The Canadian Journal of Program Evaluation Vol. 28 No. 1 Pages 67–85
ISSN 0834-1516

COMPARISON OF THE USE OF SELF-REPORT SURVEYS AND ORGANIZATIONAL DOCUMENTS IN KNOWLEDGE TRANSLATION RESEARCH

Jennifer A. Boyko
Brock University
St. Catharines, Ontario

Maureen Dobbins
Kara DeCorby
Steven Hanna
McMaster University
Hamilton, Ontario

Abstract: We compared the same outcome data obtained from two different sources (self-report surveys and organizational documents) in order to examine their relative performance in evaluating the effect of knowledge translation strategies on evidence-informed decision-making. Our data came from a randomized controlled trial that evaluated the impact of knowledge translation strategies on promoting evidence-informed decision-making in public health units across Canada. We found that self-report surveys identified more outcome data than organizational documents; the types of documents that identified the most outcome data were evaluation plans, operational plans, work plans, and evaluation data; the types of documents that identified the least outcome data were meeting minutes, statistics/annual reports, and strategic plans; and evaluation plans, operational plans, and work plans together provide more outcome data than other combinations. Overall, our study suggests that evidence-informed decision-making may be appropriately measured by using multiple data sources in order to compare data across sources and to gain a more accurate representation of the results. Our findings also suggest that if organizational documents are used as a source of data in knowledge translation research, then specific types should be used in order to maximize the likelihood of identifying measures of effectiveness.

Résumé : Nous avons comparé les mêmes données de résultats obtenues de deux sources différentes (les sondages à déclaration volontaire et les documents d'organismes) afin d'étudier leur capa-

---

Corresponding author: Jennifer A. Boyko, Assistant Professor, Department of Community Health Sciences, Brock University, 500 Glenridge Avenue, St. Catharines, ON, Canada L2S 3A1; <jboyko@brocku.ca>

cité relative à évaluer l'effet que les stratégies d'application des connaissances peuvent avoir sur la prise de décision fondée sur les données probantes. Nos données nous ont été fournies par un essai contrôlé randomisé qui évaluait l'impact que pouvaient avoir les stratégies d'application des connaissances sur la promotion de la prise de décision fondée sur les données probantes dans les bureaux de santé publique au Canada. Nous avons pu conclure que : les sondages à déclaration volontaire permettaient d'identifier un plus grand nombre de données de résultats que les documents organisationnels; les types de documents qui permettaient d'identifier le plus grand nombre de données de résultats étaient les plans d'évaluation, les plans opérationnels, les plans de travail, et les données d'évaluation; les types de documents les moins aptes à permettre d'identifier les données de résultats étaient les comptes rendus de réunions, les rapports statistiques/annuels, et les plans stratégiques; et, pris ensemble, les plans d'évaluation, les plans opérationnels, et les plans de travail fournissent plus de données de résultats que les autres types de documents réunis. De manière générale, notre étude conclut que la prise de décision fondée sur les données probantes pouvait être mesurée de manière plus appropriée si l'on utilisait plusieurs sources différentes de données, ce qui permettrait de comparer les données de toutes ces sources et obtenir une idée plus précise des résultats. Notre étude suggère également que si des documents organisationnels servent de sources de données pour une recherche en matière d'application des connaissances, il faudrait utiliser des types particuliers de documents afin de maximiser la probabilité d'identifier des moyens pour mesurer l'efficacité.

INTRODUCTION

The contexts in which decision-makers who work in the health system must make program and policy decisions using research evidence are complex (Dobrow, Goel & Upshur, 2004). For example, research evidence must compete with other factors (e.g., organizational constraints, stakeholder interests, public values) in program and policy decision-making processes (Oxman, Lavis, Lewin & Freithem, 2009). The term "knowledge translation" has emerged in recent years to describe the process of the exchange, synthesis, and application of research findings within a complex set of interactions among researchers and knowledge users (Canadian Institutes for Health Research [CIHR], 2004). In recent years, knowledge translation strategies that aim to support the use of research evidence in health system decision-making, such as deliberative dialogues (Boyko, Lavis, Abel-

son, Dobbins, & Carter, 2012) and evidence briefs (Lavis, Permanand, Oxman, Lewin, & Fretheim, 2009), have emerged. However, there is minimal guidance available about how to evaluate them in terms of selecting appropriate data collection methods (Mitton, Adair, McKenzie, Patten, & Waye Perry, 2007; Skinner, 2007). This is noteworthy because evaluating outcomes is a necessary component of processes that aim to translate knowledge into action (Graham et al., 2006; Lavis, Lomas, Hamid, & Sewankambo, 2006).

We identified three key challenges in the published literature that relate to evaluating interventions that aim to support the use of research evidence in health systems decision-making and that help to explain why limited guidance is available for evaluating them. First, there is a lack of published research on the impact of knowledge translation strategies on healthcare decision-makers. This lack of research is apparent in a review that examined and summarized the evidence base for knowledge translation strategies on healthcare policies at the organizational, regional, provincial, and national levels and found that only 20% (n = 18) of included studies reported on the implementation or evaluation of a specific strategy (Mitton et al., 2007).

Second, it is unclear what indicators of successful knowledge translation strategies aimed at health system decision-makers are (Dobbins et al., 2009). Knowledge translation "success" has been defined according to two criteria: (a) the interactions between stakeholders in the production and use of knowledge and (b) knowledge use or application (Davison, 2009). However, what success looks like in specific health system contexts or in relation to specific health system issues has not been defined. Van Eerd et al. (2011) suggest that the context-specific nature of knowledge translation is a key challenge related to establishing indicators and evaluating the impact of knowledge translation interventions. Accordingly, an aim of evidence-informed policy should be to develop more rigorous methods for identifying, interpreting, and applying evidence in different decision-making contexts (Dobrow, Goel, Lemieux-Charles, & Black, 2006).

Third, although some indicators of knowledge translation effectiveness have been identified (e.g., the engagement of knowledge users and the use of knowledge to inform practice; Davison, 2009), it is not clear what the most appropriate sources of these indicators are (Dobbins et al., 2009). Knowledge translation research done with decision-makers such as those working in health systems must use

data collection methods that are feasible given the constraints that exist in studying "real world" phenomena. For example, it may not be feasible to expect managers to complete a survey or participate in an interview that takes more than a few minutes to complete. A review of knowledge translation strategies in the area of healthcare policy found that studies related to measuring the impact of research knowledge commonly used document analysis, interviews, and surveys (Mitton et al., 2007). However, we could not identify any published literature about the relative reliability and validity of these data sources.

The challenge of selecting an appropriate source of data in the context of knowledge translation research is highlighted by a randomized controlled trial (RCT) that evaluated the effectiveness of three strategies (knowledge brokers, tailored messages, and access to an online registry of research evidence) on the incorporation of research evidence into public health unit policies and programs (Dobbins et al., 2009). Two main limitations of self-report data were evident in the RCT. The first limitation is that social desirability bias may influence knowledge translation survey respondents to report using research evidence in practice despite not having done so. For example, when surveyed at baseline in the RCT, some research participants may have reported that specific health programs and policies existed in their health unit when they may not have (Dobbins et al., 2007). There is growing pressure in fields such as public health to make program and policy decisions based on high quality evidence including systematic reviews (Kiefer et al., 2005; Sweet & Moynihan, 2007). Therefore, participants in knowledge translation research may tend to overreport their research use. The second limitation is that individuals who are expected to participate in knowledge translation research on behalf of their organization (e.g., a public health unit) may not be knowledgeable about all relevant evidence-informed practices. As a result, indicators of research use in program or policy decisions may be underreported. Dobbins et al. (2009) suggested that the individuals in their study who completed self-report surveys on behalf of their health unit may not have been aware of all the relevant programs and policies across their organization, which may have affected baseline or follow-up measurements.

The limitations of using self-report surveys in knowledge translation research are consistent with the contextual sources of self-report bias described in the literature. For example, contextual factors related

to using self-report surveys that have been identified in the literature include respondents' desire to give socially desirable answers, respondents' desire to conceal their true answer, lack of personal knowledge, and the extent to which respondents may have difficulty generating accurate answers to questions about their organization (Donaldson & Grant-Vallone, 2002; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). The limitations of using self-report surveys in general, and in knowledge translation research in particular, raises the question: Is there a better method than self-report surveys for collecting data to measure knowledge translation outcomes?

The findings from the study by Dobbins et al. (2009) led us to hypothesize that an alternative data collection strategy may be to use organizational documents that communicate and record information about an organization's policies and programs. Some examples include high-level planning documents, such as strategic plans, and practical or functional planning documents, such as operational plans. Using organizational documents to obtain data in knowledge translation research may avoid method bias (the error in a measure that is due to how the data are collected) that is caused by using self-report surveys. Although self-report has been compared with other data sources (e.g., administrative database information) to understand the accuracy of data collection methods (Raina, Torrance-Rynard, Wong, & Woodward, 2002), we did not identify in a search of the literature any studies that compared self-report with organizational documents.

In an effort to contribute much needed knowledge about the evaluation of knowledge translation interventions, we carried out a secondary data analysis study to examine the extent to which outcome data collected from self-report surveys was similar to or different than outcome data collected from organizational documents. We expected that a comparison of this kind would provide useful insights as to whether one strategy is superior to the other, or whether some combination of the two is needed. Our specific study objectives were to (a) assess the agreement between the same outcomes collected from self-report and organizational documents, and (b) determine the types of organizational documents that are most likely to identify knowledge translation outcomes. Our overall intent was to strengthen the quality of outcome data in studies evaluating knowledge translation strategies. In doing so we also hoped to support evaluators tasked with planning and assessing the outcomes of knowledge translation processes.

METHODS

Description of Primary Study

We used data collected from an RCT that evaluated the effectiveness of knowledge translation strategies (knowledge brokers, tailored messages, and access to an online registry of research evidence) on the incorporation of research evidence into public health unit policies and programs. Of the 141 health units in Canada, 108 (77%) participated in the original study. Health units included regional health authorities or, in Ontario, local public health departments. One individual from each health unit participated in the original study on their organization's behalf. Data were collected at baseline, immediately following the one-year intervention and one-year post-intervention, through the use of a survey, gathering of organizational documents, qualitative interviews, and a knowledge broker's daily reflective journal. The main outcome of the original study was the extent to which research evidence was used in a recent program decision. The change in the sum of programs or policies related to healthy body weight being delivered at the health units was evaluated as a secondary outcome. These outcomes were chosen based on research demonstrating that the outcomes of knowledge translation interventions can be classified as being related to knowledge, attitudes, decision-making, implementation, or impact (Dobbins, Cockerill, Barnsley, & Dicenso, 2002). In the original RCT, changes in policies and programs at the local public health unit level were considered a measure of impact—that is, that research findings had been translated into more useable forms (Beyer, 1997; Estabrooks, 1999) and a change occurred in the general climate for research use in the organization (Lavis et al., 2006). Mixed-effects models were used to test the hypotheses of the original study. A detailed description of the RCT's research design, including sampling strategy and findings, is available elsewhere (Dobbins et al., 2009).

Description of Secondary Data Used

In our study we compared two types of data that were collected as part of the primary study. First, we used self-report data that included the results of a telephone-administered survey. The survey data related to whether nine different health programs or policies related to healthy body weight were in place in public health units. The dichotomous (yes or no) questions that related to the nine health programs and policies are listed in Table 1. Second, we used data

obtained from organizational documents that included evidence (i.e., written documentation) of whether the same nine health programs and policies were in place. As part of the original study, public health units were asked to submit organizational documents related to programs and policies about physical activity and healthy body weight promotion in school-age children from kindergarten to Grade 12. The specific types of documents included strategic plans, operational plans, team work plans, evaluation plans, evaluation data, statistics/annual reports, and meeting minutes. Although the organizational documents we used were collected as part of the primary study, we assessed them for evidence of whether the nine health programs and policies were in place as part of our study. The data used in the current study represented 68 health units that completed the self-report survey in the RCT and also submitted organizational documents.

Table 1
Comparison Between Self-Report and Organizational Document Data

Health programs and policies (*n* = health units that reported on this outcome)					
Agreement / Disagreement	Self-report response	Organizational document indication	Freq (%)	% observed agreement (95% CI)	*k*
1: Interventions are focused on changing behaviour as opposed to gaining knowledge (*n* = 66)					
Agreement	Yes	Yes	48 (72.7)	74.2 (64,83)	-0.04
	No	No	1 (1.5)		
Disagreement:	Yes	No	10 (15.2)	-	- -
	No	Yes	7 (10.6)	-	- -
2: Interventions are multi-component and targeted at changing behaviour (*n* = 67)					
Agreement	Yes	Yes	42 (62.7)	67.2 (55,79)	0.01
	No	No	3 (4.5)		
Disagreement	Yes	No	12 (17.9)	-	- -
	No	Yes	10 (14.9)	-	- -
3: Interventions include messages targeted at specific behaviours (e.g., increased fruit and vegetable consumption) (*n* = 67)					
Agreement	Yes	Yes	44 (65.7)	70.1 (58,82)	0.04
	No	No	3 (4.5)		
Disagreement:	Yes	No	13 (19.4)	-	- -
	No	Yes	7 (10.4)	-	- -
4: Interventions target high-risk populations (*n* = 66)					
Agreement	Yes	Yes	6 (9.1)	45.5 (34,58)	0.04
	No	No	24 (36.4)		
Disagreement	Yes	No	33 (50)	-	-
	No	Yes	3 (4.5)	-	-

(continued next page)

Agreement / Disagreement	Self-report response	Organizational document indication	Freq (%)	% observed agreement (95% CI)	*k*
5: Interventions include a goal-setting component for individuals (*n* = 64)					
Agreement	Yes	Yes	5 (7.8)	59.4 (47,71)	0.04
	No	No	33 (51.6)		
Disagreement	Yes	No	19 (29.7)	-	-
	No	Yes	7 (10.9)	-	-
6: Interventions include the use of small groups (*n* = 65)					
Agreement	Yes	Yes	9 (13.8)	64.6 (53,77)	0.21
	No	No	33 (50.8)		
Disagreement	Yes	No	18 (27.7)	-	-
	No	Yes	5 (7.7)	-	-
7: Interventions include messages targeted at decreasing sedentary behaviour and increasing physical activity (*n* = 68)					
Agreement	Yes	Yes	26 (38.2)	42.6 (31,55)	0.03
	No	No	3 (4.4)		
Disagreement	Yes	No	38 (55.9)	-	-
	No	Yes	1 (1.5)	-	-
8: Interventions advocate for an increase in the number of physical activity classes required during school hours; for an increase in the amount of aerobic activity provided during school hours; for regular classroom teachers to receive training and mentoring from specialists; or for specialists to teach physical education classes (*n* = 67)					
Agreement	Yes	Yes	15 (22.4)	44.8 (33,57)	0.01
	No	No	15 (22.4)		
Disagreement	Yes	No	30 (44.8)	-	- -
	No	Yes	7 (10.4)	-	- -
9: Interventions promote family and/or community involvement (*n* = 67)					
Agreement	Yes	Yes	43 (64.2)	68.7 (57,81)	0.07
	No	No	3 (4.5)		
Disagreement	Yes	No	16 (23.9)	-	-
	No	Yes	5(7.5)	-	-

Note. Although the data is representative of 68 health units, if health units answered "I don't know" to one of the program or policy outcome questions, this health unit was eliminated from the analysis for that specific outcome rather than weighting these responses in the calculations of agreement. Thus, *n* values differ slightly by program or policy.

Secondary Data Analysis

During our initial screening of all submitted organizational documents, we excluded documents if they were dated earlier than 2003; were not organizational documents (e.g., guidelines such as the Canada Food Guide developed by national agencies); or did not belong

to one specific health unit (e.g., a report by a provincial committee representing various health units). In total, we included a sample of 329 organizational documents in our study (Table 2).

Table 2
Sample of Documents

Type of document	*n* (%)
Strategic plans	35 (10.6)
Operational plans	32 (9.7)
Work plans	33 (10)
Evaluation plans	27 (8.2)
Evaluation data	27 (8.2)
Statistics/annual reports	30 (9.1)
Meeting minutes	45 (13.7)
Other	100 (30.4)
Total	329 (100)

One member of our research team (JB) assessed our sample of documents by completing a data extraction form for each health unit that submitted documents. The following information was extracted about the group of documents that each health unit provided: (a) types of documents; (b) whether and which types of documents provided indication that the nine health programs or policies were in place; and (c) notes about the documents (this section was used during the initial screening to maintain a record of reasons why documents were included or excluded). JB was blind to the self-report survey data and health unit allocation to intervention or control group in the original RCT study. A small subset of documents was assessed by a second member of our research team (KD), and discrepancies were discussed until consensus was reached. We entered the results of the document analysis into an SPSS database and prepared the data for comparison to the self-report data, which we also entered into SPSS.

We used two statistical methods to analyze our data. First, we used simple descriptive statistics to describe the sample of organizational documents, as well as to assess whether different types and combinations of documents differed in the frequency with which health programs and policies were identified in them. Second, we assessed agreement between self-report and organizational document data for

each of the health program and policy outcomes of the primary study using observed agreement, as well as beyond chance agreement, using Cohen's kappa coefficient (*k*).

RESULTS

Comparison of Self-Report and Organizational Document Data (Table 1)

We calculated agreement (*yes-yes* and *no-no*) and disagreement (self-report *yes* and organizational document *no*; and self-report *no* and organizational document *yes*) for each health program or policy. Table 1 provides a summary of the 2×2 table results for each policy. The observed agreement between self-report and organizational documents ranged from 42.6% (*95% CI 31, 55*) to 74.2% (*64, 83*). The calculated *k* values are quite low. (However, the frequency of not finding any health programs and policies is also low; see the Limitations section.) In terms of how often organizational documents identified each of the health programs and policies, these ranged from 13.6% (*6, 21*) to 83.3% (*93, 73*). We found that the range for how often self-report identified each of the health programs and policies was from 41.5% (*30, 54*) to 94.1% (*88, 100*). Overall, we found that self-report data identified more health programs and policies than organizational documents.

Optimal Types and Combinations of Organizational Documents (Tables 3 & 4)

We found that the types of organizational documents that provided evidence of health programs and policies most often were evaluation plans, 74.1% (*58, 90*); operational plans, 71.9% (*56, 88*); work plans, 63.6% (*48, 80*); and evaluation data, 59.3% (*41, 77*). Meeting minutes, 53.3% (*39, 67*); statistics/annual reports, 50.0% (*32, 68*); and strategic plans, 48.6% (*33, 65*), provided evidence of health programs and policies least often. When we combined the document type with the highest likelihood of identifying any program or policy (evaluation plans, $n = 27$) and the document type with the lowest likelihood of reporting any program or policy (strategic plans, $n = 35$), we found that 59.7% (*48, 72*) indicated health programs and policies were in place. When we combined the two best and worst organizational document types ($N = 122$), we found that 60.5% (*53, 69*) of them indicated health programs and policies. When we combined all the document types ($N = 229$), we found that health programs and poli-

cies were identified in 59.4% (*56, 62*) of them. Finally, we found that health programs and policies were indicated in 69.6% (*60, 80*) of the top three organizational document types (N = 92) and that the combination of evaluation plans, operational plans, and work plans provided indication of more health programs and policies than other combinations.

Table 3
Document Types and Indication of Any Health Program or Policy

Document type (*n*)	Frequency of any program or policy	% that indicated any program or policy	95% CI
Strategic plans (*n* = 35)	17	48.6	33,65
Operational plans (*n* = 32)	23	71.9	56,88
Work plans (*n* = 33)	21	63.6	48,80
Evaluation plans (*n* = 27)	20	74.1	58,90
Evaluation data (*n* = 27)	16	59.3	41,77
Statistics/annual reports (*n* = 30)	15	50	32,68
Meeting minutes (*n* = 45)	24	53.3	39,67
Total (*n* = 229)	136	59.4	56,62

Table 4
Document Combinations and Indication of Any Health Program or Policy

Strategic plans (*n* = 35)	√*	√	√	√	
Operational plans (*n* = 32)	√*			√*	√*
Work plans (*n* = 33)	√*				√*
Evaluation plans (*n* = 27)	√*		√*	√*	√*
Evaluation data (*n* = 27)	√*	√*			
Statistics / annual reports (*n* = 30)	√*	√*		√*	
Meeting minutes (*n* = 45)	√*	√*			
Total # of documents in the combination (*N*)	229	116	62	122	92
Total frequency of any program or policy within documents	136	72	37	75	64
% that indicated any program or policy	59.4	52.6	59.7	60.5	69.6
95% CI	56,62	37,61	48,72	53,69	60,80

* indicates being included in the document combination.

DISCUSSION

We examined two different sources of data (self-report surveys and organizational documents) used in knowledge translation research when the outcome of interest is evidence-informed decision-making. Although it is challenging to draw definitive conclusions from our study about an optimal data source, two important lessons about how to measure outcomes in knowledge translation research can be gleaned from our study.

The first lesson is the importance of considering method bias in knowledge translation research because of the complexity of the context in which knowledge translation interventions must be evaluated. One way to control for method bias is to choose a more objective data source if one is available. Administrative databases and medical records, for example, are considered more objective and have been used to validate self-report measures of health care utilization (Bhandari & Wagner, 2006). In medical outcomes research, actual patient behaviour is more objective than self-report (Foley, Manuel, & Vitolins, 2005). Although using more objective data sources can be expensive and time-consuming, they provide an alternative and can be used to validate other data. Unfortunately, it is not yet clear what alternatives to self-report in the knowledge translation field are available.

Our study suggests that another way to control for method bias is by using organizational documents in combination with self-report surveys to strengthen confidence in results. Self-report and document analysis methods each have different sources of error that could be alleviated by using both. In our study, bias related to self-report surveys is reflected in the disagreement when organizational documents identified health programs and policies but self-report did not. Such disagreement may be the result of the participants' knowledge and understanding of what evidence-informed decision-making is, or the constructs used to measure it (e.g., awareness of the existence of programs and policies in one's organization). For example, an individual with several years' experience with an organization may be more aware (than a more novice individual) about the health programs and policies that are available and more likely to accurately report the presence or absence of health programs and policies.

Bias related to the use of organizational documents in knowledge translation research is reflected in the disagreement when self-report surveys identified programs and policies, but organizational

documents did not. This type of disagreement may be the result of health units not providing the documents in which the information was captured, or the information may not be documented at all. Systematic error appears problematic in both data sources in our study, as demonstrated by the types of disagreement.

Using data from both self-report surveys and organizational documents to measure the incorporation of research evidence into public health unit policies and programs is consistent with a systematic review of concepts, examples, and methods of evaluating research utilization in policy making that recommends research in the field should combine interviews with document analysis (Hanney, Gonzalez-Block, Buxton, Kogan, 2003). A report to the World Health Organization's Research and Cooperation Group based on this review recommends that a combination of approaches, including documentary analysis, interviews, and scales that report the level of research utilization in policy making, should be used (Hanney et al., 2003). In our study, self-report surveys and organizational documents together identified more health programs and policies than either data source alone, which suggests that using both may provide a more accurate estimate of the effect of knowledge translation interventions in the context of evidence-informed practice within public health units.

The second lesson that can be gleaned from our study is that if organizational documents are used as a source of data, then emphasis should be placed on gathering specific types. Our findings suggest that evaluation plans are the most likely type of document from which to obtain information about health programs and policies in public health units. In terms of the best combination, evaluation plans, operational plans, and work plans together may provide the greatest likelihood of identifying health programs and policies. Given that the types of documents most likely to provide relevant information include program or department-level plans such as evaluation plans, operational plans, and work plans, these documents should be suggested as the preferred documents when evaluating the evidence-informed decision-making within public health organizations; strategic or business plans might be more appropriate when aiming to determine budgetary information (Minke et al., 2007). Overall, research that aims to evaluate the effectiveness of knowledge translation strategies might consider requesting specific types of organizational documents at baseline and follow-up intervals to maximize the likelihood of identifying health programs and policies as a measure of effectiveness, as well as to reduce effort and time. It is important to note, however, that an important limitation of using organizational

documents as a source of evidence is that no guidance exists on how to judge the quality of such evidence. For example, although hierarchies of research evidence can help make sense of the different types of research evidence, no such hierarchy exists for non-research-based forms of evidence such as organizational documents. Furthermore, although grey literature databases include evidence that exists outside of peer review (which may or may not be research-based), no guidance exists on how to judge the quality of such evidence.

Limitations

There are three main limitations to our study. First, we could not neatly categorize organizational documents into specific types. For example, some documents labelled as "organizational plans" were, according to the definitions used for our study, high-level strategic plans. Second, the low k values limit conclusions that can be drawn about the strength of agreement between types of data. A common problem with the use of k, which may have impacted our study, is that if the expected agreement is large, then the correction process can convert a relatively high observed agreement into a relatively low value of k (Feinstein & Cicchetti, 1990). Research that compares data obtained from different sources should ensure each outcome is equiprobable in order to avoid this problem. Third, although independent sample t-tests showed no significant differences between health units that did submit organizational documents and those that did not, further exploration of any differences between the 68 health units represented in our study may have provided further insight into the issue of method bias as it relates to knowledge translation research. In their survey of Alberta nurses, Milner, Estabrooks, and Humphrey (2005) found that participant characteristics such as holding a degree in nursing significantly predicted instrumental research use. In our study we did not examine the effect that any variables related to characteristics of the health units (e.g., who within the health unit completed the survey and submitted the documents as part of the RCT) had on the health programs and policies identified.

CONCLUSION

Our study is a step forward in understanding how to measure the effect of knowledge translation interventions on evidence-informed decision-making. Overall, our study suggests that evaluators and researchers involved in planning and assessing the outcomes of

knowledge translation processes should consider that (a) evidence-informed decision-making may be appropriately measured by using multiple data sources in order to compare data across sources and to gain a more accurate representation of the results; and (b) if organizational documents are used as a source of data in knowledge translation research, then specific types should be used in order to maximize the likelihood of identifying measures of effectiveness. Despite the usefulness of our findings to evaluators and researchers, our study also demonstrates the need for more stringent data collection methods that reduce systematic error in knowledge translation research. Future methodological research might include prospective evaluations (versus the retrospective evaluation design used in our study) of the use of organizational documents in knowledge translation research. Such research might consider the nature of the knowledge underpinning specific types of organizational documents, as well as ways to assess the quality of this type of evidence. Future research might also address pilot testing of instruments used for document analysis, validity testing of self-report surveys, and the fidelity of data collection procedures.

ACKNOWLEDGEMENTS

We thank the following groups and individuals at McMaster for their comments on earlier drafts: KT-nomics; 2008 Health Research Methodology Comprehensive Examination Class; John Lavis; Parminder Raina. Le merci aussi à Francois-Pierre Gauvin pour votre aide.

REFERENCES

Beyer, J. M. (1997). Research utilization: Bridging the gap between communities. *Journal of Management Inquiry, 6*(1), 17–22.

Bhandari, A., & Wagner, T. (2006). Self-reported utilization of health care services: Improving measurement and accuracy. *Medical Care Research & Review, 63*(2), 217–235.

Boyko, J. A., Lavis, J. N., Abelson, J., Dobbins, M., & Carter, N. (2012). Deliberative dialogues as a mechanism for knowledge translation and exchange in health systems decision-making. *Social Science and Medicine, 75*(11), 1938–1945.

Canadian Institutes for Health Research. (2004). *Knowledge translation strategy*. Ottawa, ON: Author.

Davison, C. M. (2009). Knowledge translation: Implications for evaluation. In J. M. Ottoson & P. Hawe (Eds.), *Knowledge utilization, diffusion, implementation, transfer, and translation* (New Directions for Evaluation No. 124, pp. 75–87). San Francisco, CA: Jossey-Bass.

Dobbins, M., Cockerill, R., Barnsley, J., & Dicenso, A. (2002). A framework for the dissemination and utilization of research for health-care policy and practice. *Worldviews on Evidence-based Nursing presents the archives of Online Journal of Knowledge Synthesis for Nursing, E9*(1), 149–160.

Dobbins, M., DeCorby, K., Robeson, P., Ciliska, D., Thomas, H., Hanna, S., … Cameron, R. (2007, February). *The power of tailored messaging: Preliminary results of the first randomized controlled trial in Canada on knowledge brokering*. Presented at the Canadian Cochrane Colloquium, Ottawa, ON.

Dobbins, M., Hanna, S., Ciliska, D., Manske, S., Cameron, R., Mercer, S., … Robeson, P. (2009). A randomized controlled trial evaluating the impact of knowledge translation and exchange strategies. *Implementation Science, 4*(61). Retrieved from http://www.implementationscience.com/content/pdf/1748-5908-4-61.pdf

Dobrow, M. J., Goel, V., Lemieux-Charles, L., & Black, N. A. (2006). The impact of context on evidence utilization: A framework for expert groups developing health policy recommendations. *Social Science and Medicine, 63*(7), 1811–1824.

Dobrow, M. J., Goel, V., & Upshur, R. E. G. (2004). Evidence-based health policy: Context and utilization. *Social Science and Medicine, 58*, 207–217.

Donaldson, S. I., & Grant-Vallone, E. J. (2002). Understanding self-report bias in organizational behavior research. *Journal of Business and Psychology, 17*(2), 245–260.

Estabrooks, C. A. (1999). The conceptual structure of research utilization. *Research in Nursing & Health, 22,* 203–216.

Feinstein, A. R., & Cicchetti, D. V. (1990). High agreement but low Kappa: I. The problems of two paradoxes. *Journal of Clinical Epidemiology, 43*, 543–549.

Foley, K., Manuel, J., & Vitolins, M. (2005). The utility of self-report in medical outcomes research. *Evidence-Based Healthcare and Public Health, 9*(3), 263–264.

Graham, I., Logan, J., Harrison, M., Straus, S., Tetroe, J., Caswell, W., & Robinson, N. (2006). Lost in translation: Time for a map? *Journal of Continuing Education in the Health Professions, 26*, 13–24.

Hanney, S. R., Gonzalez-Block, M. A., Buxton, M. J., & Kogan, M. (2003). The utilization of health research in policymaking: Concepts, examples and methods of assessment. *Health Research Policy and Systems, 1*(2). Retrieved from http://www.health-policy-systems.com/content/pdf/1478-4505-1-2.pdf

Kiefer, L., Frank, J., Di Ruggiero, E., Dobbins, M., Manuel, D., Gully, P. R., & Mowat, D. (2005). Fostering evidence-based decision making in Canada: Examining the need for a Canadian population and public health evidence centre and research network. *Canadian Journal of Public Health, 96*, I1–I19.

Lavis, J. N., Lomas, J., Hamid, M., & Sewankambo, N. K. (2006). Assessing country-level efforts to link research to action. *Bulletin of the World Health Organization, 84*, 620–628.

Lavis, J. N., Permanand, G., Oxman, A. D., Lewin, S., & Fretheim, A. (2009). SUPPORT tools for evidence-informed health policymaking (STP) 13: Preparing and using policy briefs to support evidence-informed policymaking. *Health Research Policy & Systems, 7*(Suppl 1), S13.

Milner, F. M., Estabrooks, C. A., & Humphrey, C. (2005). Clinical nurse educators as agents for change: Increasing research utilization. *International Journal of Nursing Studies, 42,* 899–914.

Minke, S. W., Raine, K. D., Plotnikoff, R. C., Anderson, D., Khalema, E., & Smith, C. (2007). Resources for health promotion: Rhetoric, research and reality. *Canadian Journal of Public Health, 98*(6), 489–494.

Mitton, C., Adair, C. E., McKenzie, E., Patten, S. B., & Waye Perry, B. (2007). Knowledge transfer and exchange: Review and synthesis of the literature. *Milbank Quarterly, 85*(4), 729–768.

Oxman, A., Lavis, J., Lewin, S., & Fretheim, A. (2009). SUPPORT tools for evidence-informed health policymaking (STP) 1: What is evidence-informed policymaking? *Health Research Policy and Systems, 7*(Suppl 1), S1.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879–903.

Raina, P., Torrance-Rynard, V., Wong, M., & Woodward, C. (2002). Agreement between self reported and routinely collected health-care utilization among seniors. *Health Services Research, 37*(3), 751–774.

Skinner, K. (2007). Developing a tool to measure knowledge exchange outcomes. *Canadian Journal of Program Evaluation, 22*(1), 49–73.

Sweet, M., & Moynihan, R. (2007). *Improving population health: The uses of systematic reviews*. New York, NY: Millbank Memorial Fund.

Van Eerd, D., Cole, D., Keown, K., Irvin, E., Kramer, D., Brenneman Gibson, J., … Morassaei, S. (2011). *Report on knowledge transfer and exchange practices: A systematic review of the quality and types of instruments used to assess KTE implementation and impact*. Toronto, ON: Institute for Work & Health.

Jennifer Boyko, MHSc, PhD, is an assistant professor in the Department of Community Health Sciences at Brock University. Her research interests blend a focus on system-level knowledge translation strategies with the study of health research methodologies. She has worked with research teams led by leading scholars in the field of knowledge translation. Her work with these teams has included research about deliberative dialogues, evidence briefs, web-based "one stop" shops for evidence, summary statements, and best practice guidelines that aim to support evidence-informed decision-making about health systems, policies, and programs in Canada. She is currently exploring the role of tacit and non-research-based knowledge in decision-making related to public health systems.

Maureen Dobbins, RN, PhD, is an associate professor in the School of Nursing at McMaster University. Her research efforts seek to understand knowledge translation among public health decision-makers in Canada. Her program of research has identified barriers and facilitators to research use; explored the information needs of public health decision-makers; and developed, implemented, and evaluated a variety of knowledge translation strategies for public health decision-makers. Since 2001, she has been the Scientific Director of Health Evidence. On January 1, 2012, Maureen also assumed the role of Scientific Director for the National Collaborating Centre for Methods and Tools (www.NCCMT.ca), one of six National Collaborating Centres for Public Health in Canada. The NCCMT provides

leadership and expertise in sharing what works in public health and helps practitioners to find and use innovative, high quality, up-to-date methods and tools for sharing that information.

Kara DeCorby, MSc, holds a clinical faculty appointment in the School of Nursing at McMaster University and is a managing director and knowledge broker at Health Evidence. Kara is concurrently pursuing doctoral studies in Life and Health Sciences at the University of Ulster, working on a realist synthesis of knowledge utilization interventions for evidence-informed healthcare. Kara's work has encompassed projects related to knowledge translation and uptake, specifically promoting evidence-informed practice in decision-making. Kara co-tutors a School of Nursing course on research methods and critical appraisal for primary studies and systematic review literature, and facilitates workshops for evidence-informed practice.

Steven Hanna, PhD, obtained his MSc and doctorate degrees in psychology from the University of Western Ontario and is now Professor in the Department of Clinical Epidemiology and Biostatistics at McMaster University. He is also the Assistant Dean of the Health Research Methodology graduate programs at McMaster. His research interests are in biostatistics, including the analysis of longitudinal data, latent variable structural equation models, and multilevel models. His methodological interests include the design and analysis of observational and other non-experimental studies. Clinical areas of application frequently include studies of childhood disability and development.