

Using Mixed Methods to Evaluate a Community Intervention for Sexual Assault Survivors: A Methodological Tale

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Abstract

This article reviews current epistemological and design issues in the mixed methods literature and then examines the application of one specific design, a sequential explanatory mixed methods design, in an evaluation of a community-based intervention to improve postassault care for sexual assault survivors. Guided by a pragmatist epistemological framework, this study collected quantitative and qualitative data to understand how the implementation of a Sexual Assault Nurse Examiner (SANE) program affected prosecution rates of adult sexual assault cases in a large midwestern community. Quantitative results indicated that the program was successful in affecting legal systems change and the qualitative data revealed the mediating mechanisms of the intervention's effectiveness. Challenges of implementing this design are discussed, including epistemological and practical difficulties that developed from blending methodologies into a single project.

Keywords

mixed methods, qualitative, quantitative, rape, sexual assault

Epistemological purity doesn't get research done.

Miles and Huberman, 1984 (p. 21)

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Miles and Huberman (1984) long ago called into question the utility of rigid boundaries between quantitative and qualitative approaches to research, and noted that the advancement of science may be best served by more creative, blended means. Mixed methods research combines quantitative and qualitative methods to leverage the unique points of view afforded by each tradition. Such designs are particularly well suited for studying complex phenomena in real-world settings whereby the use of one single method would be unlikely to reveal a complete picture. As a global epidemic (World Health Organization [WHO], 2002), violence against women is a complicated, multifaceted social problem, and innovative methods are necessary to help us understand and eradicate these crimes (Jordan, 2009). Toward that end, mixed methods approaches can be particularly useful designs for bringing together numerical and narrative accounts of survivors' experiences. The purpose of this article is to briefly review current epistemological and design issues in the mixed methods literature and then examine the application of one specific design, a sequential explanatory mixed methods design, in an evaluation of a community-based intervention to improve postassault care for sexual assault survivors.

Theoretical and Design Issues in Mixed Methods Research

The mixed methods literature developed quite rapidly in the aftermath of the 1980s and 1990s paradigm wars between advocates of quantitative-focused positivist approaches to social science and the qualitative-informed constructivists (see Tashakkori & Teddlie, 2010 for a review). The essentialist arguments for the supremacy of any one method have been so deeply challenged that the allure of hybrid methods was compelling (Greene, 2007). Mixed methods offered the promise of the best of both, but not without substantial challenges. From an ontological and epistemological point of view, how is it possible to bring together radically different paradigms about the nature of what can be known and how it can be known within the same study, series of studies, or program of research? To some extent, paradigms are linked to a researcher's identity as they reflect fundamental beliefs and values of a researcher (Campbell, 2002). Can a researcher "be" one paradigm in one context, one study, or one part of a study, and then "be" another paradigm in another? Such questions led to the "incompatibility thesis": the "mixing" in mixed methods cannot occur at such theoretical levels because of the fundamental conflict between positivist and constructivist models.

In response, mixed methods scholars outlined multiple alternatives for addressing these epistemological tensions (see Bergman, 2008; Greene, 2007; Tashakkori & Teddlie, 2010; Teddlie & Tashakkori, 2009 for reviews). Briefly, some have advocated for adoption of a single paradigm, such as postrealist pragmatism, which emphasizes practice and method over theoretical cogitation (Howe, 1988; Patton, 2002; Rallis & Rossman, 2003). The research question is paramount and must drive the selection of methods. Others have embraced the tensions between paradigms and called for dialectical, multiparadigmatic approaches that require explicit reflection and engagement as researchers sift through the tensions and seek resolution (Greene & Caracelli, 1997, 2003). A third strain promoted theoretical plurality; different

components of a study can in fact be guided by different paradigms (Creswell, Plano Clark, Gutmann, & Hanson, 2003). Design comes first, and researchers can “walk backwards” to its corresponding paradigm, allowing multiple frameworks within a study.

At the same time mixed methods scholars were working through these epistemological issues, a comprehensive taxonomy of mixed methods designs was in development (see Creswell & Plano Clark, 2007; Tashakkori & Teddlie, 2010 for reviews). Briefly, a multitude of designs can be created by varying the timing or sequence of different methods and their intended function or purpose. With respect to timing, mixing can occur within the same study (usually termed *parallel* or *simultaneous*), or across studies within a series (usually termed *sequential*). As to function, researchers must sort out why they need both methods and what they hope to gain from their integration. In some circumstances, *exploration* is the purpose, which is particularly common in new areas of inquiry where there are no guiding frameworks, theories, measures, or instruments. By contrast, both methods may be needed for *explanation*; the findings generated through one method need to be unpacked further using a different method for a more complete understanding of the results. Methods may also be combined for examining *triangulation*; different methods are used to collect data on the same subject to compare and contrast findings obtained through each to see if findings converge. For instance, sequential designs (first qualitative, then quantitative, or vice versa), could be conducted for different purposes. In a sequential explanation-focused design, the findings of one method would be used to shape what happens in the next method; by contrast, in a sequential triangulation design, there may be more independence of method until the final comparison and contrast of findings. The ever-evolving taxonomy of mixed methods designs presents researchers with a bevy of creative options depending on the nature of research questions and goals of the project.

A Bit of Context: Improving Community Services for Rape Survivors

Before delving into our experiences working with a mixed methods design, some context is necessary regarding the nature of the intervention we sought to evaluate. Our work examines what happens when rape survivors turn to their communities for assistance after an assault. Traditionally, victims are directed to the medical system, specifically hospital emergency departments (ED) for forensic evidence collection (Martin, 2005). Unfortunately, EDs are often ill-equipped to collect such evidence correctly, and hospital personnel frequently treat survivors in ways that are experienced as retraumatizing (see Campbell, 2008 and Martin, 2005 for reviews). If victims try to pursue criminal prosecution, their experiences with the legal system are not markedly better. Only 14% to 18% of all reported sexual assaults are successfully prosecuted (Campbell, 2008). Medical forensic evidence could be instrumental in prosecution because injury and DNA evidence can carry substantial weight with legal system personnel (Spohn, Beichner, & Davis-Frenzel, 2001), but because of lack of communication and coordination between the legal and medical systems, police and prosecutors rarely receive medical exam findings in time to affect the outcome of a case (Human Rights Watch, 2009). In the worst-case scenario, which is not infrequent,

rape survivors endure an invasive, traumatizing medical exam that has no bearing on their legal case.

In light of the serious problems survivors encounter with the medical and legal systems, the nursing profession created Sexual Assault Nurse Examiner (SANE) Programs (Ledray, 1999; Littel, 2001) as an alternative model of postassault care. In these programs, specially trained nurses, rather than doctors, provide 24-hr care to sexual assault victims in either hospital or nonhospital clinic settings (Campbell, Patterson, & Lichty, 2005). To address survivors' psychological needs, SANEs strive to preserve victims' dignity, ensure that they are not retraumatized by the exam, and assist them in regaining control by letting them make decisions throughout the exam. Many SANE programs work with their local rape crisis centers so that rape victim advocates can also be present for the exam to provide crisis intervention and emotional support. For victims' physical health needs, SANE programs also routinely offer emergency contraception and prophylactic antibiotics for sexually transmitted infections. For the forensic evidence collection itself, SANEs conduct a comprehensive head-to-toe examination of the survivor's body to document and treat injuries. The forensic evidence collected by the SANEs is typically sent to the state crime lab for analysis and the results are forwarded to the police and prosecutors. If a case is prosecuted, the SANE may provide expert witness testimony in the trial to explain the medical forensic findings to the judge or jury.

SANE programs spread quite quickly throughout the United States, growing from a handful of programs in the 1970s and 1980s to nearly 500 programs currently in existence (International Association of Forensic Nurses [IAFN], 2008). However, this widespread diffusion occurred despite *very* minimal evaluative data on the effectiveness of SANE programs. The few empirical studies that have examined the effectiveness of SANE programs have mostly focused on legal outcomes (see Campbell, Patterson, Adams, Diegel, & Coats, 2008 for exceptions). Several case studies have found that SANE programs increase arrest and prosecution rates because the quality of the forensic evidence provided by the nurses is so compelling to judges and juries (see Littel, 2001 for reviews). In a quasi-experimental prepost design, Crandall and Helitzer (2003) found that post-SANE, rates of successful prosecutions significantly increased. Such findings are promising but merited replication to determine whether such successes can be duplicated in other community contexts. Furthermore, it is important to understand *why* there may be positive changes in the legal system as a result of SANE programs. How and why does an intervention in the medical system cross-over to challenge the long-standing, deeply entrenched pattern of underprosecution in the legal system?

Developing a Mixed Methods Evaluation

Consistent with a postrealist pragmatist approach, we allowed our research questions to dictate the methods needed for our evaluation. We wanted to capture both outcome *and* process: whether SANE programs could contribute to increased prosecution rates, and if so, how? We were particularly keen to capture the processes of this intervention because, as Kazdin (2008) noted, intervention research has not paid nearly enough attention to

understanding the mediating mechanisms by which programs work. This is unfortunate because understanding how, why, and under what circumstances interventions produce desired effects helps identify critical ingredients of change. Such information may be even more impactful as it promotes the adoption of “evidence-based *mechanisms* [italics added]” (Kazdin, 2008) rather than specific programs. Such flexibility is critical because it gives communities the option of varying intervention structure and function in ways that suit local context, while retaining emphasis on the key processes that create change. Mixed methods were a natural choice because outcomes are traditionally assessed quantitatively, and qualitative methods are particularly well suited for capturing process.

For this project, we used a sequential explanatory mixed methods design (Creswell et al., 2003). This design is characterized by the collection and analysis of quantitative data followed by qualitative data. The purpose of this design is to “use qualitative results to assist in *explaining* [italics added] and interpreting the findings of a primarily quantitative study” (p. 227). In such designs, primacy is typically given to the quantitative data although Creswell et al. note that both methods can be treated as equal components, which is how we implemented this design in our project. The two methods are usually integrated during the final interpretation phase of the study, but the design can be modified to work reflexively with both methods throughout the project. Creswell and colleagues’ original description of the design characterized it as one “cycle” of mixed methods: quantitative followed by qualitative data collection. Given the complexity of our project and its twin goals of identifying outcomes and processes, our design included two full cycles of sequential quantitative and qualitative methods. In addition, because multiple stakeholders are involved in this intervention (i.e., nurses, police, prosecutors, survivors, advocates), we decided to collect data from different perspectives throughout the cycles as we suspected that the explanation for the success (or failure) of the intervention could only be understood by capturing the varied points of view of all of its major constituents.

The final design of our project is depicted in Figure 1. Starting with quantitative methods, Study 1 used a quasi-experimental, nonequivalent comparison group cohort design (Shadish, Cook, & Campbell, 2002) to compare criminal justice system outcomes for adult sexual assault cases treated in county hospitals 5 years prior to the implementation of the SANE program to cases treated in the focal SANE program during its first 7 years of operation. Study 2 also used quantitative methods to examine what characteristics of the victim, the assault, and the medical forensic evidence were associated with successful prosecution. These data were analyzed as quickly as possible to inform data collection in the next sequence in the design. For Study 3, we conducted qualitative interviews with police and prosecutors regarding their experiences working with the SANE program in an effort to explain what we had learned about the intervention’s effectiveness. In Study 4, we returned to quantitative methods for a detailed content analysis of sexual assault police reports to determine whether the nature of police investigations differed as a function of SANE involvement in a case. These data could cross-check findings that emerged in Study 3 regarding possible pathways through which the SANE program was affecting prosecution outcomes. In Study 5, we cycled back to qualitative interviews with victims/survivors about their experiences with the SANE program and criminal justice system. These data were essential for

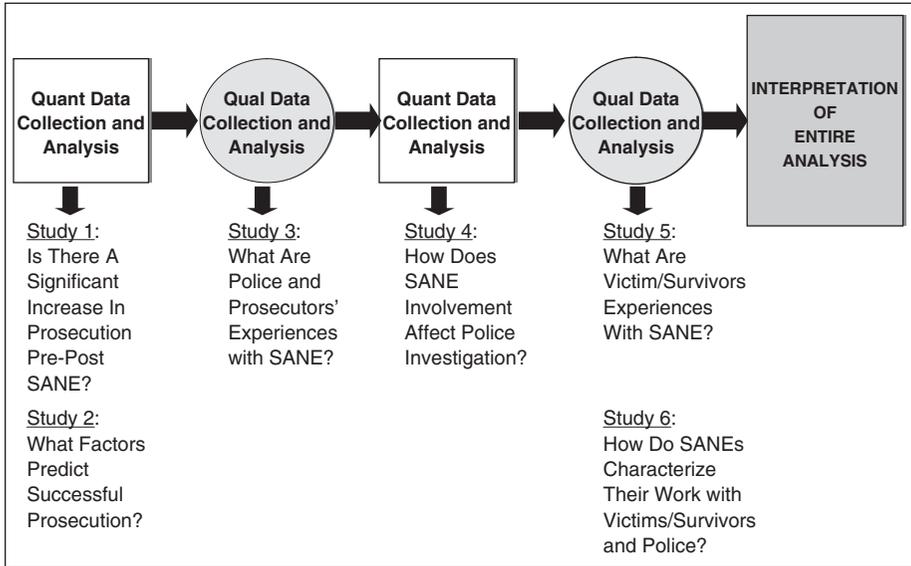


Figure 1. Multistudy project design

exploring possible mechanisms of effectiveness through a completely different point of view. Prior to conducting the final study in the project, Study 6, we completed all other data analyses to identify any unanswered questions. In these final qualitative interviews, we asked the forensic nurses to reflect on their work with their patients and with their legal community. After these open-ended discussions, we shared the findings from the other studies and asked the nurses for their interpretations and comments.

Although the purpose of this article is to examine the methods of this project, it may be useful to highlight key findings prior to discussing the challenges and lessons learned during implementation (see Figure 2). We found that prosecution rates significantly increased pre- to post-SANE and that these effects could be reasonably attributed to the efforts of the program. The nurses provided police and prosecutors with valuable evidence and also helped streamline their investigational efforts, which allowed them to invest more time and effort into these cases. With the survivors/patients, the nurses emphasized health and recovery and did not pressure them to report to the police. This focus on well-being indirectly contributed to survivors' becoming more willing and able to participate in the lengthy prosecution process.

Issues in Implementation

The story behind the design and our results is not nearly as tidy as Figures 1 and 2 would suggest. Practically, we had a serious timeline problem on our hands: We had bundled all six studies together into a single, 2-year grant. Clock ticking, we had limited time to collect

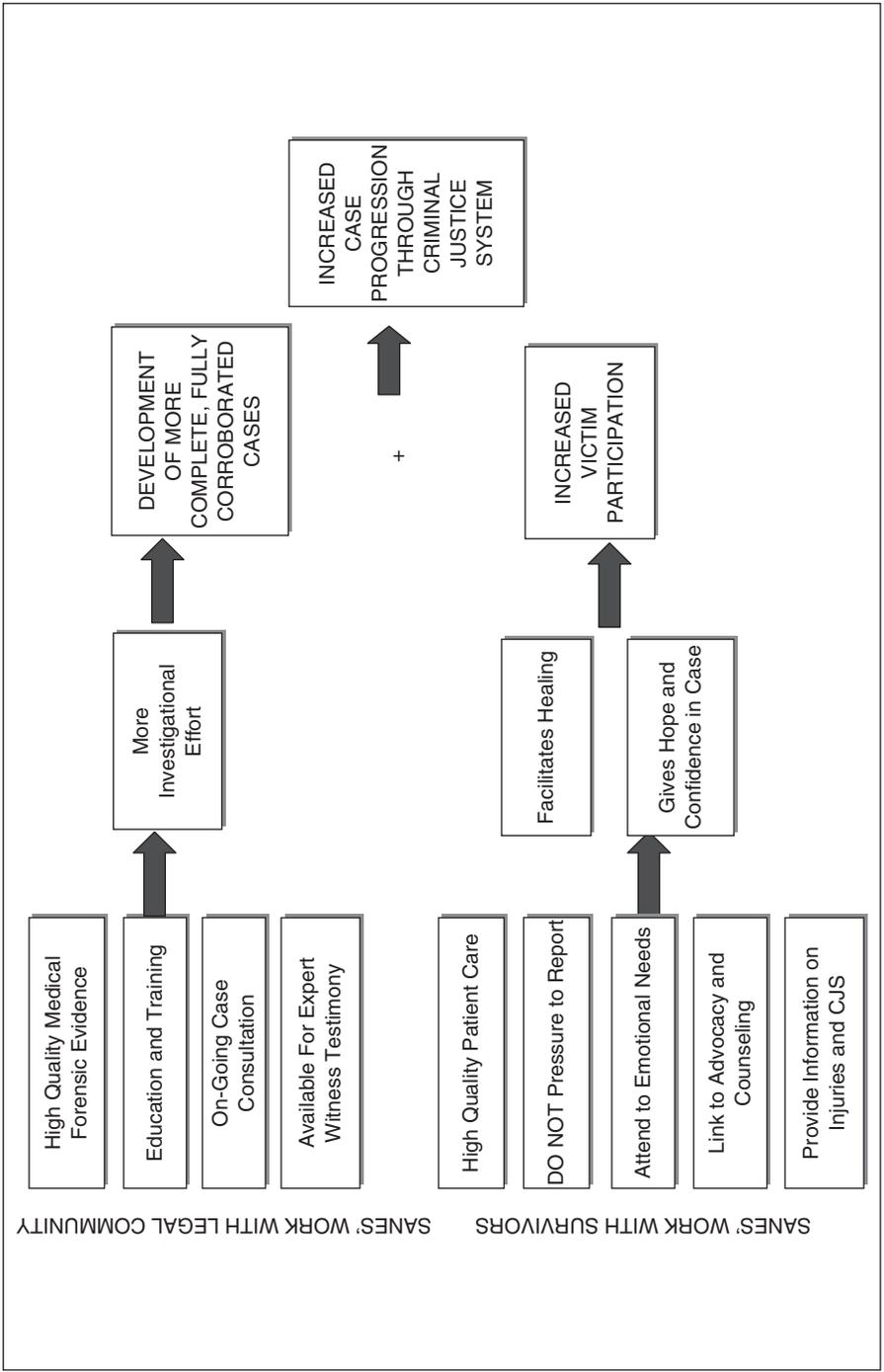


Figure 2. Summary of overall project findings

vast, diverse data and make sense of it. Beginning with the quantitative analyses to ascertain program outcomes certainly made sense, but we gained a deeper appreciation as to why many intervention evaluations stop at that question. In experimental randomized control trials, if an effect is significant, then it can quite reasonably (and quickly!) be attributed to the intervention. By contrast, community-based quasi-experimental designs typically involve more complicated analyses and often have to be supplemented with additional archival information to rule out threats to internal validity. We were in trouble early on because we needed to start the qualitative data collection to “explain findings” that were still not entirely known.

But the timeline challenges seemed easier than the real problem lurking as we transitioned from Studies 1 and 2 (quantitative outcome findings) to Study 3 (qualitative process findings). Throughout the entire project, as we left one method and sequenced into the next, we always encountered epistemological crises and difficult decisions in data collection. How exactly were we supposed to “use” our quantitative findings (the increased prosecution rates pre-post SANE) to “inform” the next method in the sequence, the qualitative interviews with the police and prosecutors? Though guided by a pragmatist epistemological position, the ghosts of positivism and constructivism haunted us. From a positivist point of view—or even a kinder postpositivist perspective—how credible would our findings be if we let our research participants know our prior results? We planned for an *explanatory* design, but we felt tangled up in the need for *triangulation*. Wouldn't it be better to see if the qualitative interviews would independently verify the results of the quantitative outcome evaluation? From a constructivist perspective, how appropriate would it be to approach qualitative data collection with preconceived notions about the nature of the story to be told?

From either point of view, it seemed we needed to keep mum about the quantitative findings in the qualitative interviews with police and prosecutors. So we struggled to forget the findings we were rushing to produce (and indeed were finalized in the midst of the qualitative data collection) and tried, to the best of our abilities as interviewers, to approach data collection with police and prosecutors from an open perspective. Over time, we began to discover how we were in fact “using” our prior findings in the interviews. When the police and prosecutor interviews naturally flowed into topics that could speak to the mechanisms of the intervention's effectiveness, our radar went off and our interviewing style shifted. We became much more targeted, using extensive probing to ferret out all information we could obtain regarding possible pathways from the SANE program to prosecution success. There was an intensity to this line of questioning that would have otherwise been quite unlikely.

We were then quite flummoxed as to which qualitative data analysis methods would be appropriate for these interview data and, unfortunately, the mixed methods literature does not yet provide much guidance on that issue. In traditional qualitative research, epistemological, methodological, and analytic options are often bundled together into different subtypes (e.g., phenomenological, grounded theory), but we didn't have “pure” qualitative data and we felt like interlopers searching for the right technique for our hybrid data. Traditional grounded theory analysis seemed inappropriate given how the data were collected. After extensive review, we reasoned that modified analytic induction (AI) could work within our

mixed methods paradigm. AI is similar to grounded theory in that both approaches work “ground up” inductively from the data to develop explanatory models. Rather than trying to develop a constructivist theory, AI techniques emphasize identifying and empirically testing qualitative “assertions” (i.e., mechanistic building blocks of a theory; Bogdan & Biklan, 2007; Erickson, 1986; Robinson, 1951). Moreover, the AI literature encouraged researchers to make use of *all* data when formulating and testing their assertions (Erickson, 1986), which we interpreted to mean that our quantitative findings need not be forgotten at this stage of the analysis.

We ended this first cycle of quantitative-qualitative data collection and analysis with findings suggesting that the intervention did contribute to increased prosecution, and we had identified clear mechanisms through which SANEs had an influential early impact on the police investigation itself. Then, we sought to repeat the cycle by returning to quantitative analyses to unpack further the influence of SANEs on police work specifically. We conducted a detailed quantitative content coding of sexual assault police reports to capture how SANE involvement in a case had a demonstrable impact on the investigation and affected the critical decision to move a case forward to prosecutors. At this transition back to quantitative methods, our intentions for using mixed methods became muddled. Though explanation had been our goal, it seemed we were drifting again to triangulation: We were wondering if the findings from the qualitative police interviews would replicate in the new quantitative police report analyses. We were still pursuing an explanation for the intervention’s effectiveness, but we saw an opportunity for a “rigorous” test of triangulation if we forced some separation between these components of the project. No doubt such ideas were rooted in unresolved epistemological confusions about the right way to collect data and make discoveries, and in our crunch for time, we duly noted this theoretical mess and moved forward.

We decided the team members coding the police files should not be the same people who did the police qualitative interviews and analyses. We began functioning in subgroups and deliberately held off on any integrative discussions until the next phase of quantitative data collection was further along. When the quantitative data were ready for analysis, we met as a collective to identify variables of interest and brainstorm ideas for possible mediational models to explore—and in that sense, we were again “using” prior findings to “inform” the next phase of work. But at the same time, the qualitative team held their tongues a bit and did not put forward all their details. Interpersonally, we all worked well together, but there were a few good-natured jabs between groups about “fumbling around in the dark” with the frustration of knowing that your friends “had a flashlight but wouldn’t let you use it.” And yet, no one was sure at this stage which set of findings really was the proverbial flashlight. When the quantitative analyses came back and indeed nicely triangulated the qualitative findings—which together advanced our explanation of how and why this intervention was effective—we all scratched our heads a bit and wondered if we had made things more complicated than they needed to be.

Meanwhile, the next piece of the project was to interview rape survivors about their experiences with the SANE program and the criminal justice system. We knew from prior projects that it can be time-consuming to recruit survivors for interview research, so these

data were collected concurrently with all other aspects of the project. Because we were so bogged down with the logistics and theoretical confusions of the prior phases, we found it easier to approach this study from a purer (but probably still not truly “pure”) qualitative perspective. These interviews were structured such that survivors were asked to describe what happened in the assault itself, and then, in whatever order they saw fit, to trace the steps of their postassault help-seeking. Interestingly, the survivors never framed their experiences solely around legal prosecution, which was a refreshing change from the rest of our data—and indeed proved to be a substantively critical piece in the puzzle. The survivors discussed how the SANE program helped them feel safe, how it helped them heal from the assault, and then we wondered why it was that the rest of our data were so clearly showing that the SANE program was contributing to increased prosecution rates. We had to consider the possibility that the survivors’ data were not going fit with the rest of the picture; for them, the SANE program didn’t seem to have anything to do with prosecution. But again, when the survivors’ interviews came around to discussing their experiences with police and prosecutors, our interviewing probed around this seeming missing link, and we discovered that it wasn’t missing; it was just indirect. The SANE program’s focus on health care and recovery did in fact eventually lead to survivors’ increased engagement and participation in the criminal justice system; they were more ready, willing, and able to deal with the challenges of the investigation because the initial trauma of the assault has been responded to so effectively by the SANE program staff. From these data, the explanation of the intervention’s effectiveness became far more complete and nuanced.

At this point, the exhaustion of different methods of data collection and analysis—Team A knowing X, Team B knowing Y—had almost gotten the better of us, so we put all findings on the table, figured out what we knew, and made a list of unanswered questions, potential contradictory findings, and odd things that did not line up. That list of unknowns became the guiding force in our final data collection, the qualitative interviews with the SANE nurses themselves. This was our last chance to put the pieces together, and vestigial concerns and pretenses about postpositivist and constructivist notions of right and wrong fell by the wayside. It was only at the end that we functioned as mixed methodologists where all data were allowed and all team members knew everything and shared everything. Such openness was instrumental for identifying the ultimate explanation of the intervention’s effectiveness: The SANEs work in parallel processes with their patients and with the police, and these separate pathways are mutually reinforcing, thereby contributing to increased prosecution. Ironically, our own parallel methods came together in the end as well.

Conclusion

We began this project well-versed in the mixed methods literature, and we had a methodologically diverse research team with staff trained in both quantitative and qualitative methods—and our experiences were still quite challenging, but perhaps that’s the nature of innovation. The epistemological issues were surprisingly sticky as we had assumed, perhaps naively, that the pragmatist approach of giving primacy to the research questions would somehow avoid entanglements. But precisely because we had histories with postpositivist and constructivist approaches, we had no choice but to try to reconcile these conflicts. In an

unorthodox solution, we divided into subgroups, consistent with Creswell and colleagues' (2003) notion that different components of a project can indeed be guided by different paradigms, and then rejoined in the end for the kind of dialectical debates advocated by Green and Caracelli (1997, 2003). In other words, we had to draw from multiple theories of mixed methods research to find our way through. The closure we experienced at the end was more exhaustion than epiphany because it is a little difficult to reflect critically when the meter's running. We hope our candid reflections on our struggles will spark more dialogue about how to bring theory and practice into closer alignment in mixed methods research.

Our goal was to explain how and why a SANE program contributed to increased prosecution rates, and to that end we believe we succeeded. The resulting model could not have been produced with only one type of data or one stakeholder perspective. For instance, without the qualitative data from the survivors themselves, we may have erroneously concluded from the quantitative data that SANE programs should directly encourage victims to report and prosecute their assaults. Our findings seriously question the utility of such recommendations. The SANE program's de-emphasis on legal matters and focus on patient health was paramount, and in the end, this practice philosophy did contribute to increased victim participation in the criminal justice system. We did not fully understand that fact until we interviewed the SANE nurses; this was the only component of the study in which we were working more fluidly with multiple data sources. Of course, our study did not compare SANE programs with different practice models, so we cannot conclude that prosecution messages would be detrimental. Our point here is that even within our own project, we would have come to different conclusions without the use of multiple methods. We were successful in explaining the mediating mechanisms of this intervention's effectiveness—or as Miles and Huberman (1984) might have said, our research “got done”—precisely because we used multiple methods from multiple stakeholders.

Authors' Note

The opinions expressed in this document are those of the authors and do not reflect the official position of the U.S. Department of Justice.

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Bios

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