PERSPECTIVES

Using Stories to Disseminate Research: The Attributes of Representative Stories

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When researchers communicate their findings to patients, clinicians, policy-makers, or media, they may find it helpful to supplement quantitative data with stories about individuals who represent themes in their research. Whether such stories are gathered during the research itself or identified from other sources, researchers must develop strategies for assessing their representativeness. This paper proposes 5 attributes of representative stories: (1) expression of important themes in the research, (2) explicit location in the “distribution” of stories that exemplify the theme, (3) verifiability, (4) acknowledgment of uncertainty, and (5) compelling narration. This paper summarizes research on substance abuse among physicians, and uses these 5 attributes to assess the representativeness of a published case report and a fictional short story about addicted physicians. While neither story is fully representative of the research, the process of evaluating these stories illustrates an approach to identifying representative stories for use in disseminating research.

KEY WORDS: research translation; substance abuse; evidence-based medicine; narrative medicine; health policy.

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Researchers have long recognized that clinicians, patients, and policy-makers have difficulty incorporating quantitative research findings into their decisions. In response to this problem, researchers have developed several strategies to make quantitative data more useful to these audiences. Training in evidence-based medicine helps clinicians identify valid evidence and incorporate that evidence into their practice. Decision aids express quantitative research findings in a visual form to help individuals evaluate treatment options.¹

Brief “talking points” based on syntheses of available data can inform policy deliberations.²

All these approaches confront 2 fundamental problems. First, research findings typically derive from *groups*, whereas individual decisions are more powerfully influenced by stories about *individuals*. Second, research findings are expressed in *numbers*, whereas most individuals prefer to base their decisions on information that is conveyed in *words*.³ These tendencies are deeply ingrained in our cognition, although they may lead to substantial errors in inference.^{4,5} While a few studies have assessed the ability of individual stories to inform hypothetical or actual health decisions,^{5–7} many researchers have categorically rejected the use of stories to disseminate research findings because of their subjectivity and susceptibility to bias.

Researchers may be more effective in translating evidence into practice and policy if they recognize the power of stories to affect decisions, and use stories to lessen the tensions between words and numbers, and between the perspectives of the individual and the group.^{2,8} To do so, they must identify individual stories that are representative of important themes in their study or in a body of research.⁹ They might collect such stories deliberately during the research process itself, or find them in the scientific literature, the lay press, or electronic “story banks.”¹⁰ However they identify such stories, researchers must then rigorously evaluate their representativeness.

In this paper, I will illustrate this process of assessing the representativeness of stories using a body of clinical literature and 2 readily accessible published stories. I will first summarize the research about the identification and treatment of drug-impaired physicians, then describe a published case report and a short story about 2 impaired physicians. I will next propose 5 attributes that researchers might employ to assess the representativeness of these stories and will assess both stories using these attributes.

RESEARCH ABOUT SUBSTANCE ABUSE IN PHYSICIANS

Clinical research about substance abuse among physicians is sparse. In a national survey, physicians reported an 8% prevalence of substance abuse or dependence, including alcohol abuse.¹¹ Physicians use fewer street drugs but more alcohol, benzodiazepines, and opiate analgesics than the

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public.¹¹ Risk factors for substance abuse among physicians include male gender, younger age, and the specialties of anesthesia, emergency medicine, family medicine, or general practice.^{12,13} Substance-abusing physicians commonly have concurrent mental health disorders, although estimates of the proportion with dual diagnoses vary from 26 to 60%.¹⁴⁻¹⁶

Physicians typically abuse substances for a long time before they are detected.¹⁷ Physicians may be more likely to confront colleagues whom they suspected of using controlled substances or alcohol than those using "recreational" drugs.¹⁸ Experts describe the reluctance of colleagues to report their suspicions about substance abuse in a colleague despite their ethical obligation to do so as a "conspiracy of silence."^{17,19}

Studies of treatment for substance abuse assert that physicians have a better prognosis than the general population.¹⁷ Up to 70% of treated physicians can return to practice.¹⁶ Risk factors for relapse after treatment include a family history of substance abuse and the use of major opiates among physicians with concurrent psychiatric disorders.¹⁶

This body of literature is fraught with methodological problems. Prevalence surveys are cross-sectional, rely on self-report, and have modest response rates. Studies of the predictors of substance abuse are compromised by referral bias, small samples, and disparate diagnostic criteria. Treatment studies are primarily uncontrolled case series from physician health programs or regional referral centers. The content and duration of these programs vary substantially; outcome measures are inconsistent, follow-up periods are variable, and losses to follow-up are common. Despite these limitations, this literature guides clinical treatment decisions and the policy deliberations of licensing boards and regulatory agencies. Can stories adequately represent this body of research? Two published stories about physicians with substance abuse will help address this question.

THE STORY OF DOCTOR L.

The Clinical Crossroads section of *JAMA* reviews common clinical problems, beginning with a descriptive case narrative and supplemented by commentaries from the patient and the treating physician.²⁰ An expert then reviews the evidence about the clinical issue, anchoring the discussion in the details of the case. In 2004, the story of "Doctor L.", a 35-year old specialist physician, introduced a discussion of substance use among physicians.²¹ Doctor L. began to use hydrocodone-containing cough syrup from his sample cabinet to improve his mood and his level of functioning. He confessed his addiction to his wife, but continued to use hydrocodone surreptitiously until confronted by his employer and referred to inpatient addiction treatment. When interviewed in the treatment facility, he described his withdrawal symptoms, his belief that substance use did not impair his clinical performance, and his struggle to recover. "You have to admit that you're powerless over your addiction, and because of that you need to learn to ask for help. And we as physicians are very poor at asking for help" (p. 1352).²¹ In his review of the literature, the discussant refers to the story of Doctor L. to support his contention that substance abuse treatment for physicians is typically successful. "If Doctor L. follows through, he is likely to find life better than he can now imagine" (p. 1356).²¹ The actual outcome of Dr. L.'s treatment is never disclosed, however.

THE STORY OF DOC RIVERS

In 1932, the physician-author William Carlos Williams published a short story, *Old Doc Rivers*,²² which is often included in courses on the medical humanities.²³ Rivers was a colleague of the fictional physician-narrator in the early 1900s. While Rivers could display remarkable diagnostic skill and provide effective treatment, at other times, he neglected and abandoned his patients. He might leave an operation abruptly or disappear for many days. The narrator reveals that Rivers used "dope"—morphine, heroin, cocaine. The narrator suggests that Rivers' addiction was a response to irreconcilable aspects of his personality. "Intelligence he had and force—but he also had nerves, a refinement of his sensibilities that made him, though able, the victim of the very things he best served. This was the man who the drug retrieved" (p. 89).²²

The reactions of other physicians and the community to Rivers' behavior were mixed. When some doctors wanted to bar him from surgery, the nurses at the hospital defended him. A colleague threatened to prosecute him for malpractice, but did not carry through. Through it all, some patients stuck with him, "the beloved scapegoat of their own aberrant desires—and believed that he alone could cure them" (p. 100).²² Finally, when he injected himself in the presence of a patient, the community demanded that he stop practicing.

USING STORIES TO ILLUSTRATE RESEARCH FINDINGS

Clinical research reduces experiences such as those of Doctor L. and Doc Rivers to a set of variables that can be combined with information from other subjects and analyzed statistically. The details of the original stories are sacrificed to achieve a more general description of the clinical issues and to test specific hypotheses about risk factors, prognosis, or treatment effectiveness. Using stories to illustrate research findings reverses this process by restoring the individual context that most decision-makers prefer.

The first step in evaluating the representativeness of such stories is to define important themes in the body of research. Although researchers may base their choice of themes exclusively on their own expertise, translation of research findings is likely to be more effective if themes relevant to the intended audience are also included. Five important themes in the literature about substance abuse among physicians are pre-

Figure 1. Any research theme can be illustrated by a distribution of potentially representative stories. Stories near the median of the distribution are representative of common experiences, whereas those at the extremes may either represent rare but important experiences or may be purely idiosyncratic.

dictors of substance use, the process of recognition, the type of substances used, treatment strategies, and long-term outcomes. Conceptually, each theme can be represented by a large number of stories that form a distribution of experiences, which (for current purposes) can be portrayed as a Gaussian curve (Fig. 1). Stories from the center of the distribution are more representative of common experiences. Stories from the “tails” of the distribution are more difficult to assess, as they may be idiosyncratic “minority reports,” but might also provide important insight into rare experiences relevant to the theme.²⁴ Stories from the extremes of the distribution must be evaluated with particular care, as their very unexpectedness may make them particularly compelling to readers or listeners.²⁵

ATTRIBUTES OF REPRESENTATIVE STORIES

Researchers can use 5 attributes of a story to assess its suitability for use in research dissemination, as shown in Table 1. Such stories should *express an important theme (or themes)* arising from the evidence. They should be explicitly *located in the distribution of stories* that exemplify that theme. They must be *verifiable*. They should *acknowledge uncertainties* in the evidence where appropriate. And finally, within these constraints, they should be *compelling narratives*.

Expressing an important theme is the most basic attribute of a representative story. The stories of Doctor L. and Doc Rivers express many of the themes in the literature about substance abuse among physicians. Both were young men at the onset of their addiction, reflecting the typical demographic profile. While Doctor L. was carefully evaluated and found to be free of psychiatric comorbidity, Doc Rivers was admitted several times to mental asylums. Doctor L. confessed his problem to his wife and appears to have been more quickly identified than most addicted physicians. In contrast, Williams describes in rich detail the “conspiracy of silence” that surrounded Doc Rivers. Doctor L. received intensive treatment and had a favorable prognosis, whereas Doc Rivers, almost a century earlier, had few therapeutic options and ultimately lost his ability to practice. While Doctor L.’s long-term outcome is not presented, to a modern reader, the story of Doc Rivers is representative of the poor prognosis associated with ineffective treatment for substance use.

Williams and the editors of *Clinical Crossroads* fail to *locate their stories in the underlying distribution*. Neither describes how they selected their protagonist. The conventions of the medical case report and the assertions of the discussant

provide some reassurance that the experiences of Doctor L. are representative of other substance-abusing physicians. Williams makes no claim that Rivers is representative, and, in fact, is fascinated by his unique combination of skill and vulnerability. Failure to locate stories in the distribution of experiences is particularly troublesome in media reports of research findings, which often present testimonials from both proponents and skeptics to preserve a semblance of balance. Because the number of stories is artificially balanced—one on each side of the issue—listeners may assume that both types of narrative are equally common, a cognitive error known as disregard of the base rate.²⁶ Although decision-makers may disregard information about base rates,²⁷ researchers using stories to represent their findings should indicate (at the very least) that they reflect either the “typical” experience or a “rare but important” outcome.

A representative story must be *verifiable*. Whether from the center or the extremes of a distribution, a story used to illustrate research should be a story from a real life, not a fictional reworking of the narrative.²⁸ Because of its publication in a scientific journal, readers assume that the story of Doctor L. is authentic, although certain elements may have been changed to preserve his anonymity. In contrast, the figure of Doc Rivers might be based on a single individual, a composite, or purely a product of the creative imagination of the author. The willingness of the subject of the story to verify its accuracy is particularly important in media reports and health policy testimony where the story may be subject to independent verification.²⁸

Representative stories should *acknowledge uncertainties* in the body of research. Sometimes the appropriate conclusion from a study or a body of literature is that our ignorance about the best clinical or policy decision remains profound. This conclusion may be particularly important to convey when, as in the case of substance abuse among physicians, the evidence base has substantial scientific flaws. Neither the story of Doctor L. or Doc Rivers illustrates the gaps in our knowledge of substance abuse in physicians. Such uncertainties might be more evident in the story of an anesthesiologist who has completed treatment but is apprehensive about returning to a practice where he will be surrounded by medications he previously abused. Stories that recognize such ambiguities are important to convey the limits of evidence to audiences that may be too eager for certainty.

Within these constraints, representative stories should also be *compelling narratives*. An operational definition of a compelling story is one that a listener would consider retelling to

Table 1. The Representativeness of Two Stories About Substance Abuse Among Physicians

Criterion	The story of Doctor L ²¹	The story of Doc Rivers ²²
Expression of themes in the literature		
Predictors of substance use	Yes (age, gender) No (specialty)	Yes (age, gender) Unknown (specialty)
Recognition of substance use	No (recognized early)	Yes (recognized late)
Type of substances used	Yes (opiates)	Yes (opiates, cocaine)
Treatment strategies for substance use	Yes (intensive inpatient treatment)	No (received only treatment available in the early 1900s)
Long-term outcomes	Unknown	Yes (relapse without effective treatment)
Location in the distribution of stories	No	No
Verifiability	Potentially verifiable	Unverifiable
Acknowledgement of uncertainty	No	No
Compelling narrative	More compelling than traditional case reports	Yes

someone else. Researchers may learn much about the art of telling stories from reading them critically, with attention to common storytelling devices identified by literary scholars.²⁵ For example, Charon describes features of compelling clinical narratives: temporality, singularity, causality/contingency, intersubjectivity, and ethicality (p. 39).²⁹ The stories of Doctor L. and Doc Rivers are both compelling. The editors of *Clinical Crossroads* provide sufficient detail about Doctor L. that a reader wishes him well and wants to know how his treatment turns out. The artistry of Williams, coupled with the license provided by fiction, make Doc Rivers a memorable and tragic figure.

Experts in health communications emphasize that researchers must consider cultural issues in assessing the potential impact of a story. The culture of listeners affects their preferences for the sources of stories, the content of those narratives, and the means of communication.³⁰ Some racial, ethnic, or cultural groups have strong oral traditions and may be especially receptive to information conveyed through stories.³⁰ Indeed, 1 of the messages of this paper is that researchers, embedded in their own scientific, predominantly quantitative culture, should not assume that their preferred style of communication is shared by their listeners. Because researchers cannot know whether a story is compelling until listeners have told them so, field testing of candidate narratives is an essential step in identifying stories that are at once representative and compelling.

The Table 1 summarizes my evaluation of the representativeness of the stories of Doctor L. and Doc Rivers. Overall, each story is representative of some of the themes in the literature on substance abuse among physicians. Neither story represents all the themes or satisfies all 5 of the proposed attributes of a representative story, however.

Three important limitations of this assessment must be recognized. First, the specific themes for this clinical topic and the attributes of representative stories that I propose reflect my own preconceptions as a researcher and clinician and may not be endorsed by other readers or their audiences. Second, neither story is fully representative of any of the individual themes, or of the literature as a whole. Thus, tension will inevitably arise between the need for multiple stories to represent all relevant themes and the desire of narrator and listener to summarize those themes in a single tale. Finally, reading or listening to a story is an act of interpretation, and every listener must recognize that their assessment, like the story itself, may be idiosyncratic rather than representative.³¹ In this paper, I provide informal assessments of the representativeness of these 2 stories. The analytic methods of qualitative research provide a more formal and rigorous approach to interpretation, based on careful description of (1) how the narrator was identified, (2) the nature of the relationship between the narrator and the researcher, (3) the approach to collecting the story, and (4) the methods used to evaluate the story, such as confirmation of its themes by several evaluators.³²

CONCLUSION

In her description of a seminar for clinical residents that included *Old Doc Rivers*, Wellbery notes that literary theorists have long debated whether stories need to be representative of

anything at all. She suggests that "...art serves us precisely by freeing us from the constraints of purpose" (p. 1377).²³ Researchers who use stories to illustrate research must acknowledge that they are using these narratives to serve a purpose that may constrain their art. Nevertheless, representative stories may integrate multiple research themes and multiple types of evidence more effectively than a single study or a systematic review of the literature. Stories also remind us that real decisions are complex and must be made in an awareness of individual values, conflicting interpretations, subtleties of meaning, and uncertainties about the future.

Researchers interested in enhancing dissemination of their work should gather more stories during the research process or identify relevant stories from other sources. They should describe how their stories were identified and selected for dissemination. They should consider attributes such as those I have proposed and should use qualitative methods to assess the representativeness of these stories. Finally, they should field-test those stories with members of the intended audience, paying attention to cultural differences. In this manner, they can identify stories that are credible, effective in supporting quantitative data, and useful to a range of listeners who must all make decisions that balance information conveyed in words and numbers and affect both individuals and groups.

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