Health Sociology Review

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/rhsr20

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To cite this article: Ann Dadich, Priya Vaughan & Katherine Boydell (2023) The unintended negative consequences of knowledge translation in healthcare: A systematic scoping review, Health Sociology Review, 32:1, 75-93, DOI: 10.1080/14461242.2022.2151372

To link to this article: https://doi.org/10.1080/14461242.2022.2151372

Published online: 20 Jan 2023.

HEALTH SOCIOLOGY REVIEW
2023, VOL. 32, NO. 1, 75–93
https://doi.org/10.1080/14461242.2022.2151372

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The unintended negative consequences of knowledge translation in healthcare: A systematic scoping review

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ABSTRACT

Knowledge translation represents an avenue to address the oft-cited chasm between what should and what does happen in healthcare. Knowledge translation encompasses myriad processes through which different knowledges coalesce to inform practice. However, some reports suggest that experiences with knowledge translation are less than favourable. To better understand these experiences, a systematic scoping review of academic literature was conducted to unveil the unintended negative consequences of knowledge translation and how they were addressed. After screening 9,598 publications, six reported evidence of unintended negative consequences. The most prevalent was emotional labour – negative emotional or psychological sequelae, depression, anxiety, powerlessness, and frustration. These consequences were experienced by knowledge translation brokers, knowledge translation recipients, and knowledge translation producers. All but one publication offered some discussion of strategies to manage or mitigate these unintended negative consequences, including co-design, collaboration, and supported dialogue. These findings suggest there is limited research that explicates the unintended negative consequences of knowledge translation. Given the importance of knowledge translation, this review indicates there is considerable opportunity to advance it, in a better-informed way. Only by considering the unintended negative consequences of knowledge translation can they be identified, addressed, and potentially moderated, if not averted.

ARTICLE HISTORY
Received 30 July 2022
Accepted 19 November 2022

KEYWORDS
Knowledge translation; unintended negative consequences; systematic scoping review

Introduction

Literature on knowledge translation suggests two key points. First, it is ubiquitous, particularly in the context of health(care) research and policy. There are myriad references to knowledge translation attesting its importance (Health Canada, 2017; Kothari & Wathen, 2017), demonstrating ways to promote or improve it (Chapman et al., 2020; Kukkonen & Cooper, 2019; Wensing & Grol, 2019; Worum et al., 2020), lamenting its

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This article has been corrected with minor changes. These changes do not impact the academic content of the article.

challenges (Gogovor et al., 2020; Kelly et al., 2021), and/or calling for more of it (Banner et al., 2019). The ubiquity of knowledge translation might be partly explained by its indistinctness, as there is no universal understanding of what it is (or is not). Despite the oft-cited definitions of the Regional Office for the Americas of the World Health Organisation (n.d.) and the Canadian Institute of Health Research (CIHR) (2020), knowledge translation reflecting end-of-grant knowledge translation, it can be 'any activity aimed at diffusing, disseminating or applying the results of a research project' (CIHR, 2015, para. 72). Thus, some authors recognise it as largely synonymous with the dissemination of information (Nichols & Gringle, 2020; Yeo et al., 2020), and some suggest it involves 'moving research findings into practice' (Grimshaw et al., 2012, p. 2), thereby defining knowledge translation as that borne from empirical research. Reflecting integrated knowledge translation – that is, 'an approach to doing research that applies the principles of knowledge translation to the entire research process … involving knowledge users as equal partners alongside researchers' (CIHR, 2015, para. 19), others have a wider, relational understanding, suggesting that knowledge translation focuses on the processes through which different forms and sources of knowledge – that is, what we know to be true (Nonaka & von Krogh, 2009) – coalesce to shape feelings, thoughts, behaviours, and connections (Boydell et al., 2021; Dadich et al., 2021; Watfern et al., 2021). This wider conceptualisation, which is reflected in many knowledge translation theories (Nilsen, 2015; Sudsawad, 2007), encompasses co-production, co-design, and knowledge mobilisation (Abma et al., 2017; Masterson, Areskoug Josefsson, Robert, Nylander, & Kjellström, 2022; Social Care Institute for Excellence, 2015). These approaches collectively serve to democratise change efforts and related scholarship by fostering 'an equal and reciprocal relationship' between those with a stake in knowledge translation, including (but not limited to) 'professionals, people using services, their families and their neighbours' (Boyle & Harris, 2012, p. 11). This wider conceptualisation reflects a sociology of knowledge translation, the view adopted in this article.

The second point indicated within knowledge translation literature is the relative dearth of critical discussion about its unintended negative consequences. Many authors have discussed where knowledge translation efforts were vexed by barriers and challenges, notably, limited resources (Bowen & Martens, 2005; Grimshaw et al., 2012; Kalbarczyk et al., 2021; Kothari et al., 2008; Metzler & Metz, 2010; Muntaner et al., 2012). Such barriers and challenges are largely due to poor fit, whereby context, which encompasses the local ecologies of practice and relationships, is overlooked. Yet there is limited discussion of instances when knowledge translation processes gave rise to *bona fide* corollaries that were the converse of what was intended. While some have paid heed to tensions (Kelly et al., 2021; Kislov et al., 2017; Kitto, 2010), confusion (Estey et al., 2010), costs (Oliver et al., 2019), and risks (Alegre-Del Rey et al., 2019), the actual consequences are not readily apparent. For example, in their study on interprofessional briefings for an operating room team, Whyte and colleagues 2007, p. 287) found five 'unexpected, negative effects'; however, exactly how these effects caused problems was somewhat unclear. While they spoke of 'the masking of gaps, disruption of positive communication, reinforcement of professional divisions, creation of tension, and perpetuation of problematic culture' (pp. 291–292), whether these are problems *per se* is debatable. As the authors conceded, 'in many instances, the briefings don't *produce* the negative effects but simply render underlying problems visible' (p. 292, original italics). Thus, whether the aforesaid tensions, confusion, costs, and risks warrant concern remains unclear.

Drawing on a sociology of knowledge translation (Kitto et al., 2012), we conducted a systematic scoping review of relevant academic literature to better understand the unintended negative consequences of knowledge translation and how they were addressed. The inspiration for this review was twofold. The first was COVID-19. Amid the tragedies of this global pandemic was an extraordinary social experiment. The incredible flurry of knowledge creation, knowledge curation, and knowledge circulation was met with myriad reactions and responses. Consider, for instance, the burgeoning infodemic. Fuelled by uncertainty and fear, this gave rise to information overload, the spread of misinformation and disinformation, exploitation, harassment, and emotional sequalae (Chen et al., 2022; León et al., 2022; Mourad et al., 2020; Yellow Horse, 2021; Ying & Cheng, 2021). Unfortunately, some of these unintended negative consequences were aptly demonstrated by a survey of over 300 scientists who used the media and/or social media to share knowledge on COVID-19. Of these, '15% said they had received death threats' (Nogrady, 2021, p. 250). Although sadly these scientists are not alone (Keith, 2018), such accounts indicate a need to better understand the unintended negative consequences of knowledge translation.

Relatedly, the second inspiration for this review was to examine the varied ways that knowledge translation is understood and its associated effects, informed by a sociology of knowledge translation. According to Kitto and colleagues (2012, p. 295), a sociology of knowledge translation awards primacy to 'both the intended and non-intended outcomes [which] are treated with equal interest and importance'. While there is considerable interest in the intended (usually positive) effects of knowledge translation (Bally & McHaro, 2020; Eilayyan et al., 2020; Romney et al., 2022; Szekeres & MacDermid, 2022; Yorke et al., 2021), those that are unintended have received limited scholarly attention, particularly those that are negative – as such, this article serves to redress the imbalance.

This article is structured as follows. We commence with a brief account of a sociology of knowledge translation. We then describe and justify how the systematic scoping review was conducted. Following an explication of the findings, we conclude with a discussion of key messages and the associated implications for scholars, health service managers, and practitioners.

A sociology of knowledge translation

Undergirded by the concepts of translation (Latour, 1993, 1996; Law, 1994) and generalised symmetry (Callon, 1986, 1987), a sociology of knowledge translation recognises how knowledges are generated when different forms and sources of knowledge inform and shape each other, becoming (un)helpfully tangled in the process (Kitto et al., 2012). While scientific knowledge (which might be foreign to a given context) is important, so too are knowledges that embody the local context, for these can determine whether and how scientific knowledge are fit-for-purpose and the adaptations that might be required.

The concepts of translation and generalised symmetry are noteworthy. This is because the former acknowledges that translation can be messy and thus, what is translated can get lost in translation (Law, 1992). Relatedly, the latter considers knowledge translation to be everyone's business, 'whereby … no one account is to be privileged over another' (Kitto et al., 2012).

At least two features render a sociology of knowledge translation relevant to this review. First, it prizes plurality. Informed by the sociology of science studies (Pinch & Bijker, 1984), a sociology of knowledge translation recognises that the triangulation of diverse epistemological, theoretical, and methodological perspectives aids a detailed understanding of knowledge translation. It invites those with a stake in knowledge translation to reflect, reflex, critique, and problematise (Alvesson, 2011; Iedema, 2011). Anything less can perpetuate the status quo, whereby the identification of problems, gaps, issues, and their fixes are largely based on prevailing beliefs and assumptions (Alvesson & Kärreman, 2007; Alvesson & Sandberg, 2011). As such, a sociology of knowledge translation can serve to widen scholarly blinkers to examine aspects of knowledge translation that have been overlooked.

Second, a sociology of knowledge translation prizes context and the relationships, therein. When scientific knowledge, interventions, or clinical practice guidelines are introduced into a health service or a community, they are situated in and shaped by connections between individuals, collectives, and artefacts. As individuals and collectives become interested in and mobilise towards these foreign knowledges, the 'constitution, configuration and intended and unintended effects' of the foreign knowledges evolve, as does their use (Kitto et al., 2012, p. 295) – this might be likened to a process of metamorphosis, which is emergent and unpredictable (Escher, 1986; Orlikowski, 1996; Weick, 1993). As such, there is no 'end' to the process of knowledge translation – but rather, the ripples of influence continue beyond the study timeframe – this includes the good, the bad, and the ugly. As Borst et al. (2022) and colleagues observed:

> *conceptualisations of sustainability of KT* [knowledge translation] *practices would benefit from a shift from viewing sustainability as an end-state towards sustaining as the (often mundane) work that is required to make and keep KT practices productive* (p. 8, original italics).

Research question

Given limited scholarly attention to the unintended negative consequences of knowledge translation, a systematic scoping review was designed to address the question: what are the unintended negative consequences of knowledge translation and how are they addressed?

Method

Guided by relevant literature (Peters et al., 2015), a systematic scoping review was conducted. This involved: developing a protocol to clarify the research question, define key terms, articulate a search strategy, ascertain the inclusion criteria, and inform the review process; searching relevant databases by deploying the search strategy; involving three authors in the screening process, ensuring each publication was screened by two authors, and involving all authors in the appraisal of the identified publications; extracting key content from each identified publication (see Table 1); and synthesising the findings.

Key terms and search strategy

To identify peer-reviewed publications that engaged with the unintended negative consequences of knowledge translation, a search strategy was developed to capture those that

Table 1. Study characteristics.

Study	Location	Setting	Study Aim	Sample	*n*	Methods	Intervention	unintended negative consequences
Aveling (2011)	Cambodia	Local non-government organisation (LNGO) implementing a military couple program (MCP)	Examine the knowledge brokering activities of Cambodian field officers (FOs) implementing an HIV prevention program (MCP)	Staff employed by a LNGO and an international NGO (INGO) involved in implementation	Interviews: 6 LNGO program officers, 2 LNGO MCP managers, 3 INGO staff; and observation: participant number unspecified	Semi- structed interviews; observation of meetings and monitoring sessions between INGO and LNGO; and analysis of MCP materials	A peer education HIV prevention program for Cambodian military couples, targeting approximately 2,000 couples	FOs experienced frustration, powerlessness, or depression because of challenges associated with their knowledge brokering efforts. These challenges arose from how military families were conceptualised in the program information-transfer model; and contradictions and tensions between INGO knowledge and norms and Khmer cultural beliefs
Bengough et al. (2015)	Switzerland	French and German language cantons of Switzerland	Investigate the knowledge translation practices of family physicians	Swiss family physicians	25 private practice physicians specialising in family medicine	Semi-structured interviews; and focus groups	Nil	Physicians felt 'overwhelmed by the flood of information'
Bissonnette-Maheux et al. (2015)	Canada	Quebec	Identify the perceptions and beliefs of women with unhealthy eating habits regarding dieticians' healthy eating blogs to support positive diet change	Women in Quebec, aged 18 years or over with suboptimal eating habits who use the internet more than weekly	57 women	One-on-one interviews; sociodemographic questionnaire; and focus groups	Four popular food blogs written by registered dieticians to facilitate and promote good dietary habits	A disadvantage of engagement with these blogs was feeling discouraged or guilty when not following dietician recommendations

(*Continued*)

Table 1. Continued.

Study	Location	Setting	Study Aim	Sample	*n*	Methods	Intervention	unintended negative consequences
Caffrey et al. (2016)	United Kingdom	Five university departments in a medical school hosting a translational research organisation	Examine how the context of a gender equity program (Athena SWAN) impacts and interacts with program goals and the unforeseen consequences	Heads of department, committee leads, and key personnel involved in Athena SWAN initiative	Interviews: 16 participants (self-assessment team members, chairs, academic or administrative leads); focus groups: 15 participants (10 postdoctoral researchers, 5 lecturers/senior lecturers); and observation: total number unspecified	Observation of program meetings, interviews, and focus groups	Athena SWAN program to advance women's careers in science technology engineering maths and medicine (STEMM)	Program implementation replicated inequity due to a gender disparity in terms of workload, with women involved in the program assuming more work
Faulkner and Thompson (2021)	United Kingdom	Health research and consultation sphere	Investigate the emotional impacts on lived-experience researchers engaging in co-production in mental health research	Managers and supporters of lived experience researchers and co-producers; lived experience researchers; and individuals who were both managers or supporters and lived experience researchers	10 interviewees	Semi-structured interviews	Nil	Participants described significant emotional labour. For some, this lead to alienation or pressure to hide mental distress
Kelly et al. (2021)	United Kingdom	National public health service	Assess tenor and impact of dialogic interaction between patients and health practitioners	Specialist practitioner and their patients	13 specialist practitioners in primary and secondary care; and 24 patients recruited during diagnosis stage	Ethnographic observation	Nil	Dialogic encounters resulted in co-destruction where patients experience 'unresolved anxiety, dissatisfaction, and frustration'. Consequently, patients withdrew from dialogue and the co-production of value ceased

contained: discussion, reflection, or reportage on knowledge translation processes, protocols, products, or interventions; engagement with the unintended negative consequence of knowledge translation; and evidence or research data to support observations about this unintended negative consequence. Developing this strategy required core concepts to be clarified – namely: knowledge translation; the unintended negative consequence; and evidence. An expansive sociology of knowledge translation approach was adopted. In research, policy, and other spheres, knowledge translation is just one of many terms commonly used to identify knowledge-to-action activities often classified as knowledge translation. Other terms include knowledge-brokering, -exchange, -diffusion, -mobilisation, -transfer, integrated knowledge translation, research translation, and translational research (Graham et al., 2006). For comprehensiveness, these terms were included in the search strategy as were terms related to co-design (e.g. citizen science, co-creation, co-production) as these principles are key to integrated knowledge translation (Lawrence et al., 2019) (see Figure 1). However, given that knowledge translation differs from implementation science (Khalili, 2016), terms for the latter were purposely excluded.

For this review, unintended negative consequences are distinct from barriers, which prevent effective knowledge translation (e.g. limited resources, negative perceptions about knowledge translation) (Gagliardi et al., 2016; Harvey et al., 2015). A distinction was also drawn between an ineffective knowledge translation strategy and an unintended negative consequence associated with knowledge translation.

Despite literature on the potential harms intrinsic to knowledge translation (Crosschild et al., 2021), the focus here was on reported instances of actual unintended consequences relating to knowledge translation, rather than theorised accounts of potential harms. Similarly, despite different types of knowledge, data, and evidence (Kothari et al., 2011), here the focus was on evidence from data collected in the context of a study.

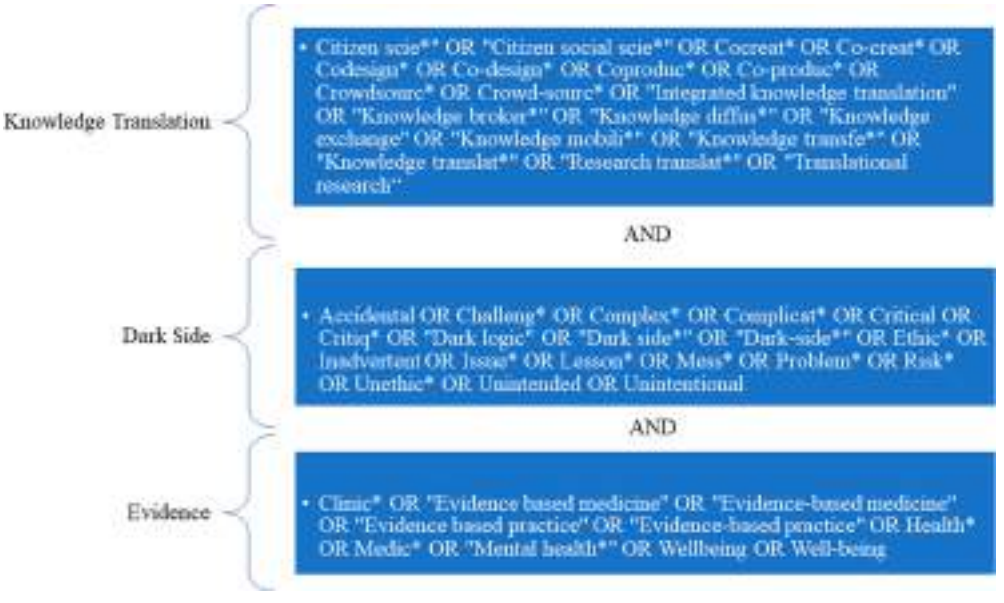

Figure 1. Search strategy.

Database search

Given their relevance to the focus of this review, the following academic databases were searched in October 2021: Medline; Business Source Complete; CINAHL Plus with Full Text; Health Business Elite; Health Source: Nursing/Academic Edition; Psychology and Behavioral Sciences Collection; APA PsycINFO; and SocINDEX with Full Text. This involved searching for the search strategy terms in the title or abstract of a publication, optimising the relevance of the identified publications. After de-duplicating the publications initially identified, 9,598 unique publications were found. This large corpus of publications partly reflects the ubiquity of some of the terms within the search strategy – for instance, many journals require authors to include a knowledge translation statement, which were often captured by the search strategy. Furthermore, terms like 'issue', 'problem', and 'ethics' were commonly used in scientific research and research reporting on knowledge translation, but did not necessarily reflect the presence of an unintended negative consequence.

Review

The title and abstract of each publication were independently screened by two authors. The authors met regularly to discuss and reconcile conflicting decisions. Thirty-nine publications proceeded to full-text review, which were divided among the authors. Each publication was reviewed by one author. Following this, the authors met to review each publication, collectively, with each required to justify their decisions. Disagreement was reconciled through discussion, until consensus was reached.

Inclusion criteria

Publications were included if they: were in English; were peer-reviewed; did not represent grey literature; presented empirical research; did not represent a protocol, a commentary, an editorial, a letter to the editor, an erratum, or a book review; did not represent a systematic review, meta-analysis, scoping review, rapid review, or literature review, given the limited detail typically reported about the individual studies that are included; and presented content on knowledge translation or evidence of an unintended negative consequence. Six publications met these criteria (Aveling, 2011; Bengough et al., 2015; Bissonnette-Maheux et al., 2015; Caffrey et al., 2016; Faulkner & Thompson, 2021; Keeling et al., 2021) (see Figure 2).

Although these criteria typically served to determine the relevance of a publication, there were instances when the authors were required to closely examine a publication together. For example, Simas and colleagues' (2020) examination of dynamics of trust and hope, as experienced by caregivers and healthcare workers during the Zika epidemic, initially seemed to meet the inclusion criteria. The publication reports on findings derived from ethnographic observation and interviews (evidence); focuses on the communication and reception of knowledge regarding congenital Zika syndrome (as a form of knowledge translation); and noted that distrust in scientific information disseminated about Zika meant healthcare workers and carers often endorsed or articulated myths about the virus (an unintended consequence). However, on close reading, it became clear that, while the publication presented evidence that distrust (resulting in the circulation of Zika myths) existed among participants, there was no evidence that

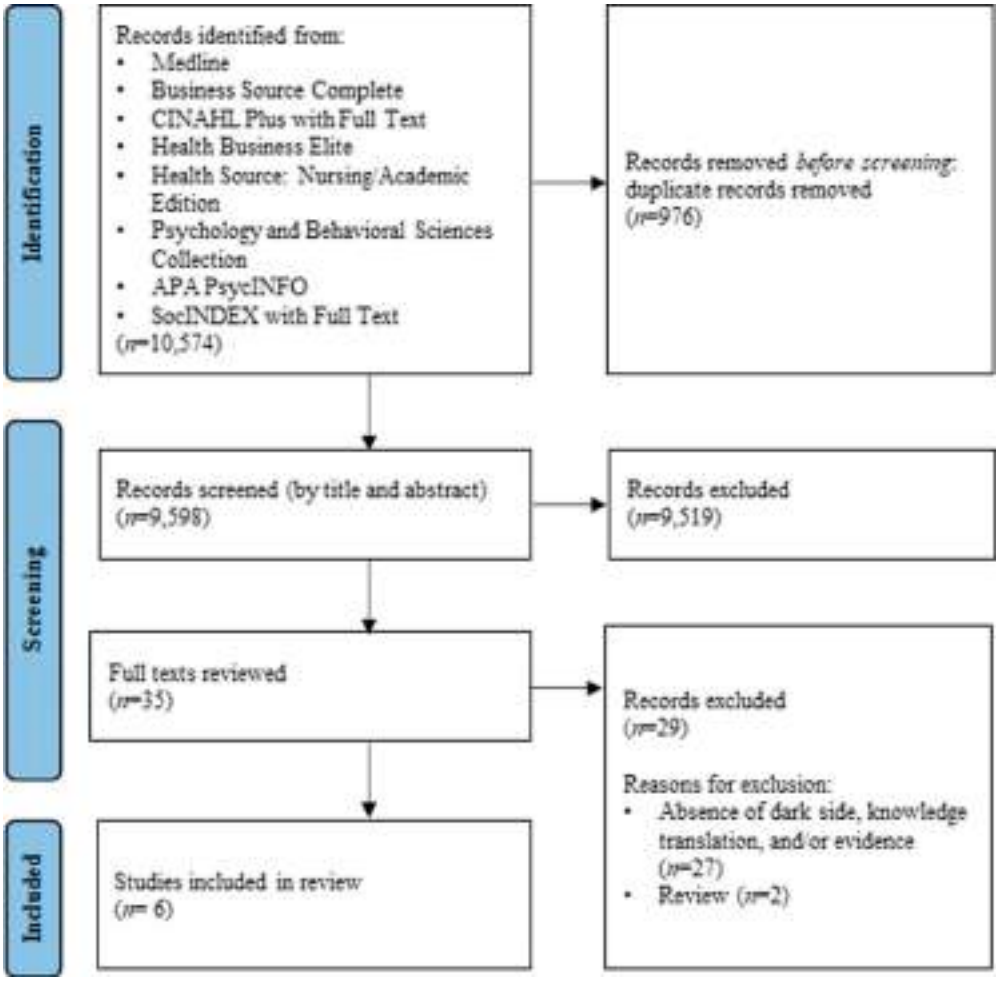

Figure 2. PRISMA flowchart.

this resulted in negative health or other outcomes for healthcare workers, caregivers, or patients. Consequently, the publication was excluded. Similarly, Estabrooks and colleagues' (2008) examination of academic requirements regarding proficiency in traditional academic outputs and in knowledge translation activities oriented towards practical application (as a form of knowledge translation) contained discussion of the individual costs potentially incurred by researchers as a result of these requirements (an unintended negative consequence). However, the publication did not present explicit evidence to support the presence or nature of these costs. Rather, the authors noted that costs were 'hinted at' in the data, not overtly evidenced or explicated by it (p. 1076) – as such, this publication was also excluded.

Results

The studies presented in the six publications involved the collection and analysis of qualitative data (see Table 1). Notwithstanding one study (Keeling et al., 2021), all used one-

on-one interviews as a core method. Interviews were typically used alongside ethnographic observation and/or focus groups. A mix of settings and samples were present. In all but one study (Bissonnette-Maheux et al., 2015), the samples were directly and regularly involved in the healthcare. Each study was relatively small in terms of the number of participants, ranging from 10 to 57, when participant number was indicated.

How did knowledge translation feature?

Three studies featured the assessment of a specific knowledge translation output, like a program or intervention (Aveling, 2011; Bissonnette-Maheux et al., 2015; Caffrey et al., 2016). The remaining studies focused on knowledge translation on a broader level, like the production and communication of knowledge occurring in everyday clinical or research settings. For example, Faulkner and Thompson (2021) examined the experiences of lived experience researchers contributing to knowledge production in the context of health research.

What were the unintended negative consequences?

The unintended negative consequences of knowledge translation, as reported in these publications, primarily took the form of negative emotional or psychological impacts on those involved in knowledge translation processes or programs. Specifically, these included frustration (Aveling, 2011; Keeling et al., 2021), powerlessness and a sense of depression (Aveling, 2011), feeling overwhelmed (Bengough et al., 2015), discouragement and guilt (Bissonnette-Maheux et al., 2015), anxiety and dissatisfaction (Keeling et al., 2021), as well as alienation and a pressure to repress or hide emotions (Faulkner & Thompson, 2021). In one instance, the unintended negative consequence manifested as a tangible burden, coupled with an emotional impact. Caffrey and colleagues (2016) reported a sharp increase in the workload of women engaged with the gender equity program, Athena SWAN, which was associated with an attendant emotional burden. The authors noted that, ironically, the women involved assumed a greater proportion of labour associated with the program – this resulted in an outcome that was antithetical to the aims of the intervention; namely, gender equity in the workplace.

Who experiences unintended negative consequences?

The unintended negative consequences associated with knowledge translation affected a mix of stakeholders. Those affected were knowledge brokers who purposefully shared information as part of a knowledge translation intervention (Aveling, 2011); recipients of knowledge shared via a knowledge translation intervention (Bissonnette-Maheux et al., 2015); recipients of knowledge shared in clinical setting (Keeling et al., 2021); knowledge translation recipients who acted as knowledge communicators (Bengough et al., 2015); as well as those who produced knowledge (Faulkner & Thompson, 2021).

What causes unintended negative consequences?

Unintended negative consequences were caused by various aspects of knowledge translation processes or activities. In Aveling's (2011) examination of knowledge brokering

activities by Cambodian field officers in the service of an HIV prevention program, the field officers were distressed and frustrated by intellectual assumptions and cultural hierarchy, which underpinned the program. Program recipients had been conceptualised as having 'low knowledge', which they often were not. Furthermore, Khmer beliefs and cultural norms were often at odds with the core messaging of the program, which privileged sexual and gendered norms associated with the international non-government organisation that auspiced the program.

By contrast, the unintended negative consequences articulated by Caffrey and colleagues (2016), Faulkner and Thompson (2021), as well as Keeling and colleagues (2021) were produced by the context which knowledge translation occurred – be it interpersonal or institutional. For instance, Keeling and colleagues showed that patients experienced anxiety and frustration when the interpersonal, dialogic engagements co-produced by a patient and their clinician, became destructive (as opposed to productive). Faulkner and Thompson reported that lived experience researchers suffered alienation or felt compelled to mask their emotions or psychological state due to the institutional norms of the research spaces they operated within, and the tenor of interpersonal interactions within these spaces. Similarly, Caffrey and colleagues noted that the institutional culture of the university departments being studied adversely impacted the delivery and outcomes of the Athena SWAN program, or at least those involved in implementing it.

For Bengough and colleagues (2015) as well as Bissonnette-Maheux and colleagues (2015), unintended negative consequences resulted from the ability of the knowledge translation recipient to act on or process knowledge. For example, in the former study, Swiss family physicians received a flood of information that was too vast to consume and use in their clinical work. Likewise, in the latter, women consuming healthy food blogs experienced guilt or felt disheartened if they were not able to enact guidance on positive dietary habits.

How were the unintended negative consequences addressed?

With one exception (Bissonnette-Maheux et al., 2015), all the studies engaged with the unintended negative consequences of knowledge translation in some detail. They dedicated a few paragraphs to an examination of the phenomena or to related issues, such as the institutional culture that gave rise to the unintended negative consequences. Furthermore, these studies suggested ways to mitigate against or address these unintended negative consequences. Those reporting on knowledge translation outputs and implementation strategies advocated for the greater engagement of knowledge translation brokers or recipients before and during the implementation process. For instance, Aveling (2011) suggested that local actors, like field officers, should be understood as co-actors collaborating with international actors, so they can be better supported in knowledge brokering efforts and feel empowered to workshop difficult issues and raise concerns. Bengough and colleagues (2015) advised that high-quality, practically-oriented knowledge translation efforts are required, with family physicians actively involved in the co-design and evaluation of resources. Publications that reported on relationally-oriented knowledge production activities focused on cultural, program, or practice change to address the unintended negative consequence. For example, aside from a need for institutional cultural change to address gender inequity,

Caffery and colleagues (2016, p. 7) noted, 'the unequal distribution of work could be addressed by mandating proportional representation of men and women on SATs [self-assessment teams] and by "counting" this work for promotion'. To protect against co-destruction, Keeling and colleagues (2021) recognised value in an interaction strategy to support productive dialogue. And Faulkner and Thompson (2021) discussed various strategies, broadly oriented towards supporting and making workplaces inclusive for lived experience researchers.

Discussion

Although there is an abundance of literature on the challenges of engaging in knowledge translation, there is little that explores the much more serious underlying negative consequences of knowledge translation. This systematic scoping review adopted a sociology of knowledge translation (Kitto et al., 2012) to address this relative absence of critical discussion regarding the unintended negative consequences of knowledge translation in the literature. Drawing on a sociology of knowledge translation allows one to identify the importance of the social context within which knowledge translation programs and interventions occur (Powell et al., 2018).

After careful review and the application of the inclusion criteria, six publications were identified. Three were focused on a knowledge translation program or intervention and the remaining three focused on the production and communication of knowledge. Given the search strategy (which purposely excluded implementation science and related terms), these collectively reflect established definitions of knowledge translation as the 'synthesis, dissemination, exchange and ethically-sound application of knowledge' (CIHR, 2020) with a complex system of relationships among researchers and knowledge users, rather than the implementation of a new or different intervention. The most prevalent unintended negative consequence identified in these publications was emotional labour – the negative emotional or psychological sequelae, including depression, anxiety, powerlessness, and frustration. These negative consequences were experienced by knowledge translation brokers, knowledge translation recipients, and knowledge translation producers. Although the publications did not clarify how exactly these unintended negative consequences impacted knowledge translation, all but one of the publications offered some discussion of strategies to manage or mitigate these unintended negative consequences. These strategies often involved co-design, collaboration, and supported dialogue with stakeholders in any given project.

Although some have argued that emotional labour is central to change, rather than an unintended negative consequence, none of the authors of the reviewed publications anticipated this effect. For instance, Dewey (1895, p. 15) argued that 'Emotion … is purposive, or has an intellectual content'. He, along with others after him (Verran & Christie, 2013) noted that emotion signals, pivots, and guides the transformation of habit (Dewey, 1922, 1934; Petit & Ballet, 2021). Yet, the authors of the publications included in this systematic scoping review did not explicitly recognise this, nor did they communicate this to their participants. The emotional labour they described was not overtly part of their study aims. This is not to suggest that emotional labour or the associated effects are adverse and should be (or can be) averted in knowledge translation efforts – particularly given that some of the factors that contribute to these, like hierarchies and competing demands

are systemic (Williams et al., 2020). But rather, if emotional labour or the associated effects are intended, these should be indicated from the outset. Such transparency is likely to further theoretical understandings of knowledge translation and change, as well as ensure that related research is conducted ethically.

This systematic scoping review was not without methodological limitations. First, despite the commonly used Regional Office for the Americas of the World Health Organization (n.d.) and Canadian Institute of Health Research (2020) definitions of knowledge translation, there is no universally agreed definition of knowledge translation. Accordingly, knowledge translation (and variations of) is an oft-cited term that lacks conceptual clarity. There is little acknowledgement of the sociological aspects of knowledge translation with its attendant focus on sociocultural context, embracing of a broad conceptualisation of what constitutes knowledge, as argued in this article. Following Ødemark and Engebretsen (2022, p. 1), standard models and frameworks fail to consider the complexities associated with knowledge translation and its associated 'entangled material, textual and cultural processes'. Second, it might have been too early to identify publications with respect to misinformation and disinformation during COVID-19, which might currently be in press and presumably highlight unintended negative consequences. Third, the search strategy might have been limited, given the absence of search terms to identify contradictions and exclusion of grey literature. Finally, there is also a general reluctance to discuss failure in academia which might have resulted in the paucity of studies (Hains-Wesson, 2021).

Despite these limitations and the limited literature specifically on the unintended negative consequences of knowledge translation, the findings from this review point to three key recommendations. First, scholars, health service managers, and practitioners should consider taking current knowledge translation frameworks a step further by explicitly considering the potential unintended negative consequences of knowledge translation. Potential unintended consequences could be considered at each stage – from knowledge creation through to dissemination and implementation in health and social care practices. Second, scholars, health service managers, and practitioners should share strategies to mitigate negative consequences with others. For example, Boydell and colleagues (2015) identified the 'dangerous emotional terrain' of having dancers embody narratives of psychosis in a research study of young people's help-seeking. They suggested several strategies to mitigate this unintended negative consequence of knowledge translation, including embedding ongoing reflexivity sessions in the knowledge production process. Third, as noted, the academy does not typically promote critical reflections related to lack of success in the research enterprise – as such journals and other academic resources are encouraged to highlight the need for such critical reflection with special issues that call for examples of negative consequences of engaging in knowledge translation and with lessons learned for others to advance the field.

There is a growing thrust to involve patients, carers, and service users in all types of research (Health Canada, 2017; NHMRC, 2016; Regional Office for the Americas of the WHO, n.d.). Consumers and carers involved in co-creation and co-design projects, as well as those who are recipients of knowledge might face unintended negative consequences because of knowledge creation and dissemination activities. These stakeholders require appropriate briefing before deciding to become involved and such orientation must include discussion of the potential for adverse outcomes.

This review advances the science of knowledge translation. When the unintended negative consequences of knowledge translation are considered, they can then be identified, addressed, and potentially moderated, if not averted.

Funding

This work was supported by Maridulu Budyari Gumal – the Sydney Partnership for Health, Education, Research and Enterprise (SPHERE).

Ethics information

Not applicable.

Disclosure statement

No potential conflict of interest was reported by the authors.

Data availability statement

Not applicable.

Using third-party material

Not applicable.

Consent

Not applicable.

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