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Was it diffusion? Exploring the spread of daily physical activity policies in Canada

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Abstract

Background: Between 2005 and 2010, five Canadian provinces adopted daily physical activity (DPA) policies. This study investigated the adoption and spread of those DPA policies in the 5-year period. **Purpose:** The purpose of this study was to investigate the role, if any, of diffusion in the adoption and spread of DPA policies across provinces in Canada over a 5-year period. **Methods:** Semi-structured interviews were conducted with 15 DPA policy influencers. Transcripts were analyzed using directed content analysis to examine alignment with an established diffusion framework. Findings were also examined for consistency with mechanisms of policy diffusion and alternative explanations of policy spread. **Results:** Participant responses aligned most closely with diffusion framework components of attributes of the innovation, system antecedents for innovation, implementation and routinization, receptive context for change, assimilation by the system, system readiness for innovation, interorganizational networks and collaboration, and communication and influence. Findings also revealed evidence of policy learning, imitation, and competition across jurisdictions as the dominant mechanisms of policy diffusion. There was limited evidence that common shock and independent causation contributed to policy spread. **Conclusions:** The spread of DPA policies across Canada between 2005 and 2010 was consistent with theoretical concepts and mechanisms of policy diffusion.

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Introduction

Public policy is a key factor in creating supportive conditions for promoting health. Across Canada, several provinces have adopted school policies or guidelines for students to achieve a minimum amount of daily physical activity (DPA) (Alberta Education, 2006; British Columbia

Education, 2011; Manitoba Education and Early Childhood Learning, n.d.; Ontario Ministry of Education, 2005; Saskatchewan Ministry of Education, 2010). Each provincial DPA policy is unique. At the time of the study, mandatory policies were in place in British Columbia (BC), Alberta (AB), and Ontario (ON); voluntary

guidelines in Saskatchewan (SK); and mandated physical and health education curricula in Manitoba (MB). For the purposes of this paper, the term 'policy' will refer to both mandated policies/curricula and voluntary guidelines. Each of these provincial policies was adopted between 2005 and 2010, with implementation in schools within one year. Despite many similarities between their policies, it is unclear if and how these provincial governments influenced each other during policy adoption.

Jurisdictions rarely make policy decisions based on internal factors alone (Berry & Berry, 2014; Shipan & Volden, 2008; Shipan & Volden, 2012). They often learn from other jurisdictions about what works (or does not) before adopting an innovative policy idea. This process is known as policy diffusion (Berry & Berry, 2014; Shipan & Volden, 2008; Shipan & Volden, 2012; Starke, 2013). While there are many inter-related factors in policy diffusion, some examples of specific mechanisms include learning, relative advantage, imitation, communication and influence, absorptive capacity for new knowledge, coercion, and system readiness (see Tables 1 and 2 for a full list of mechanisms from different sources) (Berry & Berry, 2014; Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004; Shipan & Volden, 2008). Studying policy diffusion may give decision-makers and researchers a better understanding of how policies are developed and spread relative to broader local, national and international patterns (Berry & Berry, 2014; Campbell, Olstad, Spence, Storey, & Nykiforus, 2020; Nykiforuk, Eyles, & Campbell, 2008; Nykiforuk, Campbell, Macridis, McKennitt, Atkey, & Raine, 2018; Shipan & Volden, 2008; Shipan & Volden, 2012; Starke, 2013).

The purpose of this study was to investigate the role, if any, of diffusion in the adoption and spread of DPA policies across provinces in Canada over a 5-year period.

Methods

Study Design and Theoretical Framework

We used a national case study to examine provincial DPA policies across several Canadian provinces (Stake, 2006). To better understand DPA policy diffusion, interviews were conducted with key policy influencers from each province. Transcripts from each interview were analyzed independently. A national case study comparison was then conducted to assess similarities, differences, and relationships. The unit of analysis was each of the five provinces (cases) that had adopted a DPA policy by 2015-2016.

Greenhalgh et al.'s (2004) conceptual framework of diffusion of innovations informed the development of the interview guide and guided data analysis. This framework was employed because it represents a comprehensive synthesis of diffusion concepts.

Table 1 describes the model components and subcomponents. For clarity, we renamed the component *diffusion and dissemination* as *communication and influence* in accordance with our focus on factors influencing communication and policy-sharing across jurisdictions.

Spread of Daily Physical Activity Policies Across Canada

Table 1: Policy model components from Greenhalgh et al.'s (2004) diffusion of innovations framework. The highlighted components aligned with participant responses.

Model Component	Subcomponents
Attributes of the innovation	Relative advantage; compatibility; complexity; trialability; observability; reinvention; fuzzy boundaries; risk; task issues; knowledge to use it; augmentation/support
Adoption by individuals	General psychological antecedents; context-specific psychological antecedents; meaning; adoption decision; concerns in pre-adoption stage; concerns during early use; concerns in established users
Assimilation by the system	N/A
Communication and influence*	Network structure; homophily; opinion leaders; harnessing the opinion leader's influence; champions; boundary spanners; formal dissemination programs
System antecedents for innovation	Structural determinants of innovation; absorptive capacity for new knowledge; receptive context for change
System readiness for innovation	Tension for change; innovation-system fit; assessment of implications; support and advocacy; dedicated time and resources; capacity to evaluate the innovation
Outer context: interorganizational networks and collaboration	Interorganizational norm-setting and networks; intentional spread strategies; wider environment; political directives
Implementation and routinization	Organizational structure; leadership and management; human resource issues; funding; intraorganizational communication; interorganizational networks; feedback; adaptation / reinvention
Linkage among components of the model	Linkage at the development stage; role of the change agency; external change agents
Note: *Renamed from <i>diffusion</i> and <i>dissemination</i> in accordance with our focus on factors influencing communication and policy-sharing across jurisdictions; The highlighted components aligned with participant responses.	

Data Generation

Between November 2015 and January 2016, E.J.C. conducted thirteen semi-structured telephone interviews with 15 policy influencers (11 individual interviews and 2 group interviews upon request) from each of the included provinces: BC ($n = 4$); AB ($n = 5$); SK ($n = 2$); MB ($n = 1$); and ON ($n = 3$). All

interviews were conducted using the same semi-structured format over the telephone: in some cases, participants elected to participate together as they worked together on DPA in their organization.

Participants were identified through government and physical activity organization websites and via snowball

sampling by contacting DPA policy experts. Only those policy influencers who self-identified as knowing about and having experience with DPA policy in their province were invited for an interview. Participants were past and current employees of provincial governments (ministries of education or health; $n = 8$) and provincial organizations supporting physical activity in schools ($n = 7$). Recruitment ended when sampling revealed no new policy influencers, and/or interview responses revealed no new concepts.

The interview questions focused on DPA policy adoption and diffusion. Participants were asked to describe if they: were aware of other provincial DPA policies; were influenced by others when developing their policy; knew of the policy working well elsewhere; and if their organization/government shared any information on DPA policies with other jurisdictions. On average, the interviews were 52 minutes long. All interviews were digitally recorded and transcribed verbatim. All participants provided verbal informed consent, including permission to having parts of their interviews quoted and displayed in publications and conference presentations. Research ethics approval was granted by the University of Alberta Research Ethics Board (Pro00049723, 26 June 2015).

Data Analysis

Directed content analysis (Hsieh & Shannon, 2005) was used to explore alignment between key-informant interview data and components of Greenhalgh et al.'s (2004) framework and to determine if and how policy diffusion influenced DPA adoption in provinces across Canada. The initial coding scheme was informed by the components and

subcomponents outlined in the framework (see Table 1).

The primary coder (E.J.C.) first read through the entire transcript to become familiar with the text. Next, transcripts were coded using NVivo qualitative analysis software (QSR International) based on a priori codes derived from the components and subcomponents of the framework (Greenhalgh et al., 2004) to assign meaning to pieces of text. In each provincial case, subcomponents were organized into relevant components. Internal and external homogeneity (Mayan, 2009) were considered during the grouping process to ensure that ideas within each model component and subcomponent aligned within components (internal) and between components (external). This process revealed overlap between components, and thus similar components were grouped together. A second member of the research team (C.I.J.N.) reviewed the analysis process and findings and provided feedback. Where the primary coder and the coding reviewer disagreed on how the quotes were assigned to components, the original transcripts were reviewed to confirm or reassign coding to the quote and/or component.

To strengthen the analysis, all authors examined whether findings were consistent with one or more mechanisms of policy diffusion and alternative explanations of policy spread (Berry & Berry, 2014; Shipan & Volden, 2008; Starke, 2013) (see Table 2). Specifically, five mechanisms of policy diffusion were considered: *learning*; *imitation* (copying a policy to behave like another government); *competition* (adopting a policy for economic benefit); *normative pressure* (adopting a policy because other governments with shared norms have

adopted the policy); and *coercion* (being incentivized or forced to adopt a policy by another government) (Berry & Berry, 2014; Shipan & Volden, 2008). We also looked for other explanations for patterns of policy adoption and spread as described in the literature, that is, external *common shock*, *independent internal factors*, and *chance* or coincidence (Starke, 2013). In addition to the codes generated from Greenhalgh et al.'s (2004) diffusion framework, the quotes from transcripts were organized according to the five mechanisms of policy diffusion and three alternative explanations.

Keeping an audit trail, consulting with co-authors, and using a theoretical framework to guide analysis ensured study rigour (Mayan, 2009). All authors collaborated in developing the interview questions and in analyzing the data to avoid potential researcher bias. Further, we determined where the research findings diverged from and converged with an established policy diffusion model to enhance credibility.

Table 2: Mechanisms of diffusion and alternative explanations.

Mechanisms of diffusion (Berry & Berry, 2014; Shipan & Volden, 2008)	Learning
	Imitation
	Competition
	Normative Pressure
Alternative explanations (Starke, 2013)	Coercion
	Common shock
	Independent causation
	Chance

Note: The highlighted elements aligned with participant responses.

Results

Alignment with Greenhalgh et al.'s Diffusion Framework

Our findings aligned with seven of the nine components of Greenhalgh et al.'s (2004) framework and are presented in Table 1. Fifteen subcomponents closely aligned with participant responses. These 15 subcomponents were found in almost all of the provincial cases.

1. Attributes of the Innovation

Some participants described the *relative advantage* of DPA policy as effective compared with past policies. For example, "It was overall a fairly positive implementation and we've had some indication of [increased] physical activity levels over time" (MB). Others considered DPA no more superior than well-established physical education programs: "I firmly believe that if the provincial government is going to mandate 150 minutes of physical education a week, and that we firmly believe in quality daily physical education... we would not need to have this [D]PA policy" (SK).

Participants from all provinces agreed that DPA was *compatible* with provincial values and norms: "We struggle with the healthcare costs and... I think that the government saw this as our way of preventing and reducing the number of chronic diseases that will be seen from our children" (BC). However, participants also agreed that DPA policies were often a compromise between what students needed and what was feasible within school systems: "It was really based on a combination of what was palatable and what we really knew from the science" (AB).

When describing the *complexity* of DPA, perspectives differed on ease of use. In ON, DPA was described as "not really an

extensive policy... it's really a statement... it's DPA, it's 20 minutes, it's continuous, it's sustained, it's Grades 1 through 8." Conversely, in AB, "there was huge confusion as to what was DPA. Huge."

Participants from BC, MB, and ON briefly mentioned the subcomponent *reinvention*. In BC the DPA policy, adopted in 2008, was revised in 2011 to increase the flexibility of the delivery model. This demonstrates the ability to reinvent the policy to better suit provincial needs. In contrast, other policies had not been changed or reviewed in many years: "This policy has... been closed for 10 years... It hasn't been altered, modified, updated, you know, anything" (ON).

Finally, participants described *observability* in the negative sense, in that the benefits of DPA policies were not always visible. This lack of visibility or awareness of the policy document was described as a limitation in SK because "The [policy] document has some real value in it, but I would suggest that many people who weren't in the direct line of seeing it and looking at it when it first came out, aren't really paying much attention to it." Conversely, an ON participant described common challenges that provincial governments experienced with DPA implementation: "The sense I get from other provinces is... we're running into the same issues across Canada, with respect to other provinces having difficulty implementing [DPA]."

2. System Antecedents for Innovation, and Implementation and Routinization

All provinces showed evidence of *absorptive capacity for new knowledge*, which is a multi-component construct that describes an organization's attributes relative to gaining, sharing, or generating knowledge (Greenhalgh et al., 2004). Participants described provincial studies

and reports conducted or consulted leading up to policy adoption. For example, "In 2005 the province started Act Now BC, which was a cross-government initiative with key focus areas of physical activity, healthy eating, tobacco, and [alcohol use during pregnancy]" (BC). Another participant said that "there was a study conducted... to try to find out how provincial curriculum was being actualized in [SK], with a part of that survey being about physical activity."

Most participants (representing BC, AB, SK, and MB) noted that their province was *receptive to change*. SK was described as "incredibly collaborative... People are genuinely really supportive of what's going on at the school." In some provinces, efforts to adopt DPA policy came directly from the provincial government: "There were signs that things were happening at the government level to explore maybe some policy changes or new directions in terms of the curriculum and the mandating of [physical education]." (MB).

Organizational structure, including the provincial government's size, resources, internal organization, and partnerships, was involved in all cases. Participants described government efforts to hire additional staff (BC, AB, MB), partner with relevant ministries across government (BC, SK), and establish working groups to support DPA (ON). A participant stated that "[The ministries] had a shared position that was [the] Healthy Schools BC Coordinator, so they provided the educational expertise when they were at the [Ministry of] Education, and then as well as the health expertise from [the Ministry of Health]" (BC). In SK, the DPA policy document was developed at the Ministry of Education, "...but the document was written in partnership with the Ministries of Health and Tourism."

3. System Readiness for Innovation, and Assimilation by the System

The subcomponent *innovation-system fit* describes the alignment between adopter ideology and their goals, skills mix, and ways of working (Greenhalgh et al., 2004). One participant described how establishing a DPA policy in BC was an opportunity to be seen as a “trailblazer.” DPA in MB was seen as a strategy to address both the issues of physical inactivity and obesity in students: “[There] were concerns about obesity levels and inactivity. And so, the thought was that if we can make physical education mandatory with a policy that required a certain amount of hours of moderate to vigorous physical activity in it, then you can kind of get at both.”

In terms of *dedicated time and resources*, AB, MB, and ON allocated funding to support DPA implementation. In ON “the government made a decision to invest, I think it was upwards of 10 million dollars, into the implementation of DPA.” MB was unique in that the funding was permanent: “The Department [of Education] increased funding to the system... and it’s a continued funding, it’s still in place now.” In addition to funding, all the provinces with mandatory policies provided additional training and resources in the way of books to educators.

When describing provincial *capacity to evaluate the innovation*, views differed on the role government should play in policy evaluation. Participants from BC, SK, and MB outlined examples of studies and evaluations that had been conducted: “The Youth Health Survey surveyed students on self-reported physical activity for two surveys in ‘08, and in 2012, and ‘08 was the implementation year of the phys. ed. policy” (MB). Conversely, participants from

AB and ON explained that while academic scores were assessed with provincial achievement tests, governments did not evaluate DPA and other school health policies: “No, but that is true for any element of the curriculum. We don’t monitor or evaluate how [teachers] are doing geography or world issues, or math or anything like that... Monitoring and implementation is the responsibility of the [school] boards” (ON). Instead, external organizations and researchers evaluated DPA implementation and impact in each province, at their own discretion. For instance, “government doesn’t tend to do [evaluation]. When they did [evaluate] the nutrition policy, it was outsiders who went to measure what the implementation of that was. It was never the Ministry of Health that really did a full assessment as to what was happening there” (AB).

4. Outer Context: Interorganizational Networks and Collaboration

Political directives, including the influence of political leaders, were a common subcomponent across all cases. Windows of opportunity opened during provincial elections may have influenced DPA adoption. A participant from SK suggested that DPA was discussed during election time as a political strategy: “It was in an election time and all of a sudden [DPA] was just there... I think it was political – trying to gain political support.” In MB, DPA adoption may have been facilitated when the governing party changed from one that was less receptive to physical activity initiatives to one that supported school-based physical activity: “It had a lot to do with the governing party... so when the new government came in, I think there was quite a lot of support for promoting active healthy lifestyles in schools.”

The subcomponent *interorganizational norm-setting and networks* relates to whether similar provinces have adopted or plan to adopt an innovation. Participants provided examples of this subcomponent when they described their awareness of other DPA adopters in Canada. For example, the BC provincial government “had looked at... other provinces [that] had implemented or initiated [daily] physical activity.” An ON participant explained that the government typically looks to their “neighbours in Canada” to learn from peers when developing policy.

5. Communication and Influence

Participants raised the model component *communication and influence* with respect to the subcomponents' *network structure* and *boundary spanners*. *Network structure* comprised both formal networks with external organizations and informal networks of individuals working in the same field. Participants in BC and ON described the role of the Joint Consortium for School Health as a key “vehicle” for conversation about DPA policies between provinces and territories. The Consortium is a pan-Canadian network of representatives from provincial, territorial, and federal Ministries of Health and Education that works to promote comprehensive school health, including physical activity promotion. At the informal level, a participant from AB described a strong social network of physical education specialists across Canada: “Our network was very strong across Canada because the phys. ed. world is pretty small... We had a great social network as well as a professional network.”

Participants from all the provinces described the subcomponent *boundary spanners*, namely informal sharing of and learning about policy ideas outside of

ministries and provinces. Participants from ON and BC noted that such informal sharing and learning did inform policy development, for example, the claim that “there was no sort of intentional working together to kind of create a policy. More so sharing information on ‘what are you guys doing?’, or ‘what have you done already?’ and kind of using that to help inform [policy development]” (BC). Participants from SK and MB said they had examined DPA policies in other provinces. A participant from SK went so far as to say that the AB DPA policy was a “huge influence” on the development of the SK DPA policy document. AB participants described conference presentations in BC and policy document-sharing with ON. One participant said: “I certainly went and presented at some conferences in those other provinces, either invited or [after I] applied” (AB).

Mechanisms of Diffusion and Alternative Explanations

6. Mechanisms Suggesting the Occurrence of Policy Diffusion

Of the five mechanisms of policy diffusion considered (Berry & Berry, 2014; Shipan & Volden, 2008), *learning*, *imitation*, and *competition* aligned with participant descriptions of provincial DPA policy processes in Canada (Table 2). Evidence of *normative pressure* and *coercion* did not emerge in the interviews with policy influencers.

Learning: Participants provided examples of learning about successful policies in neighbouring provinces. A participant from SK described consulting with geographically nearby provinces while developing DPA policy and physical education curricula. A participant in ON said that the province regularly sought information about its peers when

developing policy: “Whenever we develop a policy [...] one of the first things that we do is a jurisdictional scan [...] particularly looking at our neighbours in Canada and seeing what they’re doing... what successes, lessons learned... that we can use to leap off.” Ideas on DPA were also shared and discussed through the Joint Consortium for School Health: “The key vehicle for conversation between the jurisdictions around healthy living topics is the Joint Consortium for School Health... I would say that’s the key place where those jurisdictional conversations are going on.” (BC). A participant from BC described how the provincial government looked to other provinces: “We had looked at... a couple of other provinces who had implemented or initiated [daily] physical activity. And I believe that Ontario was one and I think that Alberta was the other...”. In these examples, imitation and learning are closely linked; provinces imitated what seemed to be working for others and learned how to adapt those experiences to their own jurisdictions.

Competition: Some participants described competition between jurisdictions. Rather than economic competition, this competition was to determine who was a national leader in child physical activity and health promotion. A participant from AB said that the Canadian Ministers of Education Conference provided an opportunity to share policy innovation ideas that support health in schools: “the main story that was going around is that [DPA] came about at a... Canadian Ministers of Education Conference, where people were kind of saying ‘well we’re doing this in our province’, ‘we’re doing this’ and then... our Minister of Education said ‘well, we’re doing daily physical activity.’ And that’s really how it came about.” The participant

went on to explain that this decision to adopt DPA came from a desire to be seen as an innovator, rather than learning from another province’s experiences.

7. Explanations That Suggest Policy Diffusion Did Not Occur

The findings support two alternative explanations (Starke, 2013) for the patterns in DPA policy adoption across Canada: *common shock* from an external event, and *independent factors* leading to distinct trajectories to policy adoption within each provincial case (Table 2). Evidence in support of *chance* as a potential explanation did not emerge during interviews.

Common shock: An external event, or common shock, could explain why several provinces adopted similar DPA policies within a relatively short time. Recognizing the growing problems of childhood physical inactivity and obesity in Canada and internationally may have led governments to take steps via DPA policy adoption, irrespective of what neighbouring provinces were doing. Participants from BC, AB, and ON mentioned that they were aware of the rising rates of childhood obesity and physical inactivity through the Active Healthy Kids Canada report (Active Healthy Kids Canada, 2005), the Canadian Society for Exercise Physiology physical activity guidelines (Tremblay et al., 2011), and reports from the World Health Organization (World Health Organization, 2007; World Health Organization, 2008). In AB, the DPA policy was described as “a reaction to statistics around... our children being overweight or obese... that’s really when the [DPA] initiative... was born, out of that type of literature.”

Independent causation: There were distinct trajectories leading up to DPA

policy adoption across provinces, suggesting that the close timing of adoptions may have been coincidental. The BC DPA policy was adopted during the development of the 2005 Act Now BC provincial health promotion strategy and the concurrent anticipation of hosting the 2010 Winter Olympic Games. Participants indicated being influenced by the Olympic bid to put additional resources into promoting physical activity and sport in the province: “There was a goal put in place to make British Columbia the most active province for children, leading up to that event. And so, part of the conversation was thinking of policy strategies that could be put in place to support meeting that goal for the Olympics.” Similarly, 2005 marked the release of the Healthy Kids, Healthy Futures: Task Force Report in MB, with 47 recommendations to promote healthy living (Healthy Kids Healthy Futures All-Party Task Force (Health Kids), 2006), which was “a fairly significant step in making phys. ed. mandatory.”

Discussion

The purpose of this national case study was to investigate the role of policy diffusion in the adoption and spread of DPA policies in provinces across Canada over a 5-year period.

Analysis of policy-influencer interviews revealed that responses across the five provincial cases aligned with 15 subcomponents of seven of Greenhalgh et al.’s (2004) policy diffusion framework components. Two components, *adoption by individuals* and *linkage among components of the model*, did not emerge as major themes. This may have been due to the focus of the study on high-level policy adoption, rather than on the actions or traits of individual policy influencers. There was also limited evidence of

connections across the model components based on participant responses. Overall alignment with components and subcomponents of the diffusion suggested diffusion may have occurred and provided a basis to next consider whether evidence of diffusion mechanisms was also present.

Based on participant responses, *learning*, *imitation*, and *competition* (to be seen as a leader) were the dominant mechanisms driving DPA policy diffusion in Canada. In a similar policy diffusion study, learning was also a key mechanism through which municipal bylaws banning fast-food drive-throughs diffused across Canada, whereby policymakers consulted with peers from other municipalities to learn about the benefits and challenges of existing bylaws (Nykiforuk et al., 2018).

Imitation as a mechanism for policy adoption has been seen in research on the adoption of municipal anti-smoking policies. Shipan and Volden (2008) found that jurisdictions were more likely to adopt a new policy if large, neighbouring jurisdictions had adopted the policy.

The mechanism of *normative pressure* (Berry & Berry, 2014; Shipan & Volden, 2008) did not emerge in conversations with policy influencers in our study. Normative pressure may be more relevant at later stages in the diffusion process, after more jurisdictions adopt DPA policies. Evidence of coercion also did not emerge in the current study. This is perhaps unsurprising as governments do not typically pressure others to adopt policies if there is no direct benefit or disadvantage to them of doing so (Shipan & Volden, 2008).

In our exploration of alternate explanations for policy adoption, we found evidence to suggest that a common shock or independent factors may also have explained some of our findings. Around the

time of policy adoption, increasing rates of childhood obesity and physical inactivity were reported nationally and internationally (Active Healthy Kids Canada, 2005; Tremblay et al., 2011; World Health Organization, 2007; World Health Organization, 2008). Widespread awareness of, and heightened urgency to address these problems, may have led to the adoption of similar policies in provinces across the country.

Other studies have also found evidence to suggest that there were independent trajectories of DPA policy adoption in Canada. For example, Gladwin, Church, & Plotnikoff (2008) and Allison, Schoueri-Myschasiw, Robertson, Hobin, Dwyer, & Manson (2014) suggested that provincial reports (2001 Mazankowski Report on health reform in AB) and political party announcements (2003 Ontario Liberal Party announcement committing to DPA in schools) each contributed to policy adoption in their respective provinces (Allison et al., 2014; Gladwin et al., 2008). In a multiple case history, Olstad, Campbell, Raine, & Nykiforuk (2015) outlined key contextual events preceding policy adoption in each province, many of which were unique to particular provinces, yet there were also several commonalities among them (Olstad et al., 2015). Nevertheless, although in the current study we found some evidence of independent trajectories, we found considerably more evidence of interaction among provinces in their adoption processes.

Finally, it is unlikely that chance offers a sufficient explanation for DPA policy adoption across Canada. Rather, participants in our study described deliberate processes of stakeholder consultation as essential in policymaking.

Based on our collective findings, we conclude that DPA adoption by the

Canadian provinces of BC, AB, SK, MB, and ON between 2005 and 2010 was primarily influenced by policy diffusion. This conclusion is based on strong alignment with Greenhalgh et al.'s (2004) diffusion framework and with the policy diffusion mechanisms of learning, imitation, and competition (to be seen as a leader), and the much weaker evidence in support of the three other explanations considered. Notably, Berry and Berry (2014) have previously written that: "Certainly, once a policy is adopted by one jurisdiction, it is extremely unlikely that another jurisdiction's adoption would be completely independent from the previous one. Unless the two governments arrived at the same (or very similar) policy via a highly improbable coincidence, at a minimum there must have been diffusion from one government to the other of the idea for the policy."

Further studies could explore the role of policy diffusion in the context of the Common Vision (Public Health Agency of Canada, 2018), the first national policy focused on increasing physical activity and reducing sedentary living among all Canadians. This policy actively promotes many of the concepts of policy diffusion and aligns with concepts from Greenhalgh et al.'s (2004) diffusion framework. For example, the policy promotes collaboration across federal, provincial and territorial governments by encouraging leaders to work together to develop complementary policies, create national monitoring tools, conduct shared research, and broker partnerships to reach the unified goal (Public Health Agency of Canada, 2018).

Limitations

This national case study was limited by the inclusion of only positive cases, that is, current DPA policy adopters. It is possible

that non-adopters could have influenced the nature or rate of spread of DPA policy ideas across Canada; they may have been unsuccessful in adopting a policy, but still contributed to the diffusion of the idea. Alternatively, some jurisdictions may have learned about DPA policies from others, but intentionally chose not to adopt a policy. Including all provinces and territories across Canada in a case-control study may have provided additional insight into our understanding of DPA policy diffusion. Doing so would give insights on the decisions behind non-adoption.

This study was limited by the small pool of potential participants, as only a small number of experts were directly involved in DPA policy development across Canada. We relied on participants to self-identify as having knowledge or experience with DPA policy in their province. While this may have yielded data inconsistencies, potential participants who felt that they did not have sufficient knowledge or experience would not be in a position to describe DPA policy development in their jurisdiction. While outside the scope of this study, future, prospective work on policy diffusion could include perspectives of non-experts who may observe or are impacted by the policy process, while not being directly involved. Regardless, the key informants provided rich and detailed descriptions of the DPA policy adoption process, and saturation across themes was reached during analysis within and between cases.

Conclusions

This study contributes to understanding policy diffusion and the role it plays in the adoption and spread of DPA policies across Canada. Research on policy diffusion can help decision-makers and researchers better understand how policies are

developed outside of the jurisdictions where they are implemented, and how these findings can be applied to the development of other public policies.

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Authors' Qualifications

The authors' qualifications are as follows: Elizabeth J Campbell, MSc; Dana Lee Olstad, PhD, RD; John C. Spence, PhD; Kate E. Storey, PhD, RD; Candace I.J. Nykiforuk, PhD, CE.

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