# Unit 5

# Case Study: Inappropriate Use of Surveys

In 2018, Cambridge Analytica was in the news in the United Kingdom and the USA (Confessore, 2018) for obtaining and sharing data obtained from millions of Facebook users. They obtained the data through innocuous surveys on Facebook (you may have seen this type of survey and probably participated at times). This is probably the highest profile of surveys used for alternative means and, probably, monetary gains. However, this happens often through various media.

Consider how exactly this happened and why it was used. Find one or two further examples of inappropriate use of surveys and highlight the impact of all these examples from the various ethical, social, legal and professional standpoints that apply.

The Cambridge Analytica scandal of 2018 is one of the most high-profile examples of how surveys and data collection can be misused for unethical purposes. The company obtained data from millions of Facebook. This data was then used to create detailed psychological profiles leveraged for targeted political advertising during the 2016 U.S. presidential election and the Brexit referendum. The primary motivations behind this misuse were monetary gain and political manipulation, as Cambridge Analytica was paid by political campaigns to influence voter behaviour (Hinds, Williams and Joinson, 2020).‌

The ethical implications of this scandal are significant. Users were unaware that their data was being harvested and used for political manipulation, representing a clear violation of trust and consent. Socially, the scandal eroded trust in social media platforms and raised concerns about privacy and the potential for manipulation in democratic processes. Legally, Facebook faced investigations and fines for failing to protect user data, and the scandal contributed to the implementation of stricter data privacy laws, such as the EU's General Data Protection Regulation (GDPR). Professionally, the incident highlighted the need for stricter ethical guidelines in data collection and analysis, particularly in fields like psychology and marketing.

One notable example of the inappropriate use of survey data involves the Korean National Health and Nutrition Examination Survey (KNHANES). Since 1998, KNHANES has been a critical tool for assessing the health and nutritional status of Korea’s non-institutionalized civilian population. Over time, the number of research papers utilizing KNHANES data has grown significantly, particularly as public access to the raw data has expanded, enabling universities, healthcare providers, and other organizations to analyze it more easily. However, the misuse of this data, particularly through improper statistical methods, has raised serious concerns.

KNHANES employs a complex, stratified, multistage, probability-cluster sampling design to ensure a representative sample of the population. This design introduces two key challenges: 1) non-independence among sampled units due to clustering, and 2) disproportionate sampling, where certain groups may be oversampled or adjustments are made for non-response. These features require specialized statistical techniques to account for sampling weights, stratification, and clustering. Failure to address these complexities can lead to underestimated standard errors, overly narrow confidence intervals, and an increased risk of Type I errors, ultimately producing misleading results (Kim et al., 2013).

From an ethical standpoint, the misuse of KNHANES data undermines the trust participants place in researchers and institutions. Participants provide personal health information with the expectation that it will be used responsibly to advance public health knowledge. When researchers fail to use appropriate statistical methods, they risk generating biased or incorrect findings, which can erode public trust in science. For example, studies using unweighted KNHANES data have incorrectly suggested that high blood mercury levels might protect against osteoporosis. Such flawed conclusions could lead to the unethical dissemination of misinformation, potentially endangering public health if individuals or policymakers act on these findings. Researchers have an ethical obligation to ensure their methods are rigorous and their findings valid, as the consequences of misuse can extend far beyond academia (Kim et al., 2013).

Socially, the inappropriate use of survey data can perpetuate misinformation and create public confusion about health risks and benefits. For instance, if unweighted analyses suggest that high blood mercury levels are beneficial, this could lead to dangerous misconceptions about dietary choices or environmental exposures. Such misinformation can erode public confidence in scientific research and health recommendations, especially when contradictory findings emerge. Additionally, failing to account for the complex survey design can result in findings that do not accurately represent the population, disproportionately affecting marginalised or underrepresented groups. This can exacerbate health disparities and hinder efforts to promote equitable health outcomes (Kim et al., 2013).

Legally, the misuse of survey data can have serious consequences. Publicly funded surveys like KNHANES and NHANES come with strict guidelines for data analysis and reporting, including the use of sampling weights and design-based methods. Failure to adhere to these guidelines may violate research protocols and lead to institutional or legal repercussions, such as the retraction of published studies or loss of funding. Moreover, if flawed research influences public health policies or regulations, it could expose institutions to legal challenges, particularly if those policies result in harm. For example, incorrect conclusions about environmental exposures could lead to misguided regulations, with potentially harmful effects on public health (Kim et al., 2013).

Professionally, the inappropriate use of survey data damages the credibility of researchers and the scientific community. Publishing studies based on flawed analyses can lead to retractions, loss of professional reputation, and diminished trust among peers. It also reflects poorly on the institutions and journals that publish such work, raising questions about their commitment to scientific rigor. With the availability of specialised software for analysing complex survey data, there is little justification for using inappropriate methods. Researchers who fail to use these tools risk being seen as negligent or uninformed, which can hinder career advancement and collaboration opportunities. Furthermore, the proliferation of flawed studies can create a body of literature that misleads other researchers, wasting time and resources as they attempt to build on unreliable findings (Kim et al., 2013).

The inappropriate use of survey data can have serious consequences for public health and policy. For example, if unweighted analyses lead to incorrect conclusions about the relationship between environmental exposures and health outcomes, policymakers may implement ineffective or harmful interventions. This not only wastes resources but also diverts attention from more pressing public health issues. In the case of KNHANES, the misinterpretation of blood mercury levels could lead to misguided dietary recommendations or environmental regulations, with potentially harmful effects on population health. Such outcomes highlight the importance of using appropriate statistical methods to ensure that research findings are accurate and reliable (Kim et al., 2013).

**References:**

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