Data from clinical trials or tests are often presented in partitioned or aggregated formats, as successes or failures, and as frequencies or percentages. The authors study how consumers process such data to make personally relevant decisions. Prior studies found no framing bias given personal relevance. The results of four experiments indicate that partitioned frequency data undermines the ability to process and causes framing bias to emerge despite personal relevance. However, high data variance invalidates the frame as a heuristic cue, nullifying the bias. Also, judgments of efficacy probability align with actual efficacy only when partitioned, frequency data is success framed.

[to cite]:
Dipayan Biswas and Connie Pechmann (2010), "What Do These Clinical Trial Results Mean For Me? How Personally Relevant Decisions Are Affected By Data Framing, Partitioning, and Quantification", in NA - Advances in Consumer Research Volume 37, eds. Margaret C. Campbell, Jeff Inman, and Rik Pieters, Duluth, MN : Association for Consumer Research, Pages: 727-728.

[url]:
http://www.acrwebsite.org/volumes/15136/volumes/v37/NA-37

[copyright notice]:
This work is copyrighted by The Association for Consumer Research. For permission to copy or use this work in whole or in part, please contact the Copyright Clearance Center at http://www.copyright.com/.
EXTENDED ABSTRACT

If I take a prescription pain reliever such as Maxalt, what is the probability that I will get relief? If I drive a Toyota Prius and I get in a car crash, what is the probability that I will get seriously hurt? Consumers often make judgments about personal well-being while evaluating products, and regulations increasingly require that clinical trial and product test data be provided to consumers (Landro 2004). However, such data can be quite complicated to interpret and how the interpretation is done may depend on many factors. When consumers make a decision about their own personal well-being or behavior, it is called a personally relevant decision (Levin, Schnittjer, and Tee 1988). Research indicates that for personally relevant decisions, consumers want to process any given data in an unbiased way to make the best judgments (Levin, Schneider, and Gaeth 1998; Levin et al. 1988). However, whether consumers are actually able to do so may depend on the data format. The data format may vary in several ways, but we focus primarily on three factors that have theoretical and practical significance: (1) data partitioning—which is, whether product efficacy results from multiple studies or subject groups are reported separately or aggregated (Morwitz, Greenleaf, and Johnson 1998), (2) data quantification—whether the product efficacy results are presented as frequencies or equivalent percentages (Cuite et al. 2008), and (3) attribute framing—whether the product efficacy results are framed in terms of successes or equivalent failures (Levin and Gaeth 1988).

Prior studies have examined the effects of data partitioning versus aggregation (Cheema and Soman 2008; Morwitz, Greenleaf, and Johnson 1998). However, these studies did not examine the interaction effects between data partitioning and data framing or data quantification. Attribute framing refers to describing outcomes "in terms of success versus failure rates" (Levin, Schneider and Gaeth 1998, p. 159). Numerous studies indicate that framing attribute information about products in terms of successes rather than the equivalent failures enhances product evaluations (Levin et al. 1998; Mittal, Ross, and Tsiros 2002; Zhang and Mittal 2005). It is believed that the positive frame or cue (e.g., 75% lean) evokes favorable thoughts whereas the negative frame or cue (e.g., 25% fat) evokes unfavorable thoughts, generally without conscious awareness (Levin et al. 1998). However, researchers have found that when decisions have personal relevance, the frame is rendered inconsequential (see Levin et al. 1998 review; also Janiszewski et al. 2003; Levin et al. 1988; McElroy and Seta 2003). People are motivated to evaluate the alternate frame in addition to the given frame due to their high level of personal interest in the issue. In other words, people are motivated to consider both the probability of success and failure, regardless of how the data is framed. The question we ask is whether the frame might sometimes bias judgments despite personal relevance. In particular, might the frame bias judgments when the data are in a partitioned frequency format and there is low processing ability? Our research is the first to examine this issue. We conducted four experiments to test our hypotheses.

The results of our first experiment (which used sunscreen as a product) replicated the findings of prior literature, whereby personal relevance enhanced processing motivation. Hence, for decisions made under personal relevance, there were no framing effects. However, framing effects emerged when there was no personal relevance.

The results of our second experiment (which used prescription pain reliever Maxalt as a product, and its actual package insert as experimental stimuli material) showed that the combination of partitioned data and frequency data reduces the ability to process, relative to aggregated data or percentage data. Therefore, the combination of partitioned data and frequency data evoked a framing bias despite personal relevance, in that a success versus failure frame favorably biased judgments. Aggregated data or percentage data did not evoke this bias.

The third experiment again used sunscreen as a product, and examined how data variance might influence the effects of partitioning and framing. This experiment also examined actual consumer choice behavior in terms of choosing between a focal versus a control sunscreen. We wanted to examine if when the partitioned data points have high variance or variability, the frame may be invalidated or discredited as a heuristic cue (Schwarz and Clore 1983, 2003). The results of this experiment supported such a hypothesis. That is, under low data variance, framing bias was observed with partitioned frequency data. However, high data variance nullified the framing bias with partitioned frequency data.

Finally, in our fourth experiment, we attempted to empirically verify our assumption that data partitioning is the major cause of the framing bias that is observed with low variance frequency data. We showed participants a single data point and asked for personally relevant judgments. Then we showed participants a second and a third data point, rendering the data partitioned, and asked for their judgments after each subsequent data point. We posited that there would be no framing bias with a single data point, but that the framing bias would emerge with the second data point and especially with the third data point. That is, the framing bias would appear and strengthen as the data became more partitioned and processing became increasingly difficult. The results of this experiment supported our hypothesis.

In conclusion, the results of our experiments would have implications both for marketers as well as for regulators, in terms of designing optimal formats for presenting information from product and/or clinical trials and tests. In terms of academic implications, this research is the first to examine the interaction effects between data framing, partitioning, and quantification; while prior studies found lack of framing effects under personal relevance, our experiments demonstrate that even when there is personal relevance, framing effect biases can emerge for partitioned frequency data.

REFERENCES


