Media interpretation on health promotion research

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A Critique of Marilynn Marchione (February 12, 2014) The Associated Press. Study ties weather to stroke rates: risk may rise with high humidity, cold, temperature swings

Summary

The purpose of the new article was to report on findings from a study claiming that extreme variances in seasonal weather patterns correlate to higher stroke rates. The focus on the information presented was from a study done by Judith H Lichtman and others at the Yale school of Public Health in New Haven Connecticut. In the article, the journalist Marilynn Marchione from the Associated Press, reports that through data analysis of two national databases the researchers, using a non experimental design, have found correlation between large changes in daily temperature and the risk of suffering a stroke.

Elements that Influence Believability

The article effectively states the main objective of the article stating the correlation between extreme variances in weather, humidity, and risk of a stroke. The next sentence incorporates data from the research to reinforce the article's main claim stating " As it got warmer, risk fell – 3 percent for every 5 degrees, the study found"(Marchione, 2014, p. 1). To further the credibility of the article, the author names and quotes Judy Lichtman, who is one of the study's lead researchers. Marchione also adds numerous quotes throughout her article. By quoting the responses of physicians, Maricione does not infer, but relays the opinions of medical professional. Another factor

that adds to the plausibility is what physiologically happens to the body during extreme warm and cold variances. The author incorporates explanations from different physicians on the effect weather has on the body. She adds the comments from several physicians, such as Dr Larry Goldstein who was part of the study, along with other physicians not associated with the research. Having multiple viewpoints from medical personnel who explain causation of stroke due to weather conditions strengthens her article and gives the reader further confidence in what she is saying. In addition to the explanations are some specific limitations of the study. Marchione notes limitations such as the omission participants due to a stroke caused by bleeding or aneurysm, and threshold values for temperatures.(Marchione, 2014, p. 1). In commenting on the key omissions of the study, Marchione helps define the relationships of the study to the participants.

Limitations in Generalizability and Hypothesis

Loiselle, Profetto-McGrath, Polit, and Beck(2011, p. 37) define generalizability as " the criterion used in a quantitative study to assess the extent to which study findings can be applied to other groups and settings". The author's first line in the article emphasizes a generality that is not found in any of the research findings. " There may be a link between weather and the risk of suffering a stroke, say researchers who analyzed climate trends and hospital records on millions of Americans" (Marchione, 2014, p. 1). The opening sentence is an example of what philosophers define as a hasty generalization. The lack of relevant and specific information has the author rushing to a conclusion prior to obtaining and evaluating all the gathered

data (Weber, Brizee, 2013). Contrary to the title, the objective of the research was to determine if there was an association between temperature, and Ischemic stroke hospitalization rates and in hospital mortality in a representative sample. In addition, the hypothesis of the study was not clearly stated in the article. Loiselle defines the hypothesis as the predicted answer to expectations about relationships between study variables (Loiselle et al, p. 46). Coughlan, Cronin, and Ryan furthers the idea by stating that objectives, questions, and any hypothesis should be clearly stated in order to connect the purpose and any processes (Coughlan, Cronin, & Ryan, 2007, p. 660). By incorporating the hypothesis into the article, the author would have informed readers of what the researches methods were and help understand the results of their study.

Limitations in Sample Size and Sample Plan

Loiselle defines sample as a subset of the population under study (Loiselle et al, p. 47). The sample size is not mentioned in the article. Instead of millions, the sample size used was 157 130(Marchione, 2014, p. 1). While a larger sample size better represents a target population, the misrepresentation of the sample size may give the reader a false account of the participants in the study. In addition to giving a false sample size, the article also does not mention that models were adjusted to match patient demographics. Age, sex, and race, along with seasonal changes, and comorbidity conditions were modified to fit with the target population. As a reader, the omission on selective criteria for the study participants can create uncertainty in understanding what population is susceptible.

Another factor that was omitted from the article were specifics of the sampling plans. Loiselle defines sample plans as the specifics on how the sample will be selected and how many participants there will be” (Loiselle et all, p. 47). Nowhere in the article is there information that defines the mean average age of the target population mentioned was selected. In fact, the mean age was 71. 6 years, and the article alludes to no age specific target. By omitting variables key to the research, the author inadvertently may lead to assumptions made by the reader on the age of population. Additional information was missing on how the sample plan specifically selected participants. The author claims that the research obtained from a national database, is the most detailed research on the issue but does not elaborate on any specifics. The researchers qualitative data was extracted from Nationwide Inpatient Sample database with a stratified sample of 20% . The article also provides no mention of data and the relationship to the results in the article. The researcher’s primary outcome was for discharged patients with ischemic stroke (ICN-9-CM 433, 434, 436), and death during the index hospitalization(Lichtman Wang, Leifheit-Limson & Goldstein, p. 1). This missing information can misplace the context of the stud for the reader.

Limitations in Validity/Reliability

Loiselle defines validity as the ability to accurately assess the observations, and reliability refers to the ability to measure with different participants with consistency (Loiselle et all, p. 34). While information on the number of stroke patients, and quotes from the accredited individuals does add some credibility, the author fails to add any data on how or what processes were used. There is no mention of the desired outcome which was to determine if

there were associations between temperature and ischemic stroke hospitalization rates and in hospital mortality within a U. S. population (Lichtman et al, p. 1).

In addition, the reliability of data collection and was missing from the article. The information was collected from cohort and data sources (Litchman, et al, p. 1). The author provides only 2 sentences of statistical data to inform the reader. The lack of primary information which is favored over secondary or anecdotal data was another missing factor. Secondary data may lead to opinion, and have less credibility. While most information was presented in an interview type process, the overall empirical meaningful data was omitted.

Limitations in Non Experimental Study

Loiselle defines non experimental study as the way which researchers collect data without making changes or introducing treatments”(Loiselle et al, p. 44). Loiselle further contends that experimental studies are explicitly designed to test causal relationships (Loiselle et al, p. 44). The author did not mention the non experimental approach used by Judith Lichtman and her colleagues. Cohort studies were implemented using a retrospective study to select a specific population. Stamler and Yu confirm this by stating that cohort studies look at individual histories of people with a specific disease to identify commonalities and differences (Stamler & Yu, p. 150). The study is retrospective because the data was collected between 2010 – 2011. Stamler and Yu state that “ These studies focus on individual s exposed to a particular health problem or potential stressor over time”(Stamler, Yu, 2012,

p. 150). While the article does comment on the data set extracted from 2010 to 2011, the author omitted the reasons for choosing the test population and did not add any clarity or expansion of the operational definitions. In omitting the basic defining characteristics of the quantitative study, the author did not inform the reader on give insight into the causal relationships between stroke, and varying climate.

Since the Most of the information given in the article comes in the form of quotes from researchers. In the article, the author claims that “ It is the largest and most detailed research on this issue”, but does not list the specifics of the target population(Marchione, p. 1). The author over generalized the study, when in fact a specific population and target group had been selected. She is quoted as saying “ The new study looked at stroke hospitalization, not just deaths, in a wider population using a federal database”(Marchione, 2014, p. 1). The results in fact could not be generalized outside of the 157 130 patients that were age 71. 6 or older, half being women, and 66. 6% were of Caucasian ethnicity. Freiberger confirms the need for accuracy by stating that clarity not only on how the research was conducted, but who and how participants involved in the study must be present(Freiberger, p. 1). Defining characteristics were also omitted in the article. Common characteristics of the test population included hypertension, diabetes, prior stroke, and cardiovascular disease. This lack of information in the article lends itself to reduced representativeness of the population and may lead a reader to not know the actual studied population.

Discussion/Conclusion

While the article does add information, the information presented, does not provide enough detailed elements of the study to clearly identify objectives, and any predictive hypothesis. First of all the objectives and hypothesis are never accurately stated in the article. Secondly the author does not include detailed sample plans or specify the correct sample size. Third, the validity and reliability specifics on where and how the data was obtained. Finally the author failed to expand on the non experimental study specifics. If these elements had been address to any breadth or depth within the article, the audience would have been better informed.

General Public Paragraph

Overall the study failed to give an accurate description of what the study's research was trying to achieve. The author has over generalized to the point where most of the information in the article can be taken out of context. The amount of people in the study, the age group of people in the study, the ways in which the study was performed, and along with the overall results were omitted from the article. Therefore the reader is left up to their own phenomenology to decipher and interpret what the author was trying to get across. A person reading this article may be lead to conclusions that variances in temperature may lead an average person to develop a stroke. This type of incorrect representation of the study can be misleading as the author does not give false information but omits so much that errors in interpretation are inevitable.

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