sensitive items, web surveys, item nonresponse, breakoffs, college students

1. Introduction

The purpose of this research is to examine differences in response and data quality for sensitive survey items by device type (mobile, non-mobile). Specifically, we examine item nonresponse and break-off rates of mobile and non-mobile responders for sensitive survey

items related to sexual harassment and assault to better understand how survey estimates may differ by device type (i.e., mobile, non-mobile). We also examine response device type by respondent characteristics (i.e., age, sex, year of study, school).

2. Background

Mobile use is on the rise, especially among young adults 18-29, where 86% (vs. 64% in the general population) report using smartphones. (Anderson, 2015; Smith, 2015). Smartphones and other mobile devices are also increasingly being used to respond to web surveys (Link et al., 2014). Indeed it is assumed that most web surveys will have mobile responders. Despite the fact that mobile response to web surveys is on the rise, research on the impact of mobile response for sensitive surveys is still limited. A survey of panel participants in Russia found significant differences in reporting of alcohol consumption, but no differences were found in reporting for other sensitive survey items (e.g., deviant behavior, etc.) (Mavletova and Couper, 2013). Similarly, a survey of LISS panel participants found no differences in the reporting of sensitive items by response device (Antoun, 2015). However, these studies constructed sensitive indices from questions about attitudes toward deviant behavior, alcohol consumption, and income. We argue that our research provides preliminary insight into mobile response to especially sensitive items (e.g., sexual assault) that previous studies have not yet covered. Findings may also differ in young adult populations with higher rates of mobile use.

Previous studies suggest mobile respondents are more likely to be in public places and around other people (Mavletova and Couper, 2013; Antoun, 2015). Mobile respondents also report lower levels of perceived privacy and lower levels of trust in data confidentiality (Mavletova and Couper, 2013). In this paper, we consider if the possible trust and confidentiality concerns of mobile respondents outlined in these previous studies may impact responses on mobile devices making them less willing to disclose information when items are especially sensitive (i.e., questions pertaining to sexual assault). That is, break-off and item nonresponse rates for mobile respondents may be higher than non-mobile respondents due to privacy concerns and may be more pronounced for sensitive survey items. Examining any differences in response may help us better understand if survey estimates could differ by device type for sensitive survey items.

3. Methods

Data are from the Campus Climate Survey Validation Study Pilot Test, a Bureau of Justice Statistics and Office of Violence Against Women sponsored web survey of college students conducted by RTI International in the spring of 2015 (Krebs, et al., 2016). The sample contained approximately 50,000 students from nine U.S. colleges and universities varying and size and geographic location. Over 23,000 respondents completed the survey, with response rates for females at 54% and males at 40% (AAPOR RR3). The purpose of this study was to develop a valid methodology for measuring rates of unwanted sexual contact and campus climate related to sexual harassment and assault among college students.

The survey included questions that measured rates of unwanted sexual contact and campus climate related to sexual harassment and assault. **Figure 1** below provides an

overview of the survey items in each of the six sections in the survey. The sections in blue (demographics, general campus climate) represent items that were not deemed sensitive, while the sections in green highlight the four sections that were categorized as sensitive. Sensitive sections contained questions about incidents of sexual harassment and coercion, as well as incidents of sexual assault. Each of these sections included questions about the type of incident, location where it occurred, and other items related to the incident. Other sections categorized as sensitive included questions regarding intimate partner violence, as well as sexual assault and harassment perpetration questions.

General Demographics School Climate	Sexual Harassment and Coercion	Sexual Assault	Intimate Partner Violence (IPV)	Perpetration	Campus Climate
Not sensitive	Sensitive	Sensitive	Sensitive	Sensitive	Not sensitive
• Demographics • School climate (general) • School connectedness (general)	• Incidents of sexual harassment • Incidents of emotional coercion	• Filter: Number of sexual assault incidents • Loop (up to 3x): type of incident, location of incident, etc.	• Intimate partner violence	• Sexual assault perpetration • Harassment perpetration	• Campus climate related to sexual harassment and assault

Figure 1: Description of survey items by section

All analyses examined responses submitted via mobile versus non-mobile devices. Approximately 30% of respondents participated via mobile devices. Mobile use was defined as responding using a smartphone (27%) or tablet (3%). Response device type was determined based on paradata collected by the survey system.

A Chi-square test for independence was first performed on demographic characteristics (i.e., age, sex, year of study, and school) and device type to test for differences across demographic groups. A break-off analysis then examined the percentage of break-offs by device type within each survey section. Finally, an item nonresponse analysis compared average level of item nonresponse by device type within each survey section.

Chi-square tests and item nonresponse analyses were subset to completed cases. The breakoff analysis was subset to those who provided informed consent and started the survey but did not complete the survey. For the purpose of analysis, we considered a completed case one that provided informed consent, sex, and answered gateway sexual assault questions (i.e., indicating incident of sexual assault or harassment).

The sexual assault section looped up to three times depending on the number of incidents of sexual assaults reported by each respondent. Respondents were looped through incidents in chronological order – not by characteristic or type of sexual assault – so the sensitivity of incidents reported should not differ across loops when examining the incidents reported across all respondents. Since break-offs and nonresponse was more likely to occur in general in the second and third loops for both mobile and non-mobile respondents, we limited our analysis to the first loop of the sexual assault section.

4. Results

Chi-square tests revealed statistically significant differences (p<.001) in mobile response by sex, with more females responding via mobile device. Mobile response also differed across schools, with only three of the nine schools having higher rates of mobile response than non-mobile response. No relationships were found between device type usage and age or year of study.

In line with previous research, mobile response did not impact item non response and break-offs relative to non-mobile response. As illustrated in **Figure 2**, mobile break-offs did not increase on sensitive items, relative to non-mobile breakoffs. In fact, in the sexual assault, intimate partner violence (IPV) and perpetration sections break-offs were slightly less likely among mobile respondents.
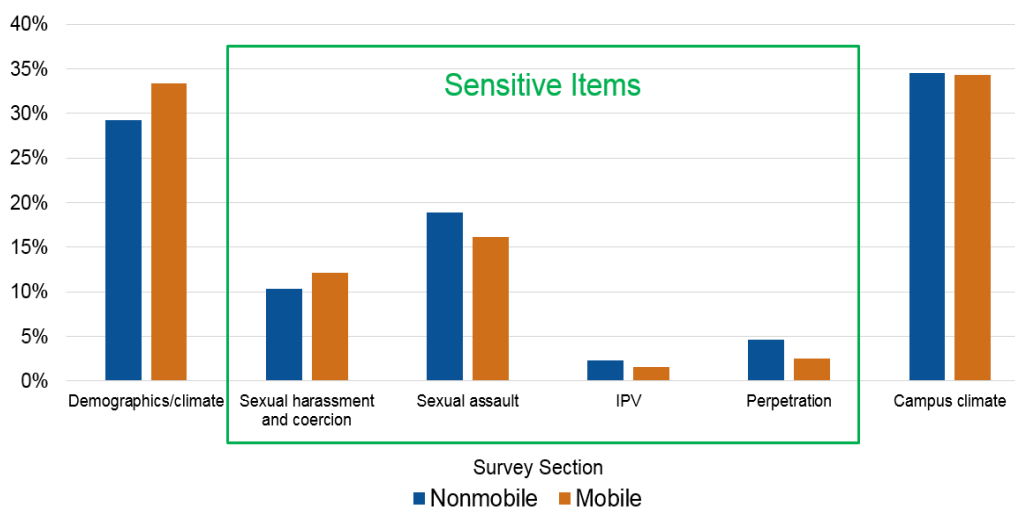
Figure 2: Percentage of break-offs by device type and survey section

Break-offs for both mobile and non-mobile response were most prevalent in the first and last sections of the survey, which were categorized as non-sensitive. Increased break-offs in these sections can likely be attributed to a number of long grids used in these sections and not the content of the questions. It is noted, however, that break-off rates were also similar for mobile and non-mobile respondents in both of the non-sensitive sections.

Similarly, as shown in **Figure 3**, item nonresponse did not increase on sensitive items for mobile respondents, relative to non-mobile respondents. Mobile respondents skipped fewer questions than non-mobile respondents in all sections of the survey, but the difference was quite small. It is noted that average level of item nonresponse in the sexual assault section, arguably the most sensitive section, for mobile and non-mobile respondents was effectively the same (4 items).
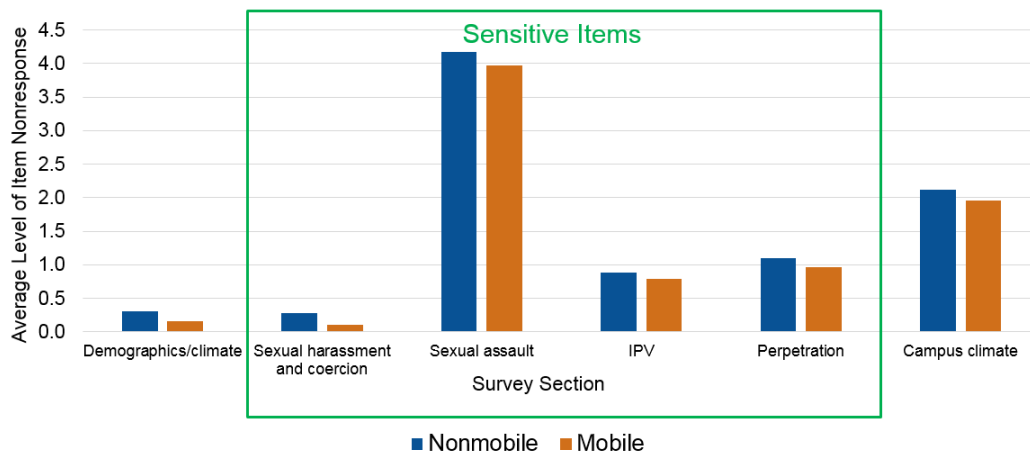
Figure 3: Average item nonresponse by device type and survey section

5. Discussion

Our findings suggest device type did not greatly impact break-offs or item nonresponse for sensitive survey questions about sexual harassment and assault, intimate partner violence, and sexual assault perpetration with this population. Mobile respondents were slightly less likely to break off in three (sexual assault, IPV, and perpetration) of the four sections of the survey. Further, no practical difference in item nonresponse between mobile and non-mobile users was found, with mobile responders having a slightly lower levels of item nonresponse in all four sensitive sections. Further research is needed to determine if this holds true for other populations, but our findings are in line with previous studies and suggest that device type does not greatly impact response in sensitive web surveys.

We recognize our findings are limited. We are first limited by our non-experimental design – respondents self-selected into mobile/non-mobile groups. Our findings are also not generalizable – college students/young adults are heavy mobile users, which could "mute" possible effects that we may see in other populations. Additional research is needed to determine if results are the same with populations that are less mobile "savvy." More testing is also needed to determine if the differences we observed in device usage by school and sex have any impact of on response patterns. This work also does not address if mobile users respond differently to sensitive items.

However, despite its limitations, this research does provide insight into the impact of device type on response to sensitive items previous research has not yet examined (i.e., questions regarding sexual assault). We feel this work can act as a starting point for future studies exploring the effects of mobile response for sensitive items related to sexual harassment, sexual assault, intimate partner violence, and sexual assault perpetration.

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