

Mixed Methods in Disease Prevention and Health Promotion Research

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Lecture Draws on Material

- *L. A. Jason & D. Glenwick (Eds). (2016). Handbook of Methodological Approaches to Community-Based Research: Qualitative, Quantitative, and Mixed Methods. Oxford University Press.*
 - Handbook intended to contribute to the maturation of community-oriented research by utilizing a wide array of contemporary qualitative, quantitative, and mixed methods approaches that are theoretically sound, empirically valid, and creative
 - Addressing in a fresh and innovative manner questions of import for the communities in which they work

Definitions

- Mixed-methods approaches combine qualitative and quantitative methods within the same study or project
 - Quantitative research often based in positivism, or the belief in a single reality accessible through scientific procedure
 - Qualitative studies are grounded in a constructivist paradigm (Ponterotto, Mathew, & Raughley, 2013), and rather than a single, universally shared reality, each participant has his or her own reality

Qualitative Approaches

- An emphasis on the meaning of the phenomenon under consideration to those who are experiencing it
- Data that typically consist of words, providing "thick description" of the participants' experiences
- Active collaboration between the researchers and the participants throughout the research/intervention process
 - Examples of qualitative methods are participant observation, qualitative interviews, focus groups, and case studies

Quantitative Approaches

- An emphasis on trying to establish cause-and-effect relationships
- Data that typically consist of numbers, obtained by the use of standardized measures
- An attempt to produce generalizable findings, as opposed to qualitative approach's focus on specific contexts
 - Illustrative of quantitative methods are quantitative description, randomized field experiments, nonequivalent comparison group designs, and interrupted time-series designs

Valerie Anderson (2016)

- All research methods have limitations
 - Mixed methods studies use both quantitative and qualitative methods to offset each other's strengths and weaknesses
 - Mixed methods provide a more nuanced understanding of research questions than a single method can accomplish

Types of Mixed Methods

- Often mixed methods are hierarchical
 - One method is usually the dominant or more central method to the study, while the other method acts in a supporting role.
- Mixed methods may also be sequential
 - First using an exploratory method for discovery
 - Later using a confirmatory method for justification.

Tashakkori & Teddlie (2003) posited 35 distinct types of mixed method designs

- Morse (1991) developed one of first typologies
 - The dominant method is represented using all capital letters (e.g., QUAN, QUAL) and the complementary method is represented using all lower-case letters (e.g., quan, qual)
 - An arrow (\rightarrow) is used to denote a sequential design, and a plus sign (+) is used to denote a concurrent design

Morse's (1991) Nine Combinations

- Equivalent, simultaneous designs
 - QUAL+QUAN
- Equivalent, sequential designs
 - QUAN→QUAL
 - QUAL→QUAN
- Dominant, simultaneous designs
 - QUAN+qual
 - QUAL+quan
- Dominant, sequential designs
 - (QUAN→qual; quan→QUAL; qual→QUAN; QUAL→quan)

Wiggins (2011) outlined three ways in which mixing occurs

- **Triangulating** allows for converging findings to use multiple methods to increase the study's validity
- **Demarcation** refers to how the methods are related
 - quantitative as the dominant method and qualitative as the secondary method
- **Reclassification** refers to how both qualitative and quantitative methods can be used in exploratory and confirmatory ways

Campbell et al. (2012) Pluralistic Study Also Known as a Mixed Methods

- Mixed methods research can occur within the confines of a single study or can exist at multiple levels
 - In one study, a mixed methods approach incorporates both quantitative and qualitative data collection and analysis
 - a *pluralistic research program* reflects pluralism across a program of studies conducted by the same team on one topic
 - finally, *pluralistic research disciplines* are fields of science or scholarship in which a balance of study designs and analysis techniques is used in publications
 - (e.g., community psychology)

Pluralism across a program of studies conducted by the same team

- DePaul University team has been studying recovery homes called Oxford Houses for over 25 years
- Oxford Houses have no professional staff and are completely self-run
- They are the largest self-help recovery residential program in the US (over 2,000 homes)
- Can live there as long as they want, but need to stay abstinent, pay share of rent, and follow house rules

Developing the Collaboration

- Our research relationship with Oxford House began with a phone call to Paul Molloy, the co-founder and leader of the organization
- More than a full year of conversations followed, and trust slowly developed between the community organization and the research group
- An Oxford House representative was eventually sent to Illinois to set up recovery homes
- For the first year, we collected no formal data but spent time attending Oxford House business meetings and building up relationships of mutual trust

Early steps

- Our Oxford House partners attended our research meetings and tape-recorded them so that their members could learn what we were thinking about doing, and so that everyone could have input into this process, if they so wished
 - We did not just start off by collecting data
 - Focused on building a trusting relationship with our community partners
 - Determined together what questions should be addressed
 - What kind of data should be collected
 - Who should collect the data

First Studies Were Mixed

- Attempted to understand the reasons for why residents chose Oxford Houses to live
- Gathered sociodemographic and substance use history on residents

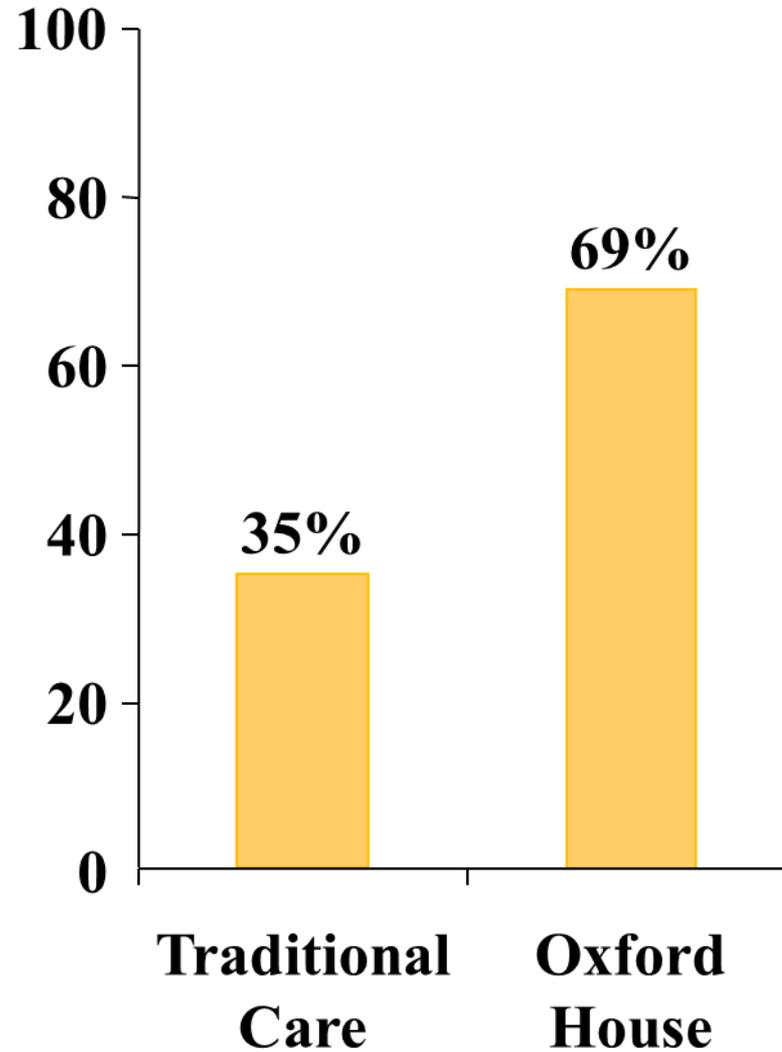
During the 1990s

- Our research group submitted a number of grant proposals to collect longitudinal data from Oxford House members
 - but NIH reviewers kept asking us to conduct a randomized design to determine whether or not the recovery homes could lead to reductions in substance abuse
- We kept informing the grant reviewers that a randomized design was not feasible as each Oxford House voted on whether to allow new members to live in their house
- When we finally approached the founder of Oxford House, Paul Molloy, with this predicament, he said that he would work with us toward a randomized study
- The willingness of Oxford House leadership was likely a direct result of years of mutual trust-building we had been involved in with the organization, as well as conducting a number of collaborative pilot studies

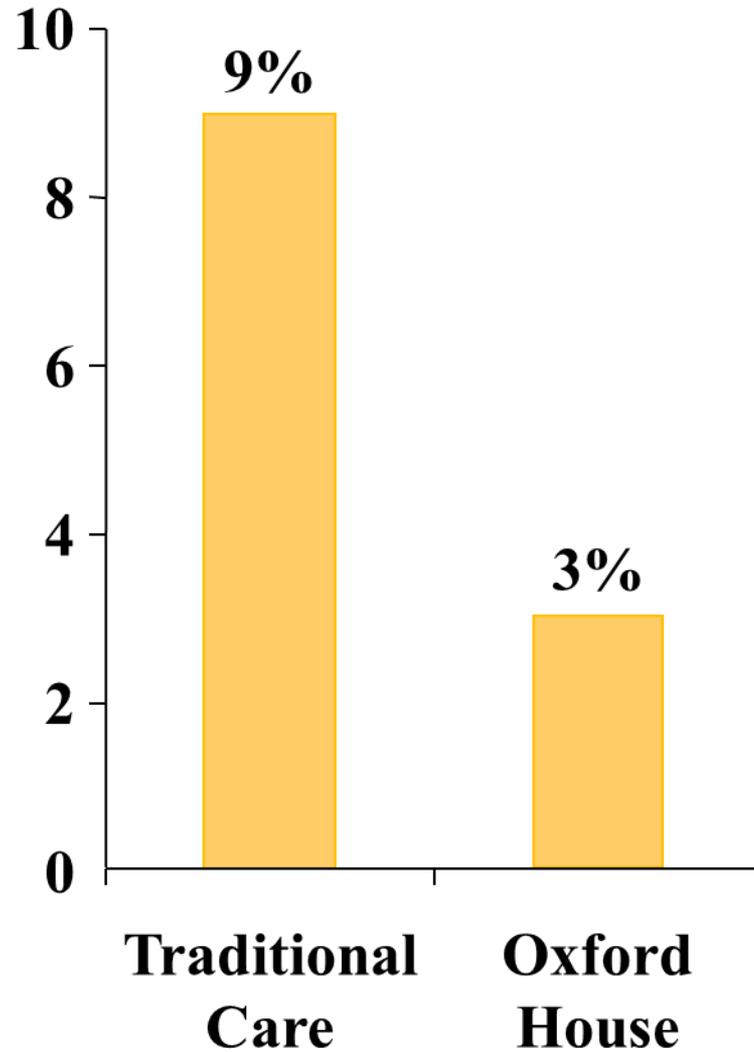
With NIH Funding

- The randomized, quantitative, 2-year longitudinal study, funded by the National Institute on Alcoholism and Alcohol Abuse (NIAAA), included 150 participants recruited from a variety of inpatient treatment centers throughout Chicago, Illinois
 - Participants assigned to Oxford House or Usual Aftercare
- Those in the Oxford House condition, over a two-year period, had significantly less substance use, higher employment, and lower criminal justice-related outcomes (Jason, Olson, Ferrari, Majer, Alvarez, & Stout, 2007).

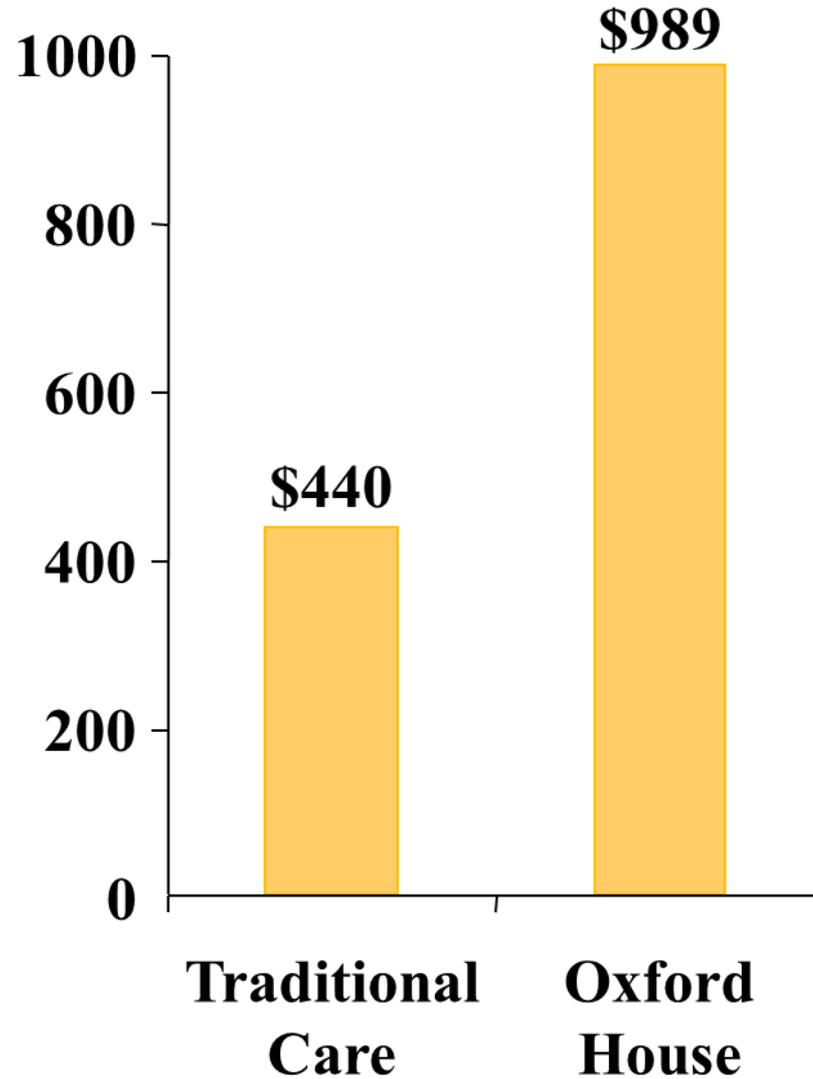
Abstinence Rates



Incarceration Rates



Monthly Income



Overview of OH research (May, Hunter & Jason, 2017)

- A multitude of quantitative, qualitative, and mixed methods study designs and data analyses were used in subsequent studies
- As one example, there is a paucity of literature on the role of natural mentoring relationships in substance abuse recovery
- Lawlor, Hunter, Jason, and Rosing (2014) used focus groups paired with a series of empirically validated quantitative measures to better understand natural mentoring relationships

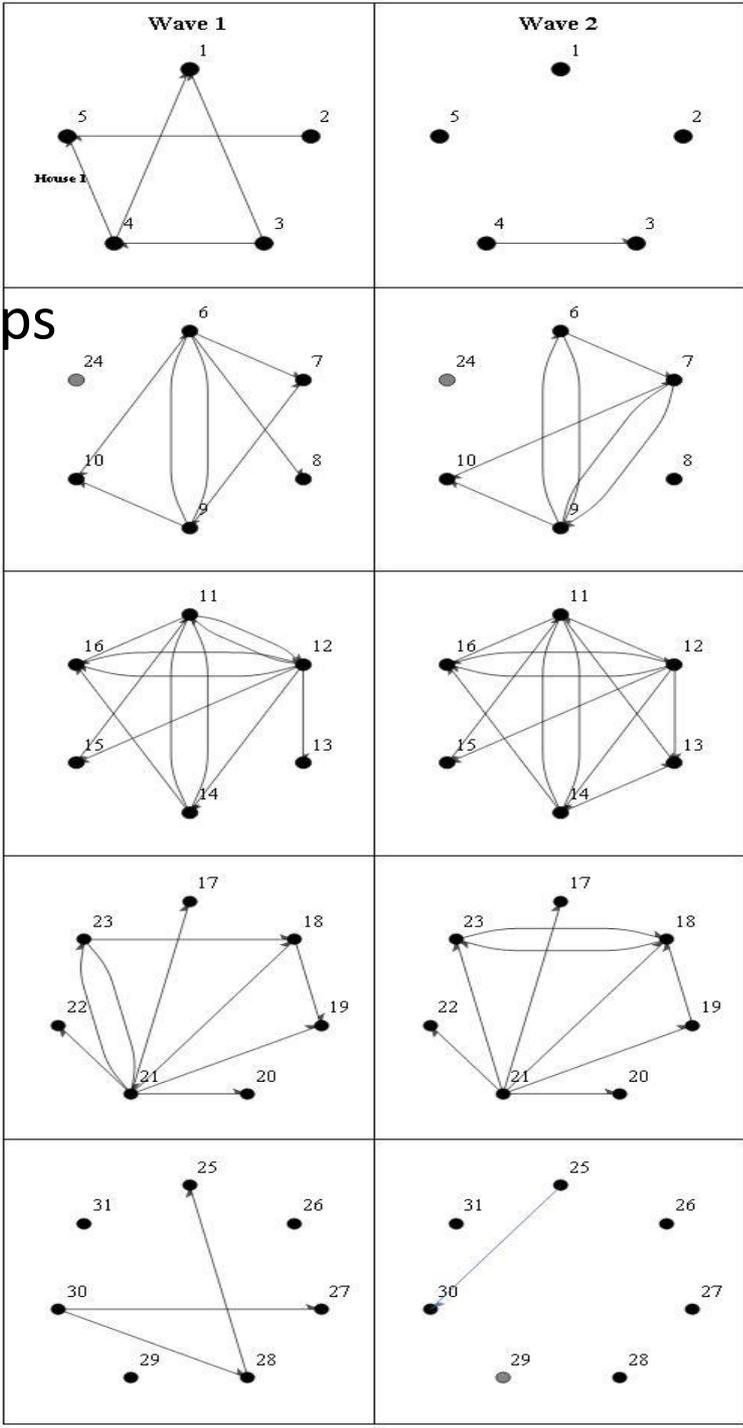
Qualitative

- Focus group questions were created with the input of Oxford House residents, and the nature of these mentoring relationships was described during focus groups. As an example of the richness of this approach, one male participant explained:
 - “I usually go to any one of the guys. That’s why I put five on there (on the survey, regarding the number of mentors in the house). I didn’t just put one ‘cause we all have different personalities, so there’s certain things that you can speak to, certain individuals that will help you out that will lead you the right way”

Quantitative findings

- Quantitative results showed that mentoring characteristics and activities predicted social support and helping behaviors.
- The use of both quantitative and qualitative methods in this study provides rich empirical support for the characteristics of natural mentoring relationships and their importance for Oxford House residents.

Figure 1.
Trust Relationships



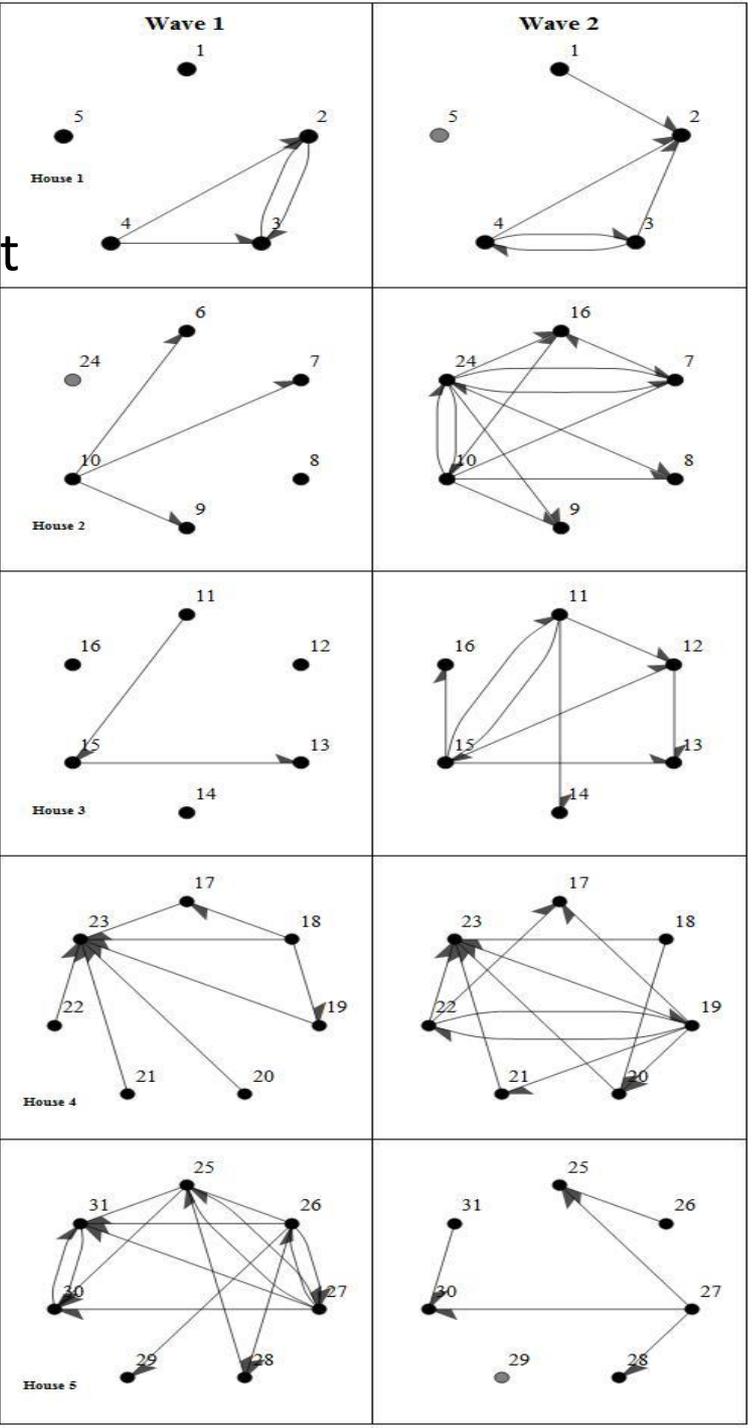
Wave 1: 5 out of 31 dyadic trust linkages are mutual (16%)

Wave 2: 5 out of 25 dyadic trust linkages are mutual (20%)

Trust relationships tended to be a bit more symmetric

Non-resident ●

Figure 2. Confidant Relationships



Wave 1: 3 out of 24 dyadic confidant links are symmetrical (12.5%)

Wave 2: 3 out of 30 dyadic confidant links are symmetrical (10%)

Element of role specialization – designated “listener” does not generally confide in the other person

Non-resident ●

Sequential Mixed Methods

- The methods and results of one Oxford House study often shed light on the results of another study or inspired the design of a new study
- While conducting a nationwide longitudinal study on Oxford House (Jason, Davis, Ferrari, & Anderson, 2007)
 - through qualitative findings and discussions with members of the Oxford House organization, found that Latinas/os were underrepresented among Oxford House residents.

Sequential Mixed Methods (cont.)

- This awareness stirred curiosity about Latinos' perceptions of Oxford Houses and recovery and potential barriers that Latinos/as encounter when entering an Oxford House.
- To address these questions, the researchers, with help from the Oxford House organization, conducted a series of qualitative studies that revealed that Latinos/as had a positive recovery experience in Oxford House and that more Latinos/as could potentially benefit from participating (Alvarez et al., 2004; Alvarez et al., 2009).

Quantitative Study and NIH Grant

- The findings of these two qualitative studies influenced the development of a quasi-experiment in which Latino residents of traditional recovery homes were compared to Latino residents of culturally modified homes (Jason, DiGangi, et al., 2013) with funding provided by NIH.

Use an Example from Another Area

- CFS or ME
 - As debilitating as type II diabetes mellitus, congestive heart failure, multiple sclerosis, or end-stage renal disease (Anderson & Ferrans, 1997; Buchwald, Pearlman, Umali, Schmaling, & Katon, 1996)

Stigma

- Over the past three decades, a series of key decisions were made concerning methods for gathering prevalence data, the name, and treatment approaches for ME and CFS.
- Many of these decisions were formulated within a societal and political context in which this illness was assumed to be a psychologically generated problem.
- Physicians have also regarded fatigue as one of the least important presenting symptoms.

Mixed Methods

- Mixed methods are especially suitable for research in the pursuit of social justice for marginalized populations, because it is more sensitive to context, and is more likely to uncover power differentials and to give voice to participants.
- In such controversial community contexts, the employment of a purposeful, multiphase, mixed methods program, coupled with the values of community psychology, can be a tool especially suited
 - to provide patients, health care workers, scientists, and government officials less stigmatizing ways of understanding this illness

Epidemiology

- CDC in late 1980s conducted studies suggested ME and CFS were relatively rare disorders, primarily affecting Caucasian women.
- Listened to patient groups who challenged these findings.
- Our group launched a community-based study that randomly selected those with symptoms who medically worked up.
- Our estimates suggested rather than 20,000 people affected, more like a million (Jason et al., 1999).

“Sequential-nested” sampling procedure (Jason & Reed, 2015)

- We examined a cohort 10 years following the completion of our epidemiologic, community-based study that occurred in 1995-1997 (Jason et al. 1999).
- In this study, we collected data on those whose ME and CFS persisted over a 10-year period, those who developed this illness over this period of time, and those whose diagnosis remitted over the past decade.
 - (Jason, Porter, Hunnell, Rademaker, & Richman, 2011)

Quantitative Outcomes

- Quantitative methods involved re-contacting the participants and giving them a complete medical and psychological evaluation.
- Our quantitative data suggested that prevalence rates had remained somewhat comparable over this decade.
- Helping to answer an important question: Were illness rates increasing, decreasing, or staying the same?

Qualitative Methods

- Qualitative methods were used to provide us with a deeper understanding of the interaction of the multiple systems involved in this chronic illness, as well as to hear the voice of the patients.
 - (Anderson, Jason, & Hlavaty, 2014)
- A coding system was developed through a grounded theory framework in order to focus on the context-dependent and structural processes within the data.
 - (Glaser & Strauss, 1967; Strauss & Corbin, 1990)

Qualitative Themes

- The community response to the illness included themes centering around how members from the medical community, as well as other related networks such as support groups, understand and respond to the illness.
 - As an example, many patients mentioned that they experienced negative attitudes such as physician minimization of their illness.
 - Furthermore, many respondents told of their obstacles to securing disability in a climate where the illness encounters disbelief.
 - Identifying the community response to the illness was an essential component of understanding the systems involved with the experiences of its sufferers.

Benefits

- Qualitative methods allowed us to better understand the experiences of the patients who had been identified in the epidemiologic study.
- Provided us an opportunity to look at the connection of illness to the distribution of power and privilege within the medical community, as well as the social response to chronic illness and health care.
 - Thus, we found as Ponterotto et al. (2013) suggest, that mixed method approaches can provide, “...multiple windows into the lives of the less empowered and historically silenced within our society” (p. 47).

Distinctive Benefits

- Qualitative methods were used to help us develop better quantitative methods to study epidemiology, using community-based samples.
- The sample generated was subsequently used to probe qualitative features of the illness experiences of patients.
- Quantitative research provided us data on the magnitude of this illness.
- Qualitative methods allowed us to better understand the unique challenges and stigma that the patients had experienced from their families, friends, and treatment professionals.

Further Studies

- These data were ultimately used to provide better appreciations of the magnitude of the effects of this illness on patients.
- Used these data to estimate the economic costs of this illness to our nation.
 - (Jason, Benton, Johnson, & Valentine, 2008)

Mixed Method Approaches

- This approach more accurately represents the illness to family, friends, and health care professionals, and thereby has the possibility of improving the services to those affected.
- Such integrated and value-based approaches are useful for the purpose of advocacy research that works toward the understanding and empowerment of other, similar groups who may experience negative social perceptions and dismissive treatment.

Challenges

- No definitive guidelines for how to conduct a mixed methods study.
- Integrating multiple data sets is a complex task, especially when they come from different methodological traditions.
- There is a lack of in-depth training by scholars in both methodologies.
- Challenges in publishing due to page and word limits in journals.

Benefits

- Mixing methods can enhance the validity or trustworthiness of inferences and assertions by providing mutual confirmation of findings.
- Mixed methods designs can provide deeper exploration of causal mechanisms, interpretation of variables, and contextual factors that may mediate or moderate the topic of study.
- Mixed methods research can facilitate the development of culturally appropriate instruments and foster a deeper understanding of the phenomenon of interest.

Conclusion

- Quantitative procedures have the most power to appeal to collaborators in funding and policy.
- Qualitative studies are more likely to empower community members and gain insights into how to identify and work with participants.
- As noted by Jason and Glenwick (2012)
 - “...formative mixed methods studies can be instrumental in learning how to access and develop trusting relationships with different sectors of a community” (p. 53).
 - Combining these methods can be most effective when undertaking community-based issues.

A key question: How to Correct Science

- Mixed methods might be a way of correcting Science when it strays as a science from its empiric/heuristic roots/processes.
- It is a side of Science that needs the telling in rigorous, dispassionate tone.

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