A Framework for the Dissemination and Utilization of Research for Health-Care Policy and Practice

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Abstract

Purpose

(1) The purpose of this paper is to construct a comprehensive framework of research dissemination and utilization that is useful for both health policy and clinical decision-making.

Organizing Construct

(2) The framework illustrates that the process of the adoption of research evidence into health-care decision-making is influenced by a variety of characteristics related to the individual, organization, environment and innovation. The framework also demonstrates the complex inter-relationships among these characteristics as progression through the five stages of innovation—namely, knowledge, persuasion, decision, implementation and confirmation—occurs. Finally, the framework integrates the concepts of research dissemination, evidence-based decision-making and research utilization within the diffusion of innovations theory.

Methods

(3) During the discussion of each stage of the innovation adoption process, relevant literature from the management field (i.e., diffusion of innovations, organizational management and decision-making) and health-care sector (i.e., research dissemination and utilization and evidence-based practice) is summarized. Studies providing empirical data contributing to the development of the framework were assessed for methodological quality.

Conclusions

(4) The process of research dissemination and utilization is complex and determined by numerous intervening variables related to the innovation (research evidence), organization, environment and individual.

Statement of the Practice Problem

Introduction

(5) The study of the use of research evidence in health-care decision-making has changed dramatically over the last 30 years. Initial studies simply measured the use of research evidence in health-care decision-making among individual health professionals. Second generation studies attempted to understand the factors that predicted, facilitated or hindered the use of research evidence, which led to follow-up studies on the applicability of relevant theories to explain the phenomenon. One of the major theories to evolve from this line of inquiry was Rogers' Diffusion of Innovations, which has contributed significantly to the understanding of research utilization in health-care decision-making. More recently, research has focused on determining the effectiveness of dissemination strategies in promoting the use of research evidence in health-care decision-making, as well as understanding the process of decision-making from the perspective of various health professionals and different health organizations (Pettengill,

Gillies, & Clark, 1994 [62]; Champion & Leach, 1989 [15]). The purpose of this paper is to describe a framework for research dissemination and utilization that is applicable for health policy and clinical decision-making. The framework has been developed by synthesizing several bodies of literature—organizational behavior, culture and decision-making from the management field; and research dissemination, utilization and evidence-based practice from the health field. Rogers' Diffusion of Innovations provides the backbone for the research dissemination and utilization process proposed in this framework.

Summary of the Research

Research Dissemination and Utilization

(6) The results from numerous diffusion of innovation studies suggest that there is a substantial time lag of eight to 15 years between the time technical information is generated and the time it is used in actual practice (Lomas, 1991 [46]; Utterback, 1974 [75]). This may be problematic in the health-care field, where time lags may adversely affect patient outcomes because advances in knowledge and technology take years to be implemented into practice. Therefore, the identification of effective dissemination strategies to reduce this time lag has become increasingly important with the plethora of literature published on a daily basis. However, the observed limited success of dissemination strategies to increase the use of research evidence in health-care decision-making suggests that transforming research into practice is a demanding task requiring intellectual rigor and discipline, as well as creativity, clinical judgment and skill, and organizational savvy and endurance (Kitson, Ahmed, Harvey, Seers, & Thompson, 1996 [40]).

(7) Dissemination research, defined as the study of the processes and variables that determine and/or influence the adoption of knowledge, interventions or practice by various stakeholders (Johnson, Green, Frankish, MacLean, & Stachenko, 1996 [35]), has become a priority among health services planners, decision-makers and researchers over the last decade (Canadian Health Services Research Foundation, 1998 [12]; 1999 [13]). Research utilization, in contrast, is defined as the process of transferring research-based knowledge into clinical practice (Hunt, 1996 [34]; Rodgers, 1994 [66]) and represents a process whereby research information is translated into a useable form and then implemented into practice (Goode, Butcher, Cipperley, Ekstom, Gosch, Hayes, et al., 1991 [25]). Evidence-based decision-making is defined as the use of the best possible evidence when dealing with "real life" circumstances (Hayward, Ciliska, DiCenso, Thomas, Underwood, & Rafael, 1996 [30]; Nutbeam, 1996 [59]; Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996 [69]). It is important to note, however, that the term evidence is composed of many concepts—one of which is research evidence. Currently, policy decisions and clinical practice are determined by a number of distinct pieces of evidence including past experiences, beliefs, values, skills, resources, legislation, protocols, patient preferences and research results (Estabrooks, 1998 [21]; Kouri, 1997 [41]; Sibbald & Roland, 1997 [71]).

(8) Several forces, such as the growth of science and technology, increased media attention on scientific discoveries, the Internet and the demand for political accountability for the use of public resources, have intensified the need for better dissemination and utilization of research evidence (Johnson et al., 1996 [35]). However, despite growing pressure to the contrary, there is evidence that health-care decisions remain primarily based on experience and opinion, with little consideration given to the available research evidence (Baessler, Blumberg, Cunningham, Curran, Fennessey, Jacobs, et al., 1994 [3]; Bohannon & LeVeau, 1986 [6]; Luker & Kendrick, 1992 [48]; Umlauf & Sherman, 1992 [74]). This is not to say that health policies and practice should be determined solely by research evidence, but rather research evidence should be used in collaboration with other evidence, including experience and opinion, to make health-care decisions.

(9) The research utilization literature indicates that research-informed health policy and clinical change require more than simply acquiring knowledge (Cavanagh & Tross, 1996 [14]), and that major gaps exist between the available research evidence and actual practice (Power, Tunis, & Wagner, 1994 [64]). This phenomenon is observed throughout the world and across all health sectors. Currently there is much confusion on how best to disseminate research evidence to policy-makers and practitioners to promote its routine use in decision-making. Further complicating the issue is the lack of understanding with respect to how health-care decisions are made by health professionals, as well as health organizations.

Constructing a Framework: Research Dissemination and Utilization

(10) Rogers' Diffusion of Innovations theory has been used extensively in the last 20 years to gain a better understanding of the forces at work in transferring knowledge into clinical practice. More recently, the theory has been used to explain the adoption of research evidence among health organizations, as well as for health policy. Diffusion scholars have demonstrated that an individual's decision about an innovation is not an instantaneous act. Rather, it is a process that occurs over time and consists of a series of actions (Rogers, 1983 [67]). In its most basic

form, the diffusion of innovations refers to the spread and adoption of new ideas, techniques, behaviors or products throughout a population (Rogers, 1983 [67]; Scott, 1990 [70]). Innovations in health care may be preventive, curative, rehabilitative or palliative and encompass all of the instruments, equipment, drugs and procedures used in the delivery of health care (Battista, 1989 [4]). These definitions suggest that research evidence can be considered an innovation and that the findings of diffusion studies are likely applicable in the health-care field.

(11) Although this framework is depicted along a linear pathway, it is important to remember that the innovation adoption process may not occur in a linear way and may be more multi-dimensional than is possible to depict in this model (Rogers, 1983 [67]; Scott, 1990 [70]). The theoretical framework depicted in Figure 1 illustrates the complex inter-relationships that exist among Rogers' five stages of innovation (knowledge, persuasion, decision, implementation and confirmation) and four types of characteristics (innovation, organization, environment and individual) as progression from research dissemination to research utilization occurs. This framework highlights the characteristics at play at each stage of the innovation adoption process, while integrating the concepts of research dissemination, evidence-based decision-making and research utilization. For example, the dissemination of research evidence occurs during the knowledge stage, when decision-makers and practitioners become aware of new information. Once an individual or organization becomes aware of an innovation, various factors (innovation, organization, environment and individual) contribute to the development of perceptions toward the innovation. This is referred to as the persuasion stage. During the decision stage, individuals and organizations engage in evidence-based decision-making activities that result in a decision to either adopt or reject an innovation (research evidence). Figure 1 illustrates that there are two possible outcomes to emerge from the decision stage. The individual or organization may choose not to adopt the innovation (but may revisit the decision at a later date as additional evidence is disseminated, or if information from the confirmation stage suggests adoption is warranted) or may choose to adopt the innovation in whole, in part or in some modified way. This is known as the implementation stage or research utilization stage and is characterized by the individual or organization engaging in activities to transfer the research evidence into health-care policy and clinical practice. In the final stage, confirmation, the individual or organization seeks to evaluate the consequences of adopting or rejecting the innovation. These consequences will be used to reaffirm decisions made previously or to revisit decisions in light of new information and, therefore, creates an iterative loop in the process.

The Innovation Adoption Process

Knowledge

(12) The innovation-adoption process begins with an individual/organization becoming aware of an innovation and being interested in understanding how it functions (Rogers, 1983 [67]). The extent to which an individual/organization becomes knowledgeable about the innovation is somewhat dependent on the dissemination strategies employed by health researchers. The findings of a recent critical review of research dissemination studies illustrate that the most effective dissemination strategies include academic detailing, audit and feedback, and the use of opinion leaders (Dobbins, Ciliska, & DiCenso, 1998 [20]). There is also good evidence suggesting that dissemination strategies involving personal, one-to-one contact with the intended audience are more effective in facilitating research utilization compared to group-based strategies, such as continuing education, workshops and conferences (Dobbins et al., 1998 [20]).

Persuasion

(13) During the persuasion stage, attitudes toward the innovation are formed and the individual/organization seeks to identify the consequences associated with adopting or not adopting the innovation (Warner, 1975 [79]). This type of information is usually sought from peers who have previously adopted the innovation (Rogers, 1995 [68]). The literature indicates that if colleagues express positive experiences with adopting an innovation, then motivation to adopt increases.

(14) Research has also shown that perceptions regarding the innovation are determined by complex interactions among characteristics of the innovation, organization, environment and individual. The framework illustrates that individuals may exert influence over their organizations and environments and vice versa. The association among these elements is supported by Orlandi (1996 [61]) and Granovetter (1985 [26]), who suggest that individuals have the ability to shape their organizations and environments just as organizations and environments shape individual behavior. This relationship was highlighted several decades ago when Hassingers (1959 [29]) suggested that even if individuals are exposed to an innovation, this exposure will have little effect unless the innovation is perceived as relevant and consistent with the attitudes of the individual as well as his/her organization. Currently, there is little understanding concerning the great variation that exists among health-care practitioners, decision-makers and

organizations with respect to innovation adoption behaviors. However, exploration of characteristics of the innovation, organization, environment and individual is slowly filling in the puzzle of research utilization.

Innovation Characteristics

(15) Although a number of innovation characteristics are known to be associated with the diffusion of innovations, they have only recently begun to be examined in the health-care field (Battista, 1989 [4]; Lewis & Seibold, 1993 [45]; Poole & DeSanctis, 1990 [63]; Rogers, 1995 [68]). Damanpour (1991 [18]) identifies several types of innovations, two of which are technological and administrative, that have a moderating effect on the rate of adoption. Technological innovations are defined as products, services and production processes that are related to basic work activities. Administrative innovations include organizational structures and administrative processes that are directly related to the management of basic work activities. Research evidence is most closely aligned with the latter, while equipment and clinical procedures represent technological innovations.

(16) Rogers (1995 [68]) suggests that five specific attributes are used to assess the advantages and disadvantages of innovations. These include relative advantage, compatibility, complexity, trialability and observability. Relative advantage is defined as the degree to which an innovation is perceived as better than the idea it supersedes and can be measured in economic terms, social prestige, satisfaction, and savings in time and effort (Davis & Taylor-Vaisey, 1997 [19]; Rogers, 1995 [68]). Compatibility refers to the degree to which an innovation is perceived as being consistent with the existing values, needs and past experiences of potential adopters (Rogers, 1995 [68]). Rogers indicates that previous practice provides a familiar standard against which an innovation can be interpreted and compared. Therefore, potential adopters who perceive the innovation as being consistent with their own and their organizations' values and experiences are more likely to adopt the innovation than those who do not.

(17) Complexity represents the degree to which an innovation is perceived as difficult to understand and use (Rogers, 1995 [68]). There is evidence of a strong association between the complexity of research evidence and research utilization (Rodgers, 1994 [66]). For example, a survey conducted in 1993 in the UK reported that midwives preferred to read research studies that were written plainly, had minimal statistical data that were explained in uncomplicated language, and were presented in an attractive way (Meah, Luker, & Cullum, 1996 [54]). Trialability refers to the extent to which the innovation can be implemented on a small scale to determine its advantages or disadvantages (Rogers, 1995 [68]). Another aspect of trialability includes "bandwagon pressures." The literature suggests that organizations imitate other organizations that are proximate, either geographically or in their communication networks, and will adopt innovations when other organizations have adopted innovations (Abrhamson, 1991 [1]; Abrhamson & Rosenkoff, 1993 [2]; Brown, 1981 [8]; Burt, 1987 [10]).

Organizational Characteristics

(18) The diffusion research demonstrates that organizational context has a major influence on decision-makers' and practitioners' innovation behaviors (Battista, 1989 [4]; Kaluzny, Veney, & Gentry, 1974 [37]; Kitson et al., 1996 [40]). A study conducted on a national sample of American hospitals demonstrates that organizational variables account for 41% of the observed variation in innovation adoption among health-care professionals. This is in contrast to the 5% variation that was explained by characteristics of the chief administrator of the hospital (Veney, Kaluzny, Gentry, Sprague, & Duncan, 1971 [77]).

(19) There are a number of measures that have been used to describe the structural design of an organization. These include size (full-time, equivalent staff); organizational complexity (number of distinct services provided by the organization); functional differentiation (number of divisions or departments within the organization); and vertical differentiation (number of hierarchical levels in the organization). Centralization refers to the decision-making authority assigned to various organizational members, while formalization represents the extent to which rules and procedures are followed within the organization. External communication is an organization's ability to facilitate the flow of new information into the organization (Damanpour, 1991 [18]). The impact of organizational culture on adoption behaviors has also been examined in the diffusion literature. Organizational culture has been defined as the pattern of basic assumptions and shared meanings (values) that a group develops to survive its tasks and is a pattern of behaviors that is unique to each group (Closs & Cheater, 1994 [16]; Mark, 1996 [49]; McSkimming, 1996 [53]; Reichers & Schneider, 1990 [65]). It has also been linked with the decision-making process within organizations, suggesting that different culture types may affect an organization's ability to incorporate research evidence into decision-making (Hofstede, 1980 [32]; Mark, 1996 [49]). Therefore, there are many organizational characteristics that play a role in the adoption of research evidence by policy-makers and practitioners.

(20) Organizational characteristics found to be significantly associated with the adoption of innovations include organizational size, location (urban versus rural),

complexity, functional differentiation, culture, internal and external communication channels, and decision-making processes (Greer, 1977 [28]; Hunt, 1996 [34]; Kaluzny, 1974 [36]; Kimberly, 1978 [38]; Kimberly & Evanisko, 1981 [39]; McKinney, Kaluzny, & Zuckerman, 1991 [51]; Rodgers, 1994 [66]; Scott, 1990 [70]; Utterback, 1974 [75]). The literature also demonstrates a strong association between the value the organization places on using research evidence in decision-making and research utilization (Funk, Champagne, Wiese, & Tornquist, 1991b [23]; Kaluzny et al., 1974 [37]). Therefore, an organization's exposure to the surrounding environment plays an important role in the use of research evidence in policy decision-making and clinical practice decisions in the health-care field.

Environmental Characteristics

(21) The literature has started to show the importance of environmental factors in relation to the diffusion of innovations and research utilization. Environmental factors related to the socioeconomic infrastructure of the community have been shown to impact on such organizational structures as administrative intensity, formalization and centralization of decision-making (Lewis & Seibold, 1993 [45]; Utterback, 1974 [75]). Environmental factors associated with the diffusion of innovations include collaboration among community networks (network embeddedness); reporting relationships between the top management team and the local board of health; regulations and legislation; urbanization; peer pressure; competition among institutions to attract specialized professionals; and acquisition of prestige (Battista, 1989 [4]; Burns & Wholey, 1997 [9]; Cockerill & Barnsley, 1997 [17]; Kimberly & Evanisko, 1981 [39]; Meyer & Goes, 1988 [55]). Although little research has been conducted in the health-care field on environmental factors, the findings from the diffusion literature are helpful in identifying potentially important associations that require further exploration.

Individual Characteristics

(22) There are many characteristics inherent in individuals that contribute to an individual's decision to adopt an innovation. The characteristics believed to be strongly associated with this process are related to one's values, interests and beliefs. Characteristics that have been shown to facilitate innovation adoption include cosmopolitanism (number of days spent at conferences or interacting with external colleagues); involvement in research projects; and having access to a research consultant (Bostrom & Suter, 1993 [7]; Michel & Sneed, 1995 [56]; Titler, Klieber, Steelman, Goode, Rakel, Barry-Walker, et al., 1994 [73]). The literature also demonstrates that one's position, seniority, age and decision-making authority, as well as education, type of specialization, tenure and participation in ongoing training in research methods, are important factors in the innovation adoption process (Battista, 1989 [4]).

(23) There are also a number of characteristics that have been identified as barriers to using research evidence. For example, many health-care practitioners and decision-makers perceive research findings as not relevant to their practice and/or decision needs (Bero & Jadad, 1997 [5]; Funk, Champagne, Wiese, & Tornquist, 1991a [22]; Funk, Tornquist, & Champagne, 1995 [24]; Greenwood, 1984 [27]; Miller & Messenger, 1978 [57]; Titler et al., 1994 [73]; Walczak, McGuire, Haisfield, & Beezley, 1994 [78]). Other noted barriers include limited decision-making authority to change patient-care procedures, insufficient time to implement new ideas, insufficient time to review literature, and a lack of administrative support for implementing decisions that are based on research evidence (Funk et al., 1991b [23]; Funk et al., 1995 [24]; Hicks, 1996 [31]; Hunt, 1981 [33]; Lacey, 1994 [42]; McSherry, 1997 [52]; Pettengill et al., 1994 [62]; Stolk & Mayo, 1995 [72]; Walczak et al., 1994 [78]). Perceived availability of research evidence (Veeramah, 1995 [76]) and limited critical appraisal skills (Funk et al., [24]; Hicks, 1996 [31]; Hunt, 1981 [33]; Luker & Kendrick, 1992 [48]; Marshall, 1993 [50]; Stolk & Mayo, 1995 [72]; Veeramah, 1995 [76]; Walczak et al., 1994 [78]; White, Leske, & Pearcy, 1995 [80]) are also significant barriers to research utilization.

Decision

(24) As the individual or organization becomes familiar with the innovation, progression from the persuasion stage to the decision stage occurs. Figure 1 illustrates that during the decision stage, the individual or organization engages in various evidence-based decision-making activities in order to arrive at a conclusion to either adopt or reject the innovation. The diffusion literature suggests that methods that facilitate the trial of innovations, such as the distribution of free samples to the target audience, are associated with an increased rate of innovation adoption (Rogers, 1995 [68]). The activities of information-seeking and processing that an individual or organization engages in to reduce uncertainty about the innovation demonstrate the importance of decision-making at both the individual and organizational level. In fact, the literature demonstrates that different decision-making processes lead to different outcomes with respect to innovation adoption (Langley, Mintzberg, Pitcher, Posada, & Saint-Macary, 1995 [43]; Mintzberg, Raisinghani, & Theoret, 1976 [58]; Nutt, 1984 [60]). Recent work in Canada indicates that decisions are made based on the values and beliefs of those making the decision, individual experiences, stakeholder interests, and "evidence" (Kouri, 1997 [41]). However, little is known about how each of

these factors interacts with the other during this process. What is known is that early and ongoing involvement of relevant decision-makers in the conceptualization and conduct of a research study is the best predictor of its utilization (Lomas, 1997 [47]).

(25) The type of decision being made has also been shown to affect the decision-making process. Rogers (1995 [68]) identifies three types of innovation decisions that can occur in a social structure. These include optional innovation decisions, collective innovation decisions and authority innovation decisions. Optional innovation decisions are defined as choices to adopt or reject an innovation that are made by an individual independent of the decisions of the other members of the system (Rogers, 1995 [68]). This means that the unit of analysis is at the level of the individual decision-maker. Collective innovation decisions, which are organizational choices to adopt or reject an innovation made by consensus among the members of a system, suggest that the unit of analysis is the organization. Finally, authority innovation decisions that are made by a relatively small number of individuals who possess power, status or technical expertise in a system suggest that the unit of analysis can be both the individual and the organization. Each decision type will likely follow a different process and, therefore, may play an important role in the decision process.

Implementation

(26) There are two possible outcomes of the decision stage: An individual or organization may choose not to adopt the innovation or to adopt the innovation in whole, part or in a modified way. These various decision modes are illustrated in Figure 1. If the decision to adopt the innovation is taken, then the individual or organization engages in a number of activities that will lead to the research evidence being integrated into clinical practice and/or policy decisions. This represents the implementation stage. Implementation activities may include strategies that first translate the scientific research evidence into a small number of relevant and usable key messages, followed by efforts to change clinical practice or implement policies based on the research evidence (Rogers, 1983 [67]).

(27) Methodological advancement in the study of the diffusion of innovations has changed the conceptualization of the outcomes of the innovation adoption process. Whereas the outcome of the diffusion process has traditionally been measured as a dichotomous variable (adopt/not adopt), more recently researchers have determined that adoption is not an all-or-nothing process (Calsyn & Tornatzky, 1977 [11]; Larsen & Agarwalla-Rogers, 1977 [44]). Research recommends that innovation adoption should be measured along a continuum from no adoption to full adoption. Possible outcomes of research utilization may include how the evidence is used in decision-making (resource allocation/reallocation; maintain, discontinue or initiate programs/services; and staff training), and the decision-making process itself.

(28) There are a number of process or intermediary outcomes that may be important indicators of research utilization that should be assessed prior to examining the impact of research utilization on patient health and health-care expenditures. These include changes in policies, clinical practice, the provision of programs and services, and health professional training activities. Currently, there is little research focusing on the identification of the markers or performance indicators of research utilization, which is an important step to understanding the innovation adoption process.

Confirmation

(29) In the final stage of the framework, the confirmation stage, the individual or organization seeks reinforcement for the decision made. This may include the adopter seeking justification for the decision to adopt the innovation by identifying positive outcomes associated with adoption or negative consequences associated with not adopting the innovation. However, it could also include negative outcomes associated with the adoption (Rogers, 1983 [67]). During this stage, the innovation characteristic of observability takes on an important role. Observability refers to the evaluation of the consequences of adopting the innovation (Rogers, 1995 [68]), which can be measured as organizational performance indicators (i.e., decreased costs, improved efficiency), patient outcomes (i.e., decreased mortality/morbidity, increased quality of life, patient satisfaction) or health-system outcomes (i.e., resource allocation, expenditures).

(30) A review of the dissemination literature demonstrates that the most commonly measured outcomes include changes in physician practice, patient outcomes, compliance with recommendations for practice and changes in prescribing practices (Dobbins et al., 1998 [20]). Important outcomes rarely evaluated include the use of laboratory or diagnostic tests, costs associated with changes in practice, and the amount of preventive services offered (Dobbins et al., 1998 [20]). Therefore, it is clear that there needs to be further clarification of the appropriate outcomes that should be measured in the confirmation stage and that more research focusing on outcomes related to patient health, health-care resource allocation and expenditures, and organizational performance indicators is needed.

Practice Implications

Application of the Framework

(31) There are a number of potential uses for this framework. First, this framework will be useful for health-services researchers interested in the field of dissemination and utilization because it outlines the various stages of the innovation adoption process and identifies possible areas for research. It also provides a visual display of the many factors involved in the process, as well as their inter-relatedness. Access to this framework will assist researchers in determining which "pieces" of the process require further exploration and will suggest where new research would contribute most to the literature. This framework will also facilitate health-service researchers' understanding of the complexities of the research dissemination and utilization process and assist in the development and testing of future dissemination strategies.

(32) The framework will also be useful for provincial and national research funding organizations by providing a clear picture of the various aspects of research dissemination and utilization that are in need of new and ongoing funding. It will allow funding organizations to develop more comprehensive programs of research that seek to describe, understand and explain each stage of the framework, which will contribute to greater understanding of the research dissemination and utilization process as a whole. This framework could also facilitate a more systematic and holistic approach to funding research in this area, by providing a strategy to keep track of funded research projects and determine where gaps in the framework exist so that under-researched areas can be targeted.

(33) The framework will also provide useful insight into the research utilization process for policy and program decision-makers, particularly those interested in promoting the use of research evidence in their organizations. Better understanding of this process will assist decision-makers in strategic planning concerning the provision of services and training to staff, as well as suggest the appropriate outcomes that can be used as measures of successful innovation adoption.

Research Needed

Areas for Future Research

(34) As is illustrated in this paper, there are inconsistencies with respect to the magnitude of theoretical and empirical research that has been conducted in this field. For example, there has been extensive research on the effectiveness of dissemination strategies, particularly among physicians. There has also been considerable research on the characteristics associated with research utilization. However, much less attention has been paid to the process of evidence-based decision-making. There is also little understanding with respect to measuring objectively the transfer of research evidence into practice. In addition, there is little published work examining and explaining the effects of evidence-based decision-making and research utilization on probable outcomes such as patient health, policy outcomes, health-care expenditures and organizational performance indicators.

Conclusions

(35) The framework discussed in this paper summarizes evidence from a broad theoretical and empirical base. It illustrates that the process of the adoption of research evidence in the health-care field is influenced by a variety of characteristics as progression from the knowledge stage to the confirmation stage occurs. In addition to demonstrating the complexity of transferring research evidence into practice, it also serves as a guide for health-services researchers, funding organizations and decision-makers with respect to future research transfer and uptake activities.

Search Strategies

(36) A comprehensive search of multiple databases back to inception was conducted. Databases included MEDLINE, CINAHL, Psychlit, Embase, Healthstar and Management. I also reviewed the reference lists of all articles included in this review and handsearched key journals in the health and management fields for the last 10 years. Keywords included research dissemination, research utilization, evidence-based medicine, reviews, organizational management, organizational culture, decision-making and diffusion of innovations.

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Figure 1: Framework for Research Dissemination and Utilization