Pilot Studies

In both of the studies reported in this issue, authors clearly identified their research as a pilot study. We will examine the nature of pilot studies because they are important to the development of the science of nursing (Perry, 2001).

A pilot study is a small-sample, quantitative study conducted as a prelude to a larger scale study or clinical trial (Polit & Hungler, 2003). Typically, a pilot study has similar methods and procedures to the larger future study which yields data to help justify the larger study (Jairath, Hogerney, & Parsons, 2000) or test procedures for it. A pilot study is not just a small exploratory study, but is designed to guide the future study. The lessons learned in the pilot study can prevent major problems that could not be anticipated before collecting patient data in the clinical setting.

Reasons for Conducting a Pilot

A pilot study has numerous purposes, such as developing and testing the adequacy of research instruments, assessing the feasibility of a full study, designing and testing the protocols for the larger study, establishing and testing the sampling and recruitment strategies, collecting preliminary data, obtaining effect size information, and training research assistants. In addition, pilot study results can convince funding agencies that the team can conduct the research and the larger study in fact is worthwhile (van Teijlingen, Rennie, Hundley, & Graham, 2001).

In particular, a pilot study is important in clinical settings because an intervention being tested in a busy nursing unit is not always a perfectly preplanned operation; it may require ongoing decision making and the management of unexpected events before a useful version is developed (Morgan & Stewart, 2002). In addition, a pilot can help the researcher determine how easy or difficult it will be to accrue subjects in a clinical setting. For example, the purpose of the Humphries (2008) study was to collect sleep data after the third and fourth nights of hospitalization. However, the author found that out of 22 subjects on two medical-surgical units, only 14 were hospitalized through the fourth night. Given the time it took to accrue these patients, the researcher could determine how much time should be budgeted in a future larger study based on the increased numbers that will be needed. It also might suggest that more units or sites need to be added to the larger study.

The purpose of a pilot generally is not to test the effectiveness (whether it will work or not) of the intervention, but to test whether the intervention is feasible (Jairath et al., 2000). On the other hand, the pilot may suggest the intervention is likely to be effective based on the preliminary data. This finding can support the need for more research and justify funding of the larger study (Becker, 2008).

The study by Klymko, Artinian, Washington, Lichtenberg, and Vander Wal (2008) demonstrated another reason to conduct a pilot study. In this case, the pilot study is part of a larger, preceding study. Pilot data collected from subjects who are already involved in a study can be useful to plan the next study in a series on the same or a related problem in order to examine the feasibility of a future project with a particular population. Researchers can maximize the contact and rapport developed with patients to plan for future research.

Differences Between the Pilot and Parent Study

Despite having similar procedures, differences between a pilot study and the parent may make it easier and less expensive to conduct. First, the sample size is smaller. Experts recommend that a pilot study sample be 10% of the sample projected for the larger parent study. However, the pilot sample may need to be larger depending on the aim of the full study (Hertzog, 2008). Researchers should not call their studies pilots just because they have not obtained the sample size initially intended. In this case, the study should be called a small exploratory study instead of a pilot (Stewart, 2004). Data from both pilots and small exploratory studies can be used in power analysis procedures to predict the projected sample size needed in larger studies.

A pilot may be conducted at one site to test procedures that then will be used in a multi-site study. A convenience sample may be used in the pilot, while a more representative sample is planned for the larger study (Jairath et al., 2000). Instruments and procedures

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may need adjustments based on the results of the pilot study. If major or many adjustments are made, then researchers may not be able to use the data in the parent study. If little change is required, the data may be used.

Issues

Readers might wonder whether a pilot should be published given small sample sizes and preliminary results. Not all editors agree (Becker, 2008; Perry, 2001; Watson, Atkinson, & Rose, 2007). Publishing pilots may be appropriate for a number of reasons. The knowledge gained in a pilot study not only can help the researchers who conducted the study, but also help other interested researchers. The pilot study may demonstrate some unique problems or uncover issues that suggest different approaches should be taken into account in future research to save other researchers considerable time and effort.

Despite a small sample, the preliminary data may prove to be significant both statistically and clinically. They therefore should be shared with others, especially if the intervention tested is new and particularly innovative. Results should be judged with caution with small sample sizes, but publishing the results may allow others to consider the intervention for future studies. Considering the time it takes for study results to be published, many years could pass before the larger study is completed and published. Therefore, it may be useful to have the results of a successful pilot study published when completed (Becker, 2008).

A pilot study is important in the planning and conduct of research. It can save researchers time, effort, and headaches. In addition, it is unethical to conduct a study involving large numbers of subjects that proves to be inconclusive because of problems that could have been detected with a well-planned pilot study.

References