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Factors that Facilitate and Impede Effective Knowledge Translation in Population Health Promotion: Results from a Consultation Workshop in Iran

*Shahin Shooshtari

Departments of Family Social Sciences and Community Health Sciences, University of Manitoba; St. Amant Research Centre, Manitoba, Canada

ABSTRACT

Background: The workshop that this paper reports, held in Iran in May of 2011, at the 1st International and 4th National Congress on Health Education and Promotion, had three main objectives: 1) to introduce participants to the knowledge translation (KT) concept, along with its models and methods; 2) to enhance participants' knowledge of how KT could apply to public health education and promotion ; and 3) to learn from different participating stakeholder groups about the factors that facilitate or impede effective KT in public health education and promotion in Iran.

Methods: The workshop consisted of three components: introducing the KT concept, assessing the KT capacity of participants, and facilitating a discussion of the important contextual factors that promote and impede effective KT. Of the 26 individuals from across the country participating in the workshop, 17 took part in a KT capacity assessment activity. They classified themselves into one of the following three stakeholder groups: administrators and policymakers (n=6), practitioners (n=2), and researchers (n=9).

Results: There were different capacities for KT across the three stakeholder groups. The reported challenges for effective KT include "lack of resources and funding"; "lack of time"; "poor quality of relationships and lack of trust between health policymakers, administrators, researchers, and clinicians"; "inadequate skills possessed by healthcare professionals and administrators for assessment and adaptation of research findings"; and "poor involvement of community partners in the research process."

Discussion: There is a great need to develop effective strategies to overcome the reported barriers for effective KT.

Keywords: Knowledge translation, Population, Health, Developing countries, Iran

Introduction

Evidence-informed policy and practice in health education and promotion is a common theme found in both developed and developing countries. Across the globe, more governments and public health agencies than ever have shown an interest in using evidence from sound scientific research to inform their practices both in reducing health inequities and in promoting the health of individuals and their

*Correspondance: Tel:+1204474-8052; *E-mail: Shooshta@cc.umanitoba.ca*

communities. Yet, there remains the well-documented "know-do" gap- the disconnect between successful interventions backed by solid research and what is done in practice [1, 2]. This gap impedes both clinical and community preventive services [3, 4]. Efforts to close the "know-do" gap involve encouraging practitioners and policymakers to better utilize the research evidence for decision making.

A review of the literature shows that both developing and developed countries have established many innovative models and initiatives to support evidence-informed policies and practices to promote population health. In some countries, public health agencies have produced user-friendly syntheses of research evidence as a resources or guidelines for practitioners. For example, a department of the State of Victoria, Australia, published several evidence-based health promotion resources for practitioners that focussed on oral health, adolescent health, fall prevention, child injury prevention, body image, cardiovascular disease, and type 2 diabetes [5]. Despite this great initiative, the extent to which those involved in population health promotion use these resources and guidelines in making decisions is not well known. Bowen and Zwi have proposed that the uptake of research evidence in public health policy and practice follows a pathway comprising three distinct stages: sourcing, using, and implementing the evidence. They called this pathway the "adopt, adapt, and act" process [6]. There is an increasing recognition that closing the "know-do" gap requires active engagement of both researchers and those who may use the research (e.g., policymakers, clinicians, educators, individuals, and families). The effective uptake of research knowledge requires close collaboration, multidirectional sharing of the information, and capacity building. Over time, different terms have been used to refer to this collaborative approach to using research evidence to inform health policy and practice. The most commonly used terms are "research utilization," "research uptake," "evidence-based practice," "knowledge mobilization," "knowledge transfer," "knowledge exchange," and, more recently, "knowledge translation."

Knowledge translation (KT) is a concept that has recently gained currency in the area of health research. The Canadian Institutes of Health Research (CIHR) defines KT as "a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically-sound [sic] application of knowledge to improve the health of Canadians, provide more effective health services and products[,] and strengthen the health care system" [7]. Vital to the process of KT are the interactions, dialogues, and collaborations between knowledge creators (i.e., researchers) and knowledge users [8-10]. This implies that new research usually does not lead to broad adoption or affect health by itself. Effective KT requires that both stakeholders and researchers actively participate throughout the process of research, from the formulation of research questions to the dissemination and translation of findings. Moreover, it becomes essential that researchers and knowledge users have a good understanding of each other's needs and priorities and collaborate to create a KT process that successfully implements new knowledge.

Many successful KT models and initiatives reduce health inequities and therefore promote health [7]. Yet developing a successful KT model or initiative has proven challenging due to a large number of factors — including a lack of institutional policies and resources; varying critical appraisal skills and motivations of staff; ineffective KT strategies; poor personal attitudes; different incentives for researchers and practitioners/policymakers; different timeframes for action; different understanding of and standards of evidence; practitioners' and policymakers' lack of time to pay attention to research results published by researchers; and accessibility issues [11-15]. We can group the factors influencing (i.e., facilitating or impeding) KT efforts into individual (e.g.,

knowledge and skills), organizational (e.g., resources, partnership), and system-level (e.g., values, economics) factors [6].

Although developed countries, such as Canada, have widely used the concept of KT to support evidence-informed planning, practice, and policy in health research [7], it is a relatively new notion in developing countries, including Iran. A review of the literature shows that very few studies in Iran focus on KT. With the establishment of the Knowledge Utilization Research Center at the Tehran University of Medical Sciences (TUMS) in 2006, Iranian research on KT has emerged in recent years [16-19]. This line of research has mostly focused on KT in research organizations associated with the TUMS in the capital city of Tehran. For example, in 2011, Gholami and colleagues assessed the KT capacity of research centres and faculties associated with TUMS, using a KT self-assessment tool for research institutes (SATORI). Another paper by Majdzadeh and colleagues focused on the impact of integration on the Iranian Health Ministry and medical universities, which took place in 1985. The integration was examined in the context of "linking research to action" [19].

To the best of our knowledge, no study in Iran has brought together administrators, policymakers, practitioners, and researchers from across the country, all working in the area of health education and promotion, to assess their capacity (or that of their organization) for KT and to discuss factors that facilitate or impede successful KT. The study presented in this paper aims to fill in this gap. The author welcomed the opportunity to lead and facilitate a half-day workshop at the 1st International and 4th National Congress on Health Education and Promotion in the City of Tabriz, Iran. The congress was organized and hosted by the Tabriz University of Medical Sciences with three main objectives:

1) To enhance the workshop participants' knowledge of the KT concept, including KT models and methods;

2) To enhance the workshop participants' knowledge of how to apply KT to public health education and promotion research and programs; and

3) To facilitate a discussion on factors that promotes and impedes KT in public health education and promotion research and programs.

Methods

Participants and Setting

The congress organizers widely advertised the workshop, held on May 16, 2011, both in Iran and abroad, seeking to reach academics; graduate students in medical sciences schools; researchers working in university-affiliated research centres; regional, provincial, and national health agencies; and other health-centred organizations. A total of 26 administrators, policymakers, planners, educators, and researchers (including graduate students from across the country) participated in the workshop. The participants represented a number of different universities and organizations from different provinces in Iran, including East Azerbaijan, West Azerbaijan, Tehran, Semnan, Hormozgan, Sistan and Baluchestan, Kerman, Markazi, Khuzestan, and Isfahan. The majority of workshop participants (n=15) had completed a master's degree in health education or another health-related field. Two participants were graduate students, two were practicing physicians, and seven had completed a BSc degree in Public Health Sciences or a related field.

Of the 26 workshop participants, 17 participated in an activity to assess KT capacity. The activity involved classifying themselves into one of three stakeholder groups: administrators and policymakers (n = 6), practitioners (n = 2), or researchers (n = 9).

Procedure

The workshop had three main components:

1. Introducing the KT concept

Since workshop participants lacked familiarity with KT, this concept was first

introduced by the author. She presented the Canadian Institutes of Health Research (CIHR) conceptual framework for KT [20], with examples of successful KT initiatives in Canada [21, 22].

2. Assessing the participating organizations' and individuals' KT capacity

A 27-item self-assessment tool developed by the Canadian Health Services Research Foundation [23] was modified and used to measure the KT capacity of workshop participants and their organizations in Iran. This tool assesses KT capacity in the following four areas:

1) Acquire — twelve items on the assessment tool helped to determine the extent to which individuals or organizations can find and obtain required research information. For example, one item stated that "Staff in our organization has the resources to do research."

2) Assess — four items on the tool related to assessing research findings to ensure their reliability, relevance, and applicability. For example, "Staff in our organization has critical appraisal skills and tools for evaluating research quality."

3) Adapt — four items sought to determine the extent to which research findings are presented to decision makers in a useful way. For example, one stated that "Our organization has enough skilled staff with time, incentives, and resources that use research communication skills to present research results concisely and in accessible language."

4) Apply — seven items sought to determine the extent to which organizations (or individuals) have the capacity to use skills, structures, and processes, and the organizational culture to promote and use research findings in decision making. For example, "Our staff values research."

The author had translated the CHSRF KT assessment tool from English to Persian for another study in Iran in 2011 [24]. The translated version of the KT assessment tool was reviewed for language clarity and appropriateness for use in research in Iranian culture. The tool was then pilot tested with two Iranians with some postsecondary education who were neither on the research team nor involved in the research. Results of the pilot test suggested dropping the last item on the "Apply" section of the tool. Therefore, this study used a modified version of the CHSRF KT assessment tool with a total of 26 items. The study used two different versions of the tool—one for clinicians/administrators/policymakers, and another for researchers. This approach was similar to the one used for another workshop in Iran [24], as well as three workshops in the Canadian province of Manitoba [25]. Workshop participants rated each item on the KT assessment tool on a five-point Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree).

The results obtained from the individual assessments were tabulated and analyzed, and the item means were reported by stakeholder groups. The items with the highest and lowest scores for each stakeholder group were identified. Further, the mean score for each section was also calculated and compared among the stakeholder groups. The results section of the paper presents the findings.

3. Discussing important contextual facilitating and impeding factors

At the beginning of the event, the workshop participants were asked to classify themselves into one of three stakeholder groups: administrators and policymakers, practitioners, or researchers. After assessing the KT capacity of participating organizations and individuals, the workshop participants were divided into the different stakeholder groups to discuss the contextual factors that facilitate and impede KT in health education and population health promotion. Following the initial introduction to the concept of KT and the existing research models, workshop participants were encouraged to list and discuss the factors that they believed could facilitate KT research and efforts in health

education and promotion in Iran. They were also encouraged to discuss the existing barriers for developing effective KT research and strategies in health education and promotion in Iran. Finally, they were asked to reflect on the workshop, what they learned there, and what they would like to see as the future direction.

Results

Assessment Results

Table 1 shows item mean scores by stakeholder group and for all workshop participants. The items with the highest mean scores represent areas where individuals or their organization have a good capacity for KT. Items with the lowest mean scores represent areas with a poor capacity for KT. As Table 1 shows, the item with the highest mean score for the *administrators and policymakers* group (mean score=3.33) was item 1.2.7: "I learn from peers through informal and formal networks to exchange ideas, experiences, and best practices." The item with the highest mean score for the *practitioners* group (mean score=4.00) was 1.2.2: "We look for research in non-journal reports (grey literature) by library, Internet access, or direct mailing from organizations such as ministries of health." The item with the highest mean score for the *researchers* group (mean score=4.00) was 1.1.3: "We have the incentive to disseminate research." For *all workshop participants*, the highest mean score was obtained on item 1.2.1 (mean score=3.41): "We look for research in journals … [obtained] by subscription, Internet, or library access."

As Table 1 also shows, the item with the lowest mean score for the *administrators and policymakers* group (mean score=1.17) was item 3.1.4: "Our organization has arrangements with external experts who use research communication skills to link research results to key issues I am facing as a policymaker or administrator." For the *practitioners* group, two items had the lowest mean score (mean score =1.00). First was 3.1.3: "Our organization has arrangements

with external experts who use research communication skills to present research results concisely and in accessible language." Second was 4.1.4: "The management of our organization has clearly communicated our strategy and priorities so that those creating or monitoring research know what is needed in support of our goals."

Table 1: Mean Scores by Assessment Items and Stakeholder Group

Item	Administrators & Policymakers	Practitioners	Researchers	All
1.1.1	2.17	2.00	2.33	2.24
1.1.2	2.00	2.00	2.56	2.29
1.1.3	2.17	3.00	**4.00↑**	3.24
1.1.4	2.83	2.50	3.22	3.00
1.1.5	2.00	2.50	2.11	2.12
1.2.1	2.83	3.00	3.89	**3.41↑**
1.2.2	3.17	**4.00↑**	2.11	2.71
1.2.3	3.00	2.00	2.00	2.35
1.2.4	2.33	3.50	2.67	2.65
1.2.5	1.50	1.50	2.67	2.12
1.2.6	2.50	2.50	2.56	2.53
1.2.7	**3.33↑**	3.00	2.22	2.71
2.1.1	2.33	1.50	2.78	2.47
2.1.2	1.33	1.50	2.56	2.00
2.2.1	1.83	2.00	2.22	2.06
2.2.2	1.83	1.50	2.00	1.88
3.1.1	2.17	2.50	2.22	2.24
3.1.2	2.00	1.50	**1.67↓**	1.76
3.1.3	2.17	**1.00↓**	1.89	1.88
3.1.4	**1.17↓**	1.50	2.33	**1.82↓**
4.1.1	2.33	1.50	2.78	2.47
4.1.2	2.17	2.50	3.11	2.71
4.1.3	3.17	1.50	2.56	2.65
4.1.4	2.83	**1.00↓**	2.89	2.65
4.1.5	2.67	2.00	2.89	2.71
4.1.6	3.00	2.50	3.11	3.00

Notes: Rating scale from 1 (lowest) to 5 (highest)
↑The highest mean scores for each stakeholder group and for all workshop participants

The item with the lowest mean score for the *researchers* group (mean score=1.67) was 3.1.2: "Our organization has enough

skilled staff with time, incentives, and re-sources who use research communication skills to link research results to key issues facing our decision makers." For *all workshop participants*, the lowest mean score was obtained on item 3.1.4 (mean score=1.82): "Our organization has arrangements with external experts who use research communication skills to link research results to key issues facing our decision makers."

Table (2) shows the mean scores by KT assessment area for the three participating stakeholder groups. The areas with the highest mean score indicate the areas with a good capacity for KT. The areas with a low mean score indicate areas with poor KT capacity. As shown in Table 2, for both the *researchers* and *practitioners* groups, the mean score was the highest in the area of "acquire" (mean score of 3.33 and 3.69, respectively). The highest mean score for the *administrators and policymakers* group was obtained in the area of "apply" (mean score=2.69). For the *practitioners* group, the mean score for the two areas of "assess" and "adapt" were equally low (mean score=1.63), indicating poor KT capacity in those areas. The area of "adapt" was also the lowest mean score for *researchers*. The mean score was the lowest in the area of "assess" for the *administrators and policymakers* (mean score=1.83).

Table 2: Mean Scores by Assessment Area and Stakeholder Group

Area of KT Assessment	No. of items	Stakeholder Groups		
		Administrators and Policymakers	Practitioners	Researcers
Area 1: Acquire	12	2.56	3.69	3.33
Area 2: Assess	4	1.83	1.63	2.39
Area 3: Adapt	4	1.88	1.63	2.03
Area 4: Apply	6	2.69	1.83	2.89

Findings Regarding KT Facilitating and Impeding Factors

The 26 workshop participants were divided into three groups — "administrators and policymakers," "clinicians," and "researchers" — to discuss factors that facilitate or impede effective KT in public health and health education and promotion in Iran. A total of 47 comments were recorded across the three groups. Of those, 41 (87%) related to factors that impede effective KT in public health education and promotion. Only six comments concerned factors that facilitate effective KT in public health education and promotion. To analyze this information, each comment got coded with one or more key words; the following section presents the most frequently reported themes.

Facilitating factors

The most frequently reported themes were "increased interest in research utilization" and "increased research training and knowledge of administrators and policymakers who work in the field." The increased interest in utilizing research was noted by those involved in decision making at the population level (e.g., health administrators in health ministries), as well as practitioners, whose work promotes health and well-being of individuals.

It was also noted that, with increased research training, a positive change in attitudes has occurred among those involved in planning and administering health services and programs regarding using the most up-to-date research evidence for decision making. The integration of the Ministry of Health and medical education in Iran was also reported as a factor facilitating effective KT.

Impeding factors

The themes most frequently reported by the three stakeholder groups during the group discussion of impeding factors included "lack of resources and funding available for research in general and KT in particular," "timing issues," "poor quality of

relationships and lack of trust between health policymakers and administrators and researchers," "poor skills for dissemination and translation of research findings," and "poor involvement of community partners in the research process."

Regarding "resources and funding available for research in general and KT in particular," members of the *administrators and policymakers* group reported that they had limited funding available for research and research utilization within their organizations. In addition, they reported that their organizations had very limited expertise (i.e., knowledgeable and skilled staff) relating to research, statistical data analysis, and knowledge dissemination and translation. The *clinicians* and *researchers* groups also reported having limited funding available for health research and, more importantly, for KT in public health education and promotion. They noted that, within the existing system, dissemination and translation of research knowledge is not seen as their (i.e., researchers' and clinicians') responsibility. Therefore, the existing funding sources usually do not cover the expenses associated with such activities.

"Timing" was also reported as an impending factor for effective KT. Administrators and policymakers noted that research is usually a long process. They also noted that they have limited time and resources to access research findings available from other sources. Researchers and clinicians too reported that research is a lengthy process, which also includes research dissemination and knowledge translation. They noted that the existing funding models do not support KT activities, as they are time-consuming and resource-intense. These groups stated that, for effective KT, they need to work with community partners and those who will benefit most from the findings of their research. Work with community partners is not a well-funded research initiative compared to other types of research — for example, lab-based clinical research.

"Poor quality of relationships and lack of trust between health policymakers and

administrators and researchers" was another factor reported as impeding effective KT. Administrators and policymakers described the obligatory involvement of academic researchers on their research projects as a limitation. They reported that this involvement makes research take longer and that only researchers, as the principal investigators, will get the research credits. Clinicians and researchers reported limited opportunities for collaborative research with health ministries and/or other community partners, whose work affects population health. They noted that very limited established opportunity exists for close collaboration and networking. The established collaborations and networking efforts are at risk with constant changes in the administration of health services and medical education. They also cited limited opportunities for young researchers.

"Poor skills for dissemination and translation of research findings" was reported by all three stakeholder groups. Researchers reported that some traditional beliefs act as barriers for effective KT, therefore making it important for them to develop skills for effective KT in the context of local cultures. They also reported that the dissemination of research findings in an accessible and appropriate format is not usually seen as part of their responsibilities by the funding agencies. Clinicians also emphasized the importance of dissemination and translation of research findings to ordinary people in a language which is easily understood. Administrators and policymakers also reported poor skills within their organization for the dissemination and translation of research findings.

"Poor involvement of community partners" was also reported as an impeding factor for effective KT by both researchers and clinicians. They noted that a disconnect commonly exists between the needs of communities and the research funding priorities.

Discussion and Conclusions

The three main objectives of the workshop reported in this paper were to: 1)

enhance the workshop participants' knowledge of the KT concept, along with its models and methods; 2) enhance their knowledge of how KT could apply to public health education and promotion research and programs; and 3) facilitate a discussion about the factors that promote and impede KT in public health education and promotion research and programs.

All of the workshop objectives were achieved. "Knowledge translation" was a new concept to the majority of the workshop participants. The few participants who were already familiar with the concept did not know how KT as a process might apply to public health education and promotion. They found the CIHR model of integrated KT a useful tool to inform the development of collaborative KT projects. The workshop participants provided written feedback indicating that they found the information on KT and the Canadian examples of successful collaborative KT research useful. The author was encouraged to plan, organize, and facilitate future workshops that would dedicate more time to discuss step-by-step plans for the development of collaborative KT research for the purpose of health education and promotion.

At the workshop, participants were asked to classify themselves into one of the three groups: "administrators and policymakers," "practitioners," and "researchers." This classification of participants elicited different perspectives about KT and the utilization of research for practice and policy. Administrators and policymakers, as well as researchers, were well represented at the workshop, but only two individuals self-classified as practitioners in public health. A broader representation of clinicians working in the field (e.g., public health consultants, health education coordinators, physicians, nurses, and nutritionists) will enrich future discussions.

For the purpose of the workshop, we used a validated tool developed by the CHSRF (2005) to assess the capacities of workshop participants and their organizations for KT. The use of the CHSRF tool enabled us to assess the KT capacity not only of researchers, but also of clinicians and those involved in administering health services and policy. As discussed earlier, KT in public health is a new area of study and research in Iran, and the focus has been mostly on researchers and university-affiliated research units [16-19].

From the KT assessments, we learned that participants from all three stakeholder groups value research highly and are interested in utilizing research findings for decision making in practice and policy. The CIHR model of integrated KT was found a useful tool to bridge the existing gap in "what we know" and "what we do" by encouraging researchers, practitioners, and policymakers to work together as a research team, collaborating throughout the process of research — from the formulation of research questions through the execution of research, the dissemination and translation of findings, and evaluation.

The assessment results clearly suggest that acquiring research evidence is not a challenge for researchers, clinicians, administrators, and policymakers. However, differences exist in the main sources of information used by stakeholder group. For example, administrators and policymakers reported that they "… learn from peers through informal and formal networks to exchange ideas, experiences, and best practices," whereas practitioners reported that they "…look for research in non-journal reports (grey literature) by library, Internet access, or direct mailing from organizations such as ministries of health."

Clinicians, administrators, and policymakers reported lacking the skills to assess the quality of research evidence. Also, all of the stakeholder groups got a low rating for adaptation of research findings. Results such as these emphasize that researchers, clinicians, administrators, and policymakers must work together and that collaboration with community partners is needed for effective KT.

A number of challenges for effective KT were discussed. In particular, participants

reported "lack of resources and funding available for research in general and KT in particular," "lack of time," "poor quality of relationships and lack of trust between health policymakers, administrators, researchers, and clinicians," "inadequate skills possessed by healthcare professionals and administrators for assessment and adaptation of research findings," and "poor involvement of community partners in the research process." They also reported that the current health research funding models in Iran do not support integrated KT research. Further, they cited frequent management changes as a barrier to effective KT. The barriers reported at this workshop are similar to those reported by people working in the same field in developed countries [11, 26]. They are also consistent with the reported barriers in other fields, for example in school psychology [27], nursing [28], and social work [29], and developmental disabilities [25].

The increased interest in utilizing research for practice and policy in public health education and promotion was encouraging. Research training for individuals involved in public health administration and policy was noted as a positive factor, facilitating effective KT. Our results, however, suggest the inadequacy of KT capacity building activities at the individual level. There is also a great need to work together to develop strategies that address the reported organizational barriers for effective KT at the research, practice, and policy levels.

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