2011, Vol. 3, No. 1

PHENex Journal/Revue phénEPS

TwentyYears of Comprehensive School Health: A Review and Analysis of Canadian Research Published in Refereed Journals (1989-2009)

Vingt ans d'une approche globale de santé en milieu scolaire : Examen et analyse d'études canadiennes publiées dans des revues arbitrées (1989-2009)

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The concept of Comprehensive School Health (CSH) has been an emerging theme in the health promotion and education literature in the past two decades. Although many CSH-type initiatives and programs have been observed in school communities across Canada, we have observed a lack of published research in refereed journals. The purpose of this study was to conduct an extensive review and analysis of the Canadian scientific research published on CSH. A five phase methodology was used that allowed identification of 34 articles. Two waves of publications were identified; (1) 1990 to 1997 (n=11), and (2) 2002 to 2009 (n=20). The first wave has been marked by the studies taking place in Nova Scotia (n=5), while the studies conducted in British Columbia marked the second wave (n=8). However, the value of comprehensive and coordinated school-health approaches among school actors and the links to family and community have been addressed from coast to coast.

Le concept de l'approche globale de santé en milieu scolaire (AGSS) est devenu, en vingt ans, une thématique populaire dans la documentation sur la promotion de la santé en milieu scolaire. Même si un grand nombre d'initiatives et de programmes axés sur l'AGSS ont été examinées à travers le Canada, l'auteure a constaté que très peu d'études avaient été publiées à ce sujet dans des revues ou ouvrages arbitrés. L'étude présentée ici se voulait donc un examen analytique exhaustif de la recherche scientifique canadienne publiée sur l'AGSS. Pour ce faire, une méthode en cinq étapes a été utilisée pour repérer 34 articles. Deux vagues de publications ont été répertoriées, soit (1) 1990 à 1997 (n=11) et (2) 2002 à 2009 (n=20). La première vague reflète surtout les études menées en Nouvelle-Écosse (n=5), alors que la seconde vague (n=8) reflète celles effectuées en Colombie-Britannique.,Malgré cette dominance d'études menées dans certaines provinces, la valeur d'une approche globale intégrée en milieu scolaire pour les acteurs scolaires et l'apport des liens avec la famille et la collectivité ont été pris en compte d'un océan à l'autre.

Introduction

The concept of Comprehensive School Health (CSH) has been an emerging theme in much of the health promotion and education literature in the past two decades. This movement stems from the Ottawa Charter for Health Promotion (OCHP), which established an international framework to contribute to Canadian health in a daily context (World Health Organization, 1986). Within the OCHP, the school environment has specifically been targeted as an environment where health promotion can have an impact on diverse factors such as student learning and safety in a daily context (OCHP, 1986). Research has shown a negative correlation between a child's poor health and his or her educational achievement (Lavin, Shapiro, & Weill, 1992). Children spend the majority of their time in school, making the school environment a promising setting for health promotion and education as expressed by the OCHP.

Numerous programs have adopted the CSH approach across the globe, each bearing their own unique characteristics. According to the World Health Organization (WHO), a health promoting school (HPS) is a school that "is constantly strengthening its capacity to be a health setting for living, learning, and working" (WHO, 1996, p. 19). More specifically, through a comprehensive approach, a HPS will "aim to build healthy public policies, create supportive environments, strengthen community action, foster the development of personal skills, and reorient health services to embrace health promotion in addition to clinical and curative services" (WHO, 1996, p.19).

Two countries that have completed numerous studies on the CSH approach are Australia and the United States of America (USA). Each of these countries has a similar understanding of the CSH approach, yet each generates different components and ways of integrating it into their schools. For example, the CSH approach in Australia is defined as a school "that strives to nurture the social, emotional, physical, and spiritual well-being, and cognitive development of its students, staff, and community" (Australian Health Promoting Schools Association, 2010, p.1). The Australian framework encompasses three interrelated components: (1) curriculum, teaching and learning practices; (2) school organization, ethos and environment; and (3) partnership and services (Australian Health Promoting Schools Association, 2010).

In the USA, the Centers for Disease Control and Prevention (CDC) have also developed the Coordinated School Health Promotion program (CSHP), a multi-levelled approach that has been researched over the past two decades. The CSHP program includes eight components: (1) Health education; (2) Physical education; (3) Health services; (4) Nutrition services; (5) Counselling, psychological and social services; (6) Healthy school environment; (7) Health promotion for staff; and (8) Family\community involvement. The above components interact together to "maintain the well-being of young people" (National Center for Chronic Disease Prevention and Health Promotion, 2010, p.1). In the USA, the CSHP acts as an overarching framework for specific health promoting initiatives within schools.

In Canada, education falls under each provincial and territorial government's jurisdiction. Consequently, each province has its own conception of CSH. To date, all 10 provinces and territories have adopted different, yet similar approaches to improving school health. Several national associations advocate the CSH approach, which helps to account for some of the similarities

between approaches taken by the provinces and territories. Notably, the Canadian Association for School Health (CASH), the Joint Consortium for School Health, School Health Research Network, Canadian School Physical Activity and Nutrition Network, Canadian School Health Centre, and the Physical and Health Education Canada are all involved in promoting health in schools across the country.

The Canadian School Health Centre, in partnership with CASH, advocates the CSH approach from coast to coast. Its approach to CSH incorporates four components stated in the Canadian Consensus: "(1) Teaching and learning – the basic way students and staff receive and distribute information about health, wellness, health risks and health issues; (2) Health and support services - the availability and accessibility of health and other support services are key to the early identification and treatment of many problems that can lead to long-term learning difficulties if not addressed; (3) Supportive social environment – refers to the mental health and social support available within the school and in relation to the home and community; and (4) Healthy physical environment – a clean, safe, health-promoting environment helps prevent injuries and diseases and enables healthier choices to be made" (CASH, 2007).

Statement of the Problem

Many CSH-type initiatives and programs have been observed in school communities across Canada; however, we have observed a lack of published research on these initiatives in refereed journals. Despite a growing body of scientific literature on risk factors, healthy lifestyles and youth, most of these studies have focused on one specific lifestyle (i.e., physical activity, nutritional habit), were intervention based, and have not adopted the CSH approach promoted by the ministerial, provincial and national organizations. The predominance of bio-medical research compared to the relatively new interest on school communities adopting and implementing the CSH approach may have created a delay for this type of educational research to happen.

These circumstances have created an interest in better understanding the extent of scientific research published on CSH-type initiatives or programs in Canada. This review and analysis of research published has been done with the intention (a) of aiding scholars in setting research agendas, thereby situating their work in the larger Canadian context, (b) to enable actors at different levels of involvement in their school communities to access and realize the potential impact of CSH-type initiatives across Canada, and (c) to permit university educators and educational institutions to integrate the full scope of CSH research into the preparation of health educators and professionals. Without a reliable and systematic review and analysis of Canadian research on the CSH approach, the information generated on such approaches remains disconnected and inaccessible to most school communities.

This review and analysis of Canadian research has been guided by the following four research questions and additional sub-questions:

(1) What research has been published in Canada on the CSH approach?
    (a) When did it start? (b) How many? (c) What is their publication rate? (d) In which refereed journals?
(2) How is the concept of CSH defined? (a) Which components of CSH have been studied?

(3) What methodologies are used? (a) Which data collection methods are used? (b) Who are the research participants?
(4) What are the findings of these studies?

Methodology

This study used a research design based on two common types of information summaries presented by Silverman and Skonie (1997). These authors differentiated an analysis of published research from a literature review by stating that analyses "are different from literature reviews in that they categorise research instead of synthesizing the results" (p. 300). Examples of both summary types are found in many domains such as physical education pedagogy (Kulinna, Scrabis-Fletcher, Kodish, Phillips, & Silverman, 2009) and sport pedagogy (Gilbert & Trudel, 2004). In the current study, the initial intention was to analyse the published research in order to identify and categorize all the Canadian literature on the CSH approach. However, given that a small number of publications were identified (n = 34), we were able to do a complete analysis and review of all the published Canadian research found. Inspired by the work of Gilbert and Trudel (2004) and Nicholson (2000), the current project was divided into five phases of analysis.

Phase 1

In the first phase, an exhaustive web-search was performed first, to identify the national and provincial school health associations' websites, and second, to find if any scientific publications on the topic of school health promotion, health education, or CSH were listed on these sites. We considered these strategies to be valuable starting points when it was observed that two associations had published scientific articles on the outcomes of their CSH programs: (1) Annapolis Valley Health Promoting Schools Project in Nova Scotia and (2) the Active Schools! BC in British Columbia. However, at that point in time, no scientific publications were found on any other national and provincial school health association's websites.

In a second step, as we also observed that most associations were affiliated in some way with their respective provincial governments, most frequently their Ministry of Education, we deepened our search into these ministries of Education websites. But again no scientific publications were found in relation to the CSH approach on these sites. However, one Canadian province has distinguished itself by publishing seven scientific research *reports*; the province of Quebec' public health division has put a large emphasis on the evaluation of their program "*Écoles en santé*" (Martin & Arcand, 2005). We observed that those who conducted these scientific research *reports* held Ph. D's and had been involved in scientific research previously. To the best of our knowledge, Quebec is the only province to have brought together such a group of researchers. The key researchers that have been noted include: Arcand (1998), Deschesnes and colleagues (1999, 2001, 2004, 2008), Jomphe-Hill et al. (2000), Roberge and Choinière (2009), and Rowan, Vanier & de Léry (2003). These *reports* pertain to the different initiatives that have been implemented in Quebec schools, as well as the degree of implementation to date.

Phase 2

Building from our observations in the first phase, it was clarified that we needed to conduct an exhaustive search through computerized databases to identify the Canadian literature published in refereed journals on the CSH approach. The key words used to perform the database searches were identified by reviewing the Canadian associations' websites in phase 1. The key words and phrases that were most frequently used in our subsequent searches were as follows: Comprehensive School Health, Coordinated School Health, Health Promoting School, Healthy School, *École Saine*, and *École en Santé*.

For an article to be included within the analysis, it must have included one of the key words and, in addition, fall under two other criteria: (a) research must have been conducted in Canada; and (b) published in one of the two official languages (French or English). The following were the databases used in identifying the research articles: P. E. index, ERIC, PsycInfo, SportDiscus, Academic Search Premier, CINAHL, Dissertations and theses on Proquest, SCOPUS, FRANCIS, Canadian Periodical Index, Theses Canada, Healthstar, MedLine and Health & Wellness Resource Center.

Phase 3

The third phase of the literature search was to obtain copies of the articles identified in Phase 2. However, from the initial list of references found, we observed that the search brought up a wide variety of articles. Thus, the articles were divided into three bodies of publication: (a) Professional articles/reports - those with no scientific methodology for data collection and analysis; (b) Scientific articles - those pertaining to intervention projects coming into the school focusing mainly on risk factors such as obesity and testing its effects; and (c) Scientific articles pertaining to the CSH approach. Only the articles that fit in the latter category were added to our initial reference list. There were a number of reasons why we chose to include only these articles. First, it would teach us more about the evolution and the state of scientific research in this field in Canada. Second, since we were focusing on the CSH approach, we decided to eliminate intervention base studies that were done without a comprehensive perspective. Third, since professional articles do not present scientific research results, are rarely available online, and are difficult to obtain without extensive memberships it would be impractical to perform an exhaustive review of this type of literature.

The initial list of references allowed for the identification of key Canadian authors and the refereed journals that published this type of research. From CSH's first publication appearance in 1989, the key Canadian researchers identified are Dr. E. Belzer and colleagues (1993, 1994), Dr. H. Cameron and colleagues (1991, 1991a, 1991b, 2007), Dr. M. Deschesnes and colleagues (1999, 2001, 2004, 2008), Dr. G. Mutter and colleagues (1989, 1990), and Dr. PJ. Naylor and colleagues (2006a, 2006b, 2008). In addition, the key refereed journals where articles pertaining to CSH were published are the *Journal of School Health*, *Health Promotion International*, *American Journal of Public Health*, and the *Canadian Journal of Public Health and Health Promotion*. These key researchers and journals represent those who had published at least two articles since 1989.

To increase the range of the search, the same key words and researchers' names were used in the search engines of each of the journals identified. In the

rare instance that key journals did not have an online search engine, hard copies of the journals from 1989-2009 were searched manually at the library. Furthermore, as the search allowed identifying all master or doctoral theses completed in Canada on the CSH approach, an additional search has been done with students and their theses supervisors' names to confirm whether they had published a scientific article from their work.

Phase 4

In order to test the validity of our reference list, the contact information of the key authors was found and emails were sent to confirm that the list of references to their names was complete. Missing references that were identified by the authors were added to the reference list. All new articles were then reviewed to assess whether they met all search criteria.

Phase 5

Once the 34 articles were identified as being relevant to our identified search parameters, their reference sections were thoroughly examined. Potential articles within the reference list were identified and obtained. These articles went through the phase 3 and 4 processes explained above before being added to our list of CSH articles; however, no additional articles were added to the reference list following this process. Once phase 5 was complete, the analysis and review of the 34 identified articles began. The analysis process was structured using the research questions presented in the problem statement section above.

Results

Part 1 – Categorizing the published research

Descriptive statistics are presented for each of the following: (a) yearly overview, location of research and published journals; (b) general methodology and methods of data collection; and (c) research participants.

Yearly Overview, Location of Research and Published Journals. The total number of articles collected for this review was 34. All articles that were identified for review and analysis were organized into four-year time periods in which they were published (Table 1).

We have observed that the first wave of publications appeared between 1990-1997. Although this wave of publications indicated a variety of research, it was specifically marked by the Annapolis Valley Health Promoting Schools Project in Nova Scotia. Since 2002, the number of publications has progressively increased. These publications are distributed between five Canadian provinces; however, most of the research has arisen from British Columbia (8), Alberta (4), and Ontario (4). Dr. Naylor and her research team from British Colombia have been the most productive research team in the area, producing 6 refereed articles.

Table 1
Published Articles by 4-Year Period, and Location

Time period	**N**	**Percentage %**	**Location**
1989	2	6	Ontario (2)
1990-93	6	18	Nova Scotia (3), Ontario (3)
1994-97	5	15	British Columbia (1), Nova Scotia (2), Ontario (1), Quebec (1)
1998-01	1	3	Quebec (1)
2002-05	7	20	Alberta (3), British Columbia (1), Quebec (1), Nova Scotia (1), Ontario (1)
2006-09	13	38	Alberta (1), British Columbia (7), Ontario (3), Quebec (2)
Total	34	100	

The articles analyzed for this review were found in 22 different refereed journals. The journals in which the most articles were found were: (a) the *Journal of School Health* (n=6) – a publication from the American School Health Association; (b) the *Health Promotion Journal* (n=3) and the *Canadian Journal of Public Health* (n=3); and (c) the *American Journal of Public Health* (n=2) and *Health Promotion International* (n=2). Other identified journals only published a single article related to CSH over the 20 year span.

General Methodology and Methods of Data Collection. In terms of general methodology, as shown in Table 2, four categories of articles were identified: Quantitative; Situation Review; Qualitative; and Mixed.

Table 2
General Methodology

Time period	Quantitative		Situation Review		Qualitative		Mixed (Q&Q)		Total	
	n	%	n	%	n	%	n	%	n	%
1989	1	3	1	3	0		0	-	2	6
1990-93	0	-	3	9	1	3	2	6	6	18
1994-97	2	6	1	3	2	6	0	-	5	15
1998-01	0	-	1	3	0	-	0	-	1	3
2002-05	3	9	3	9	1	3	0	-	7	20
2006-09	7	20	2	6	3	9	1	3	13	38
Total	**13**	38	**11**	32	**7**	21	**3**	9	34	100

Quantitative and situation review type studies were the dominant methodologies used in Canadian studies. Articles that presented studies that used pre and post testing to verify specific hypothesis or development of tools for evaluation were categorised as quantitative (n=13). Such studies obtained raw data that could be tested for significance such as aerobic testing or Likert type scales on questionnaires. The second dominant methodology examined what was being done in terms of CSH in certain areas of the country as well as the country as a whole. Since these articles either explored the content of specific documents or reviewed progress over a certain period of time, the term that was used to categorize these articles was "situation review" (n=11). The articles from the Qualitative column described different changes and sought to understand the ways in which the CSH could be implemented; in total there were 7 articles (21%). These research articles used interviews or focus groups most often as a method for data collection. Finally, there were also research projects that incorporated both quantitative and qualitative methodologies. This is what we called a "mixed Q & Q", and in total 3 articles used this methodology.

The different methods of data collection used in the research articles analyzed are displayed in Table 3. Since some articles used more than one method of data collection, the total adds up to 39 instead of 34. The most popular methods of data collection were questionnaire (n=19) and document (n=9).

Table 3
Methods of Data Collection

Time period	Questionnaire		Document		Interview		Focus group		Total	
	n	%	n	%	n	%	n	%	n	%
1989	1	3	1	3	0	0	0	0	2	5
1990-93	2	5	3	7	1	2.5	0	0	6	15
1994-97	2	5	1	3	2	5	0	0	5	13
1998-01	0	0	1	3	0	0	0	0	1	3
2002-05	2	5	3	7	1	2.5	1	3	7	18
2006-09	12	31	0	0	2	5	4	10	18	46
Total	**19**	49	**9**	23	**6**	15	**5**	13	**39**	100

As mentioned above, many articles used more than one method of data collection; however, not every method of data collection was included within table 3. Methods that were not included were unique to one study. These included qualitative observations, aerobic testing and development of tools, project tracking results, logbooks, and program checklists. In summary, a clear trend can be observed since 2006: the documents method is absent; focus groups and interviews have been more present; and the questionnaire is the method that has gained the most popularity among Canadian researchers.

Research Participants. In terms of research participants, each study included teachers and/or students; however, many studies also included other participants such as school administrators and parents. Table 4 presents the different populations that participated in these Canadian studies. One can observe that through the years, a larger variety of participants were used in these studies. The use of different participants within single studies is closely linked to the CSH approach as it encourages participation from different parts of a community, and at different levels of involvement (i.e., in promoting, educating, or preventing) in creating a CSH environment. The role of a CSH coordinator and the importance of pre-service training and professional development (PD) for in-service teachers have been studied more frequently since 2006.

Table 4
Research Participants per Time Period

Time Period	Research Participants
1989	Students
1990-93	Students, Teachers, Parents
1994-97	Students, Teachers, Administration, Coordinator role, Nurses
1998-01	*used documents only*
2002-05	Students, Teachers, Parents, Administration, School principal
2006-09	Students, Teachers, PE Teachers, Parents, Administration, School principal, Coordinator role, Support team

Part 2 – Synthesizing the results of the published research

This section will present information pertaining to the (a) theoretical frameworks, (b) problems / variables studied, and (c) conceptualisation of research problems and findings.

Theoretical Frameworks. The published articles in this review and analysis of the Canadian CSH literature can be grouped into two types of research; (a) the research-based, including the quantitative, qualitative and mixed methodologies (n=23); and (b) the situation reviews (n=11). Listed below are the reviews identified in the latter categories of articles.

1. Examine the notion of democracy and how it can be portrayed in school settings where efforts to promote health are prominent (Anderson & Ronson, 2005)
2. Review of intervention perspectives (Best, 1989)
3. Review of state of school health education in Canada (Cameron, Mutter, & Hamilton, 1991)
4. Review of features of CSH initiatives and the extent of their implementation, and current benefits (Deschesnes, Martin, & Jomphe-Hill, 2003)
5. Review of Coordinating School Health instruction (Mutter, Ashworth, & Cameron, 1990)
6. Review of research (Mackie & Oickle, 1997)
7. Review of networking and its effect on the CSH (McCall, Rootman, & Bayley, 2005)
8. Review of the funding for health promotion research (Wharf Higgins, Naylor, & Day, 2008)
9. Historical and sociological analysis of CSH (O'Neil, Pederson, & Rootman, 2000)
10. Guidelines for further implementation of the CSH (Cameron, 1991b)

11. The presentation of the School Health Action, Planning, and Evaluation System (SHAPES) Physical Activity Module (Leatherdale, Manske, Wong, & Cameron, 2009)

Interestingly, we noted that the need for intersectorial CSH initiatives for creating a partnership between the school, family and community that were addressed in the articles of the late 1990's and beginning of 2000 are what most researchers have studied since 2004.

The theoretical frameworks of the research-based articles (n=23) are very different from one another. Six articles had no theoretical framework, and four among these used quantitative methodology to measure risks factors. From the quantitative, qualitative and mixed methodologies articles, five used the CSH framework, four used the ecological model, and three used Kolbe's theoretical framework (Kolbe, 1986). Most research using Kolbe's theoretical framework was published in the 1990's, while others using the CSH framework or ecological model emerged between 2002-2005. The following five articles used different theoretical frameworks such as SHAPES (Leatherdale, 2009); Fullan's framework (1982); the socio-ecological model (Naylor, Macdonald, Reed, & McKay, 2006a); Green & Lewis (1986) variables for the evaluation of the degree of implementation; and Rogers' (2003), Diffusion of Innovation model.

Problems / Variables Studied. In the following section, only the 23 research-based articles were analysed since only these studies stated a problem with specific variables to investigate. All the researchers provided a literature review to support the need for their research; however, few stated a hypothesis (n=3) or research questions (n=3). The most frequently addressed problems were the nutrition and the physical (in)activity of school-aged children and adolescents (Bates & Yurkiw, 2003; Cargo, Slasberg, Delormier, Desrosiers, & Macaulay, 2006; Day, Strange, McKay & Naylor, 2008; Gleddie & Melnychuk, 2009; Gordon, 2002; Naylor, Macdonald, Warburton, Reed, & McKay, 2008; Naylor, Macdonald, Zebedee, Reed, & McKay, 2006a; Naylor, Macdonald, Zebedee, Reed, & McKay, 2006b; Reed, Warburton, Macdonald, Naylor, & McKay, 2008; Veugelers & Fitzgerald, 2005); and the lack of knowledge, attitudes, and practices regarding health-related behaviours (Cogdon & Belzer, 1991; Mutter, 1989). Having a particular interest on the evaluation of these variables, three studies presented tools that were developed to collect and evaluate health-related data (Andrews & Conte, 2005; Cameron et al., 2007; Deschesnes et al., 2008). Another common purpose of many of these research-based articles was to evaluate the effectiveness or the implementation of a school health curriculum. Two studies specifically evaluated the coordinated approach (Belzer & McIntyre, 1994; McIntyre et al., 1996), while five others focused on influential factors such as in-service trainings for teachers, teacher characteristics, school organisation, program characteristics, healthy school environment, and the collaboration between health and education sectors (Cameron, 1991a; Dyment & Bell, 2008; Mitchell, Laforest-Fliesser, & Camiletti, 1997; Renaud et al., 1997; Vamos & Zhou, 2009). Lastly, a single study presented the ethical considerations for getting higher rates of participation when parental consent is needed for children's participation in school health studies (Belzer et al., 1993).

Conceptualisation of Problems and Findings. All research-based articles using CSH as a conceptual framework define it using the definition provided by their provincial organisation or CASH. Health-related issues were generally

associated with physical health (i.e., cardiovascular disease risk factors), lifestyle, safety, mental health, substance abuse, sexuality, and interpersonal relationships. Many studies used broad terms or concepts without defining them; this was the case for "healthy eating", "active living", "in-service training", "implementation", and "overweight". In research, the lack of definitions may cause some confusion and consequently raise methodological issues such as the validity or trustworthiness of the study (Bouchard & Cyr, 2005).

In the following section, the findings of the research-based articles are divided into three themes for a deeper examination of their results: (a) the comprehensive and coordinated approach of healthy school programs, (b) the teachers, and (c) the students.

Generally it was found that an "active school" model positively influences different components and behaviours within the school setting. A positive influence was seen when more opportunities were given to children to be active, and when changes in the school curriculum and school community offered ways to be healthier (e.g., Day et al., 2008; Reed et al., 2008; Veugelers & Fitzgerald, 2005). Regarding the practice of physical activity (PA) in school, studies reported a modest, but significant impact from the interventions on PA levels in elementary schoolboys. Studies showed that children demonstrated a slight increase in their level of fitness when teachers delivered more PA during classroom times (e.g., Bates, & Yurkiw, 2003; Naylor et al., 2006b; Naylor et al., 2008). The initiative that generated an important change to the school environment and provided more opportunities for PA was the greening school yard. In such initiatives, every part of the school ground was being used to promote varying levels of PA. This also provided a greater level of accessibility to PA to a wider range of students. Several key ideas provided support for the enrichment of children's play: (1) integrating the exploration of the natural environment into PA, (2) promoting more cooperative play and civil behaviour, and (3) contributing to the inherent link between play and cognitive development by offering the potential for formal and informal learning (Dyment, & Bell, 2008). Finally, the eating behaviours of children have been reported to be influenced in some studies; the main factors facilitating such observations are the support team, the resources and students enthusiasm for taking part of the initiatives. In contrast, the main barriers in sustaining such initiatives were the decrease in funding and varying support from volunteers and staff (e.g., Bates & Yurkiw, 2003; Day et al., 2008; Veugelers & Fitzgerald, 2005).

In the 23 research-based studies reviewed, the perceptions and experiences of teachers were investigated in 9 articles. Cogdon & Belzer (1991) stated that "a coordinated school health promotion program will not just happen because everyone agrees it is a good idea" (p.10); teachers were seen as major actors that could make it happen. Teachers enabled a variety of "healthy lifestyle" discourses and practices to evolve within their schools by teaching the curriculum, role modeling, enforcing policy, and encouraging healthy lifestyles among students, school personal and administration (e.g., Cargo et al., 2006; Renaud et al., 1997). Studies also reported that teachers who had the most in-service training exhibited a greater degree of confidence to integrate the CSH approach in their teaching practices and in the broad implementation within the school community (e.g., Cameron, 1991a; Vamos & Zhou, 2009). However, stimulating actions on a daily basis and sustaining the initiatives or programs

over a long period of time remain a significant challenge (e.g., Dyment & Bell, 2008; McIntyre et al., 1996; Mitchell et al., 1997; Naylor et al., 2006a). A recent study by Vamos & Zhou (2009) identified seven themes to further explain the health education needs among pre-service and in-service teachers and how they could improve health education through schools. For example, these themes refer to *Effective and ineffective teaching strategies*, *Self-perceived gaps in knowledge and skills*, *Comfort*. To the best of our knowledge, the contribution of this research is unique and drawing significant paths to further investigate in future research.

Finally, students are often at the heart of studies, as they are seen as the target population for the improvement of their health and learning capacities. As a result, students from schools with "healthy-school initiatives" exhibited lower rates of overweight and obesity, and improved dietary habits and more participation in PA. However, such results were not unanimous; in fact, other studies concluded the opposite and explained that students understood the benefits of healthy eating and PA, but did not act on them due to taste preferences or the required effort (e.g., Bates & Yurkiw, 2003; Day et al., 2008; Reed et al., 2008). When investigated further, Gordon (2002) found that adolescent students' self-reported needs were different from the perceptions of student needs as experienced by parents and school staff. These findings are interesting as they show the difference in perceptions between the students and the actors involved in developing and implementing "healthy-school initiatives". As adults, are we imposing our visions or are we interested in working with youth, for youth? One of the questions that invariably arises in this type of research, as discussed by Gordon, is "are adolescents capable of accurately identifying their own needs?" (p. 60) Gordon concluded that the implementation of "healthy-school initiatives" is not limited to adopting a comprehensive approach, but is also a call for collaboration among all participants within and around the school, family, and community. In this perspective, "CSH approaches emphasize that the specific needs of adolescents must be assessed in each community and school" (Gordon, 2002, p. 61).

Conclusion

CSH has been promoted around the world, and the growing interest shown in Canadian CSH literature during the last two decades represents a clear school-based and research-based attempt to address the challenges of health-related issues in youth. This review and analysis of Canadian CSH literature represents an important step in the dissemination of Canadian research-based publications. The value of the comprehensive and coordinated school health approaches among school actors and the links to family and community have been addressed. The positive direction that further investigation into CSH has taken by exploring the roles and contributions of different actors, evaluating the state of health risk factors in a school context, and determining the processes of adoption, implementation and sustainability of such approaches will be of great value to Canadian schools and research communities. Yet, in the future, it may be necessary for school-based research to adopt innovative research designs (e.g., action-research) to better capture the daily practices of the different actors within the school setting, and coordinated links with the families and communities surrounding the school environment. As Gordon mentioned in 2002, creating a "healthy school" calls for collaboration and consequently, it is important to

question how the research community can collaborate with the communities of practices (Wenger, 2002) so that innovative health education practices can continue to evolve and make a difference in children and all actors' lives.

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