Who cares about scientific merit?
Dana Gonzales, PhD, CIP
Partner, Solutions IRB

Scientific Merit is a term used frequently in research. But what does it mean? And perhaps more importantly why should you care?

Many of us had a similar experience in middle school when our teacher introduced us to the scientific method. If you are like me, you memorized the steps of the scientific method to pass the test. Periodically, the scientific method would resurface in high school and college, but I did not give it much thought until I started working on my dissertation in graduate school. At this point, I realized there was so much more to research and scientific inquiry than the initial 6-7 steps (ask a question, do background research, construct a hypothesis, test the hypothesis, analyze the data and draw a conclusion, and report the results) I learned.

So what is scientific merit? Scientific merit, in the most basic sense simply looks at whether or not a study represents good science. The following should be considered part of scientific merit. The study should have clearly stated objectives and research questions. The proposal should include background information through peer-reviewed literature to support the need for the study. The setting of the study should be appropriate (respect the participants’ safety and privacy). The procedures (recruitment, data collection and analysis) should align with the research questions. The safe storage, monitoring, and destruction of the data should be specified. The risks and benefits (direct and/or indirect) for the participants in the study should be clear. Any alternative to participation should also be presented.

We might agree that it’s important for any research to have merit, otherwise why do it? But what is the relationship between scientific merit and ethical research? I would argue, scientific merit provides the foundation for an ethical study. This includes not only the interaction with participants, but also the value of the research. Under the criteria for review in 45 CFR 46.111(a), IRB’s are called to ensure that “(1) Risks to subjects are minimized: (i) by using procedures which are consistent with sound research design, and which do not, unnecessarily, expose subjects to risk”. (OHRP) Thus, the IRB has a responsibility to evaluate scientific merit, or quality, as part of its review, especially when a study design poses greater than minimal risk to participants.” (Solutionsinstitute.com, Scientific Merit module)
The presence of scientific merit in a study reflects a researcher’s commitment to quality. It means the researcher hopes to obtain information that will either be a direct benefit to participants or to the field. This requires the researcher to understand the current body of literature on their topic. The goal of research is to expand on or extend our current understanding, whether through evaluation of a program or through an experimental design. When working with novice student researchers, often they have an interest in studying something that had already been well-researched and documented in the literature, such as recidivism. While these proposals were well-meaning, they often failed to account for the existing body of research. Through consultation and conversation that asked how the proposed study would expand on or extend our current understanding, we could arrive at research that had more merit- and was therefore inherently more ethical because there was the potential for benefit to participants, society, and/or the field.

As researchers and evaluators, we are ethically called to ask ourselves, and one another, the same questions.

Want to know more? Check out our module on scientific merit at Solutions Institute (http://www.solutionsinstitute.com/scientific-merit/). We define scientific merit and examine the components of scientific merit in research design, grant funding and application evaluation, and in the dissemination of findings.