

The Use and Misuse of Q Methodology in Health Research

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The International Society for the Scientific Study of Subjectivity (ISSSS) is the most interdisciplinary of societies to which many of us, perhaps any of us, will ever belong. Typically interdisciplinary associations reflect a certain content area that captures the attention of a diverse cadre of scientists and professionals with different backgrounds, educational preparation, and focal interests. All of these individuals use their unique and collective expertise to explore the intricacies and complexities of a particular phenomenon, unravel its enigmas, and solve its problems. In the field of health care, aging, obesity, cardiovascular disease, and cancer are a few among many targets pursued by well-developed interdisciplinary societies and associations. As broad as these areas are from their content perspectives, health research content is focused, and the vast majority of the disciplines involved emanate from the goals of regaining or maintaining health.

ISSSS, in contrast, encompasses an essentially unlimited number of substantive areas of subjectivity explored by an almost unlimited number of disciplines. The disciplines currently represented by the members of ISSSS are but a microcosm of the many that could and will be represented as more researchers become enlightened about the scientific study of subjectivity. The handful of people who gathered in Columbia, MO in 1985, even before there were any thoughts about an official organization, and those who joined in the early years thereafter, have watched the continued expansion of the scientific study of subjectivity within and across disciplines. The health field is one multi-disciplinary area where the use and visibility of Q Methodology have markedly increased in recent years.

Q Methodology and Health Care Providers

In 1966, one of the earliest Q studies in the health field examined decision-making among team members on a psychiatric ward. Steve Brown used this

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example on two separate occasions to portray the difference between the statistical and theoretical significance of factors (Brown 1978; 1980). This study still stands as compelling rationale to explain why it may be important to retain factors with few significant loadings, even those with only one. Four factors emerged in this study of decision-making:

equality and informality of the therapeutic counter-elite (psychologists)
 two ambiguous intermediary factors of the nursing staff (unlicensed)
 order and hierarchy of the ideological elite (physician).

In terms of statistical criteria, the fourth factor would never have been retained, since it contained only one pure loading and had an eigenvalue less than 1.0. However, the one purely saturated loading represented the view of the ward physician, who was the ultimate decision maker on the team. Because of the chain of formal authority, the physician's views always carried, no matter how heavily the other factors were represented among the team members. The subjectivity that created the major conflict on the ward team never would have been elucidated if the factor defined by the key decision-maker had been discarded.

In the next 20 years there was a smattering of studies in health that involved Q, but many, although certainly not all, used Q sorts without paying heed to the full research tradition that is Q methodology. All disciplines manifested difficulties in this regard, not just those in the health field, but it seems that the health-related disciplines could not comprehend, perhaps were not willing to comprehend much less accept, this very different approach, and inroads have been exceptionally difficult to make. Perhaps the early, and sometimes persistent, difficulties were fostered and supported by a health field that has long been a bastion of hypothetico-deductive approaches to research. "Objectivity" reigns supreme, and self-reports of subjective phenomena are denigrated and thrust aside. The discipline of nursing which embraces multiple ways of knowing, such as large sample, small sample, descriptive, correlational, experimental, phenomenological, ethnographic, grounded theory, or other type of design used to answer the research question has embraced and adopted Q into its methodological repertoire. There are exceptions, but in general nursing investigators continue to publish, as they have over the years, quite a number of articles that only purportedly use Q methodology, in what has become a long-standing disruption of Q's epistemological approach.

Nevertheless, MedLine, an index of more than 4000 biomedical journals, indicates an increasing number of publications that involve Q in health-related disciplines between 1996 and 2001. Since the MedLine database does not index all health-related journals, the examples that follow should be considered indicative rather than exhaustive. During the most recent 5-year time period, Q methodology has been used to:

- assist a hospital in its strategic planning (Popovich and Popovich 2000)
- examine the needs of support staff in an emergency department (Chinnis, Paulson, and Davis 2001)
- ascertain professionals' understanding of risk and quality management (McKeown et al. 1999)
- examine physicians' attitudes about computer usage and computer education (Barbosa et al. 1998)
- explore physician and medical student acceptance or resistance to new information technologies in the workplace (Valenta and Wigger 1997)
- examine nurses' understanding of their industrial relations (McKeown, Stowell-Smith, and Foley 1999)
- study the quality of care received during an inpatient stay (Brown 1996)

Q Methodology and Patients

Along with these studies, most of which focus on health care providers, Q methodology is being used more often to understand people's health and disease-related concerns. In their current state of evolution, many topics reflect single-study investigations rather than a program of research or a focal point of numerous investigators. But for patients, providers, and investigators, this is an important start.

Pain, both chronic pain and that encountered in everyday life, is an important patient concern. In a study of chronic pain, four factors emerged that were named for the people from the respondent group who defined them rather than for the conceptual themes that emerged through factor analysis and abductive interpretation. (Eccleston, Williams, and Rogers 1997). These factors were:

- the patients' account (where the dominant theme is the contested reality of the pain and the conviction that it always has a physical origin)
- the professionals' account (chronic pain is the result of a dysfunctional reaction to what are often quite minor, natural pain-evoking events, where the patients have lost control and developed bad habits)
- the scientists' account (pain generally has a physical origin such as incorrect lifting or bodily strain, and is not psychogenic)
- the alternative practitioners' account (pain emanates from the harmful effects of modern living).

Common to all factors were the related themes of responsibility and blame. Patients shifted the responsibility of chronic pain to the physicians, and blamed them for bad advice, poor pain management, or poor medical practice in general. Along with attributing pain to the medical profession, patients actively denied that any blame could be attached to the sufferer. In contrast,

physicians rejected the invincibility of medicine and the idea that medicine was a panacea. Another commonality among all factors was the need to protect the identity. Patients focused on the legitimacy of themselves as victim and chronic sufferer, while physicians resisted the notion that the discipline of medicine defines the professionals who practice it. The disparities and distances between patients' and professionals' viewpoints that emanated from this study which used the epistemology and technique of Q would have been lost in data analysis that summed responses across all individuals and provided one rank-order of items.

In a more recent study of everyday pain, eight accounts (factors) were derived (Aldrich and Eccleston 2000). These were pain as:

- malfuction
- self-growth
- spiritual growth
- alien invasion
- coping and control
- abuse
- homeostatic mechanism
- power

That there were eight very different accounts of everyday pain is a striking finding, for they underscore the diversity of meaning in the pain experience. It is widely acknowledged that the degree of pain for the same "objective event" is not the same across patients, and from this study comes the important knowledge that the meaning of pain also is not the same.

Symptoms and experiences of a specific disease were pursued in a study of Irritable Bowel Syndrome (IBS) (Stenner, Dancey, and Watts 2000). IBS refers to a collection of gastrointestinal symptoms that affect up to 22% of the Western population. This particular study was conducted to discover how people with IBS understand the nature and causes of their illness. Seven factors were identified as:

- IBS caused by worry and stress
- a problem of body, not mind
- depressed, stressed, and despairing of doctors
- a partly psychological problem with definite physical consequences
- IBS caused by past childhood trauma and present stress and diet
- disillusioned and suffering, but strangely attached to IBS
- the responsibility axis (which was bipolar, but it attributes responsibility to the sufferer and unhealthy lifestyles)

These seven factors provide clear and distinct meanings that IBS has to those who suffer from it, and the very different ways these individuals try to make sense of their chronic disease whose cause is uncertain, cure is

elusive, and trajectory is not life-threatening. Thus, interventions to help people cope with its unremitting place in their lives, manage their symptoms, and deal with their sequelae most likely will need to be targeted to the person's own viewpoint. Such diversity in perspectives, and perhaps the ensuing interventions, would not have been known if all participants' responses had been grouped into one global list.

To determine whether depression is an inevitable outcome of childhood bereavement experiences, one investigator studied middle-aged adults whose childhood experiences included the death of a parent (Hurd 1999). Four unique types of childhood bereavement, which provide insight into what might need to be four unique approaches to helping these individuals as children and as adults work through the bereavement process. These were:

- appreciation of the lost parent, expressed both as "gratitude" and as "increasing in value"
- frustration over the brief duration of the parent's influence in their lives
- enmeshment in the bereavement experience, to the extent they were haunted by emotional insecurity in adulthood
- ambivalence, where the deceased parent was either a negative or non-influence in their lives, yet they saw traces of the deceased parent in themselves.

Nominally Q but not Actually Q Methodology

Unfortunately, studies in the health field continue to be published that claim to use Q methodology when they really do not. These studies provide strong evidence that mention of "Q-sort methodology" in titles and abstracts can be a warning indicator that some kind of a sorting mechanism was used for the collection of data, but the methodological approach followed a classical quantitative or qualitative research tradition.

A study that was conducted in ten emergency departments to differentiate non-abused injured women from abused injured women yielded unexpected anecdotal data related to the helplessness and silence of the abused women (Pakieser, Lenaghan, and Muelleman 1999). Comments written in margins or in other white space of questionnaires provided compelling testimony to the abuse these women experienced in their lives. All of these comments were extracted by the investigators and written on individual cards, which the authors labeled a "modified Q-sort method," although that was never described in terms of procedure or analysis. However, the investigators used a qualitative phenomenological approach to interpret the meaning, item by item, and the study had nothing to do with Q at all.

A study of the cognitive and emotional needs of patients receiving genetic counseling provided a rather extensive description of Q methodology in the background section (Staley-Gane et al. 1996). However, this description was

drawn from articles published more than a decade previously in an era when Q methodology was even more widely misunderstood than it is today, and the investigator misconstrued Stephenson's *Study of Behavior* (Stephenson 1953). Sixty-four separate univariate analyses of variance (four analyses on each one of 16 items) in this study should sound an alarm for even the most adamant R investigator, never mind Q.

A component of a larger longitudinal project of transition to parenthood examined the antecedents and cross-sectional predictors of young children's attachment based on "Q-sort methodology" (DelCarmen-Wiggins et al. 2000). Attachment security was appraised with an existent Q-set that focused on the quality of secure behavior in a home environment. A "higher Q-sort score" represented more secure attachment when the data were analyzed within the tradition of R.

In a study at the other end of the age continuum, factors that facilitate positive changes in dementia care as perceived by long-term care employees were elucidated through "Q-sort methodology" (Kovach and Krejci 1998). Three experts, one of them "a researcher with Q-sort expertise," reviewed a set of 50 facility factors, a set of 50 personal factors, and the instructions given to participants. In stark contrast to the analysis of data in Q methodology, the investigators derived real and ideal rank orders of all 50 items across all participants then correlated these rank orders to ascertain the agreement between them. One can only wonder about the knowledge the investigators might have generated if they had really used Q methodology and second-order factor analysis to examine this phenomenon.

The Care-Q instrument has been used to assess the importance that patients, families, and nurses attach to nursing care behaviors in an acute health setting (Larson 1984). However, the use of Care-Q involves only a card sort rather than the full richness of the epistemology and technique of Q. One recent study using CARE-Q involved cancer patients and staff (Larsson et al. 1998), while another provided a Chinese cultural perspective of nurses' caring (Holroyd et al. 1998). Findings from these studies did not reflect the depth of diversity and understandings of their respective participants.

Lessons Learned and Strategies

Unquestionably, all Q methodologists can cite similar methodological misunderstandings and deviations in some of the current works of their own disciplines. The fact that there are so many health-related studies indexed in MedLine that actually used the epistemology and technique of Q methodology is greatly encouraging. On the other hand, considering the frequency of studies that purportedly used Q methodology but really didn't, what are the "lessons learned?" What may enable Q methodologists to work more effectively in helping other investigators to understand what Stephenson meant when he

wrote: "The *concern* is with a methodology for a science of subjectivity, and not merely with a technique"(Stephenson 1983).

In moving forward, it is important to acknowledge Stephenson's comment that: "It has never been an objective, nor was it possible, to be restrictive about the uses to which Q technique may be put"(Stephenson 1983). For investigators who may find that the use of a Q sort makes it easier for participants to rank order items, or to give items a score on a Likert scale, then the technique may make a contribution to identifying or elaborating a body of knowledge. However, it is important to be clear that using a Q sort to collect data does *not* constitute Q methodology, and in that particular study, the terms should not be linked. It would be even clearer if the term "card sort" or "item sort" was used when the epistemology and technique of Q are not integrated. However, "Q sort" is likely to live forever as a generic term, much as we use the verb "to Xerox" even while other manufacturers produce equipment using the general process of electrostatic photocopying.

Several investigators at the 17th Annual ISSSS Conference discussed strategies to facilitate more sophisticated and in-depth use of Q methodology so that Q is implemented to the fullest extent of its capabilities. Seminars on advanced topics that become incorporated into research conducted by ISSSS members constitute one approach to achieving that goal. Here's another.

Similar to the warning indicators that accompany the words "Q sort methodology" in a title, there is a kind of parallel practice that Q methodologists engage in when giving titles to their research that also is troublesome. Perhaps it reflects the stage of our evolution, but it warrants thought and attention, for this also may contribute to advancing the use and richness of Q methodology.

Dr. Elazar Pedhazur wrote a book on multiple regression, and in some circles he is known as "Mr. Multiple Regression." A number of years ago he gave a presentation at a methodologically oriented conference devoted to R. He was adamant in his emphasis that investigators who used multiple regression to analyze their data were *not* conducting multiple regression studies. Multiple regression was the approach to *data analysis*; it was not the *title*. For example, a study that might have been titled "Personal and situational predictors of depression: A multiple regression study" is not a study about multiple regression. It is a study of personal and situational predictors of *depression*. Dr. Pedhazur urged investigators to stop at the colon and leave multiple regression out of the title. The words "multiple regression" belong in the abstract; they belong in the manuscript. They do not belong in the title.

An extrapolation of Dr. Pedhazur's message led me to examine titles on studies that use Q methodology. The 24 volumes of *Operant Subjectivity* and the 17 annual conference programs provide numerous examples that show

investigators using Q methodology have fallen into the same practice as those using multiple regression. Continuing with the previous fictitious example, there would be many studies with titles such as: “A Q methodology study of faces of depression” or “Faces of depression: A Q methodology study.” Why not just “Faces of depression?”

What difference does it make? The investigator or clinician seeking to understand more about *depression*, but who understands nothing about Q methodology, may pass over a study with Q methodology in the title, thinking it focused more on the methodology than the phenomenon. This is very likely in the health field and perhaps other fields as well. But more than that, the question “What difference does it make?” can be countered with another, “What purpose does it serve?” Methodological articles are different, because they indeed do focus on the methodology. But when the focus of the work is the phenomenon, it is the phenomenon that should be emphasized in the title and text and not the methodology.

Other strategies should be considered when the goal of the publication is to assist other investigators to understand and effectively use Q methodology. Along with mentoring in the methodology, and encouraging third, fourth, and fifth generation Q methodologists (and beyond) to publish their work, lies the critical element of educating our respective communities of scholars. One approach to pursue within our respective disciplines is to publish entire articles that present the methodology, and to keep publishing them in the journals of our respective fields. Focusing on a different aspect of the methodology for various journals, or describing how Q methodology relates to the conceptual emphasis of a specific journal’s readership, can serve to broaden this very important educational, outreach process.

Recent examples in the health field include “Q Methodology - A journey into the subjectivity of the human mind,” which was published in the *Singapore Medical Journal* (Amin 2000). Along those same lines, an article that dealt with epistemology and technique entitled “Q-methodology, a structural analytic approach to medical subjectivity” appeared in the *Academy of Emergency Medicine* (Barbosa et al. 1998).

Another approach is to provide a more complete exposé of Q methodology in the background section of research manuscripts, prior to describing procedures and presenting and interpreting data. The articles on pain (Aldrich and Eccleston 2000; Eccleston, Williams, and Rogers 1997), IBS (Stenner, Dancey, and Watts 2000), risk training and quality management (McKeown et al. 1999), and nurses’ industrial relations (McKeown, Stowell-Smith, and Foley 1999) were published by investigators in the United Kingdom. All of them had quite extensive discussions of the methodology in the introduction or background — more than is typically seen, whether the study uses Q or some

other methodology. Journal editors initially may not easily yield on the necessity to devote precious pages to methodological description, but when they themselves do not understand the methodology correctly, nor do their reviewers and readers, they often become more amenable to this approach. As Q methodologists, we despair at having to prepare this kind of description because it's an intensive task that other investigators using traditional research methods don't do, and don't need to do. Q methodologists view the task of having to write a lengthy methodological description as the need to justify Q yet one more time. However, seen in a different light, this type of approach provides a unique opportunity to educate editors, reviewers, and readers about the epistemology and technique of Q methodology.

A treasured colleague told me years ago that I should "write the book on Q methodology for nursing," since I think that nursing's major problem in using Q emanates from the textbooks on nursing research and measurement that continue to lead students astray and reinforce faculty's misguided understanding. Perhaps one day I'll do that. Perhaps others among us should think about doing that as well — across disciplines and around the world.

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