

Points to Consider when Reviewing Research Articles or Posters

- **INTRODUCTION:** What is the problem being addressed by this study? For example, obesity rates among Americans of all ages have been on the rise for the past 20 years. The problem focus of the study might be on factors affecting the increased incidence of obesity. Or, what are some current modalities and approaches to address the issue of obesity?
- **SIGNIFICANCE OF PROBLEM IN NURSING:** Why is the problem of importance to nursing? Is there a (nursing) theory that would explain this problem? For example, does the “Roy Adaptation Model” adequately predict which nursing home residents are at higher risk of falling? Will results of this study help in changing some of what we do as nurses to significantly decrease falls among nursing home residents? Will this study change, expand or validate current nursing knowledge?
- **RESEARCH QUESTION:** The research question(s) is a question related to the problem that the researcher(s) hope to answer in the study. Commonly, the research question is asked to test whether or not an existing theory explains or predicts the problem. For example, does the “Health Belief Model” predict which asymptomatic adults with hypertension will take their prescribed anti-hypertension medication on a daily basis? Or, a research question is asked to generate new information on a new phenomenon or problem. For example, what is the incidence of obesity in children under 3 years old in the United States? What are the initial thoughts and feelings of women when first diagnosed with breast cancer?
- **POPULATION:** The “population” to be studied is the total number of persons for whom the research question applies. For example, if one was interested in the rate of obesity in women over 50 years old in the United States, the population would be “all women over 50 years old in the United States.” In general, the larger the size of the population being studied (for example, “all adults in the United States”), the larger the sample size needs to be in order to adequately represent that population and appropriately make inferences from its findings.
- **SAMPLE:** The “sample” is the number of persons to be studied in order to answer the research question. To appropriately represent the “population of interest,” the sample should be “representative” of the total population being studied. Because a sample may be “biased” (for example, includes only people from one town even though the research question is about people in the United States), it is important to use a sampling method that reduces the risk of bias. So, in reading a research article one should ask, “how was

the sample for this study obtained?” Was it a random sampling (for example, in an alphabetized list of the population to be studied, every other person was asked to be in the study)? Was it a convenience sample (for example, only women in one town were asked to participate)? Were the participants offered incentives to participate (for example, some studies offer money to participants as a token of their appreciation, but maybe only people who need the money volunteer to participate then)? Also, is the sample representative of the population in regards to gender, age, ethnicity/race, socioeconomic status, sexual orientation, level of education, etc.? If a researcher wanted to know how United States adults feel about getting a flu shot every year, and the sample is comprised of only Caucasian men in their 40s, it is not a representative sample of “adults.” This may bias the results (i.e., give results different than if the researcher studied all the adults in the United States).

- **METHODOLOGY:** How did the researcher(s) conduct the study? What type of study or research design was used? Was a “quantitative” (using numbers to measure variables or attributes being studied, and doing correlations, or determining significant differences between groups, etc.)? Was it “qualitative” (using various techniques such as open-ended interview questions to gain better understanding of a phenomenon – what are the concerns or fears of women living 5 years cancer free after diagnosis and treatment for breast cancer)? Or was it a “mixed design” (using both qualitative and quantitative methodologies)? The research design might be “descriptive” (identifying and describing the rates or percentages of different attributes in the study population), “correlative” (identifying similarities or concurring attributes of the study problem), or “experimental” (taking individuals, groups or samples who were exposed to an “intervention” and compared to similar individuals, groups or samples who were not given or exposed to that same “intervention” to see if there is a difference in the outcomes between those compared).

The research methodology will have an impact on the sample size. In general, for qualitative research, a smaller sample size is acceptable, but for quantitative research, a larger sample size is needed to show significance (i.e., that the results are not by chance alone). In general, qualitative research is done to understand a phenomenon and to help in the development of a theory as to why this phenomenon occurs. Quantitative research helps “quantify” the significance of factors involved in this phenomenon and tests the size of relationships within this phenomenon and theory. What are validity (did the tool or instrument used in data gathering really examine what the researcher wanted it to test for?) and reliability (did this instrument or tool consistently measure what it was supposed to over time?) issues of the study?

- **DATA ANALYSIS:** How were the results determined? What statistics or data analyses tools were used to determine significance? Were these appropriate for the size of the

sample and type of data collected? For quantitative research, were the results statistically significant (i.e., the difference found in a study was not the result of a chance occurrence)? If not, was the sample size too small? If significance was found, what was the strength of this significance or the effect of this significance to explain the phenomenon? All these provide the reader or the research consumer a keen perspective as to the rigors of the study and the methodologies used.

- **LIMITATIONS:** Are there **factors**, attributes, variables that were **not looked at in this study** that could have had an impact or that could explain the results? For example, in a study of heart disease risk factors in adults, only data regarding food eaten on a regular basis is collected. In this study, those eating mostly high saturated fat foods are found to be significantly more likely to have a heart attack in the next year compared to those that eat mostly foods low in saturated fats. But what about level of exercise? Socioeconomic status? Stress level? Other health problems? These other factors may better explain the incidence of heart disease than saturated fat intake alone. Socioeconomic status may predict why some adults eat higher amounts of saturated fats (cheaper and more filling than healthier foods), explaining why people in the study who eat higher levels of saturated fat are more likely to have heart disease. Or, adults with lower socioeconomic status have the compounded stress of being poor and eating higher levels of saturated fat, putting them at even higher risk for heart disease than just being poor or eating high levels of saturated fat. Another limitation might be the use of samples that are not quite representative of the study population. Some examples of other limitations are (1) reading ability of study participants when using a self-administered questionnaire, (2) language comprehension of foreign language speaking participants when being interviewed, and (3) using respondents to answer a survey tool, when the samples were the same used during the pretesting of the survey instrument. If the study was done more than 5 years ago, is there any reason why the results may be different now if the study was repeated with a similar sample? For example, attitudes about getting HIV testing among adolescents in 1995 were probably different than they are now. In general, studies conducted more than 5-10 years ago without being replicated may have different outcomes now.
- **BIAS AND CONFLICTS OF INTEREST:** Is there any potential bias or conflict of interest in the funding source and the results? For example, for-profit pharmaceutical companies may prevent the inclusion of adverse reactions to a new drug in research articles published about this drug. If the researchers received funding, who was the funding source? For example, studies have shown that funding by a pharmaceutical company (versus the National Institute of Health) may affect the results presented (in favor of the pharmaceutical company). Is Institutional Review Board (IRB) approval documented in the article/poster? This shows that an independent panel reviewed the

research and found it to be within ethical bounds; and if there are any potential risks involved, the benefits of the study would be far greater.

- **REMEMBER**, a study is only as good as the strength of its theoretical underpinnings, design and methodology. The preceding bullet points can be used by the reader to closely examine a research study and be able to make a determination as to the relevance and value of the study outcomes to nursing and one's own practice.