RESEARCH ARTICLE

DOI: 10.54392/ijpefs2627

International Journal of PHYSICAL EDUCATION, FITNESS AND SPORTS

When Parents Participate, Students Engage: Insights from the Quebec Global Health Program

Sarah-Maude Perron [a], Rosalie Gaudet [a], Roseane de Fátima Guimarães [a *]

[a] Department of Physical Activity Sciences, Université du Québec à Trois-Rivières, 3351 Boulevard des Forges, Trois-Rivières, QC G9A 5H7, Canada

* Corresponding Author E-mail: roseane.guimaraes@uqtr.ca

DOI: https://doi.org/10.54392/ijpefs2627

Received: 11-03-2026; Revised: 08-06-2026; Accepted: 15-06-2026; Published: 20-06-2026

Abstract: Parental engagement may be a crucial factor in the success of health promotion programs for youth. Studies have shown that programs with actively engaged parents lead to more significant improvements in youth's health behaviours. This study aimed to determine the relationship between parental engagement in the Global Health Program activities (GHP) and participants' perceptions of the program as well as to evaluate the correlation between parental lifestyle habits and those of their children. A cross-sectional study was conducted, and data were collected via self-report online questionnaires. Among the 54 families, 67.5% reported minimal engagement. Students whose parents were minimally engaged were more likely to participate in fewer activities compared to students with frequently engaged parents (79.5% vs 20%). Additionally, 75.9% of students reported that GHP had a positive impact on their well-being and 51.9% held a positive perception of school leaders' implication. No significant associations were found between parental engagement and student well-being, nor between the lifestyle habits of parents and children (sleep, screen time, physical activity). These findings suggest a need to strengthen school-family partnerships to enhance student participation in school-based health promotion programs.

Keywords: Parental Engagement, Intervention, Lifestyle Habits, Children, Adolescents.

1. Introduction

The positive effects of healthy lifestyle habits on overall health have been well documented (Arafa *et al.*, 2024). However, these habits do not develop in isolation. They are influenced by social determinants of health such as socioeconomic status, education, genetics, the physical environment and access to health services. These determinants contribute to the ability to maintain healthy lifestyle habits (World-Health-Organization, 2024). Despite public health recommendations, most of the population in Canada does not achieve the established standards for healthy living. For example, only 45.4% of the general population of Québec (Canada) meets the physical activity guidelines in 2020-2021 (Québec, 2025). Long-term overall health depends on adopting healthy habits, such as regular physical activity, balanced nutrition and adequate sleep early in life and maintaining them throughout the transition to adulthood (Arafa *et al.*, 2024). Recent population studies in Québec show that young people's lifestyle habits have not improved over the years. The proportion of adolescents meeting the recommended level of physical activity (60 minutes of moderate to high intensity per day) has remained stable at around 30% from 2010 to 2023 (Québec, 2025). Concerning sedentary time, young people spend around 8.4 hours per day being sedentary, 3.8 hours of which are on screens (Government-of-Canada, 2023). Following the current sedentary behaviour recommendations, 53.3% of Canadian children do not meet these recommendations, which include no more than 2 hours per day of screen time to minimise negative health outcomes (Government-of-Canada, 2023). The percentage of adolescents sleeping the recommended number of hours dropped from 62.6% in 2016-2017 to 49.6% in 2022-2023 (Québec, 2025). Despite well-established recommendations, youth lifestyle habits are not trending positively. To counter this, school-based programs are designed to promote healthy behaviors at a young age.

Childhood and adolescence are crucial stages of development when they establish lifelong habits, and schools serve as key settings for reaching and engaging most young people. Schools play a significant role in promoting healthy habits, but families are the heart of lifestyle development (Santos *et al.,* 2023). Parental engagement has been positively associated with improved health behaviours in children (Murray *et al.,* 2024). Parents serve as role models and influence how children make health-related decisions. Their engagement strengthens the effectiveness of both public health and school-based interventions. This is why strong school-family partnerships, with shared responsibilities, are an effective way to promote and encourage healthy lifestyle habits in youth (Murray *et al.,* 2024).

The Global Health program (GHP) is a Québec school-based intervention program that supports over 10,000 students in building lifelong healthy behaviours. The mission is to promote healthy living through physical activity, awareness campaigns and educational interventions embedded in the curricula. These are conducted by the school staff during school hours, and parents are invited to be involved in activities, especially outdoors, whenever they can. When parents register their children in these schools, they are made aware that they will be invited to participate and engage in such activities. GHP uses a whole-school approach, involving a partnership between teachers, school leaders, and families to increase the program's impact. The key agents of a whole-school approach are the educators and administration, students, parents, and the local community. School staff develop activities and deliver lessons to students, while parents are actively involved by being informed of the program's progress and helping to foster a home-school partnership to create a supportive and consistent environment across both settings (Cavanagh *et al.,* 2024).

The GHP provides a unique opportunity to examine parental engagement within an established, large-scale school-based health promotion initiative that explicitly incorporates families as partners in promoting healthy lifestyles. Unlike many intervention studies conducted under controlled research conditions, the GHP operates within routine school practice, allowing investigation of how school-family partnerships function in real-world settings. Understanding these relationships may contribute to the growing evidence base on the implementation of whole-school health promotion models.

Parental engagement is a crucial factor in the success of health promotion programs for youth. Studies have shown that programs with actively engaged parents lead to more significant improvements in youth's health behaviours. For example, a systematic review has shown that school-based interventions involving families are more effective in promoting physical activity among youth (Santos *et al.,* 2023). Included studies reported increased physical activity, reduced sedentary time and improvements in fitness levels when parents are actively engaged in the program. Interventions that integrate multiple components such as physical activity, healthy eating and parental engagement are particularly effective in encouraging long-term lifestyle changes (Santos *et al.,* 2023). However, some studies suggest that excessive parental pressure can hinder rather than help to change habits. A recent study found that adolescents who perceived their parents as too controlling over their physical activity reported lower motivation for exercise (Doggui *et al.,* 2021). Parental engagement could lead to improved healthy lifestyle habits, but adolescents may resist if they feel pressured (Doggui *et al.,* 2021). Another important factor in promoting healthy lifelong habits among youth is the central role of the family as a behavioral model that shapes children's habits.

While lifestyle interventions are often discussed at the individual level, it is important to recognize that their implementation is embedded within broader family and social contexts. Parents frequently act as proxies for wider social determinants of health, which means that parents embody and transmit many of the broader social and environmental factors that influence a child's health. The intergenerational transmission of lifestyle habits plays a central role in shaping children's health behaviors. Evidence shows that family environments exert both supportive and detrimental influences depending on parental practices (Loth *et al.,* 2024; Mahmood *et al.,* 2021; Yu *et al.,* 2022). A scoping review of 1,500 studies found strong associations between parents' physical activity, sleep, mental health, diet, and screen time with their children's body mass index (Maia *et al.,* 2025). Together, these findings underscore the complexity of behavior change and highlight the value of family-based approaches and parental role modeling in promoting healthy habits across generations.

Although family involvement is frequently identified as a key component of successful school-based health promotion programs, most previous studies have focused on intervention effectiveness, such

as changes in physical activity or dietary outcomes, rather than examining how variations in parental engagement relate to young people's perceptions of the program itself (Santos *et al.*, 2023). Furthermore, studies rarely investigate parental engagement and parent-child lifestyle behaviours simultaneously within the same intervention context. As a result, there remains limited understanding of whether parents who are more engaged in school-based health promotion initiatives also have children who perceive these programs more positively and whether parental lifestyle habits are reflected in the behaviours of participating youth. Examining these relationships within a large-scale, real-world school-family partnership such as the GHP may provide valuable insights into the mechanisms through which family involvement contributes to health promotion outcomes and may help refine future whole-school approaches.

By examining both parental engagement in program activities and the concordance of lifestyle habits between parents and children, this study extends existing research beyond intervention outcomes alone. It contributes to the literature on school-family partnerships by exploring how parental involvement may influence both participant perceptions of a health promotion program and the broader family context in which healthy behaviours develop. Given the existing gaps, conflicting results, and the importance of evaluating how the GHP can benefit the lifestyle behaviours of its students, the objectives of this study are to: i) determine the relation between the level of parental engagement in the GHP activities and the perceptions of participants regarding the program, its activities and the school leaders' implication; and ii) evaluate the correlation between parental lifestyle habits and those of their children participating in the GHP. We hypothesized that i) higher parental engagement is associated with more positive perceptions of the program among participants; and that ii) parents' lifestyle habits (physical activity, sedentary time, sleep) are positively correlated with those of their children. To our knowledge, this is among the first studies to simultaneously examine (1) parental engagement in a whole-school health promotion program, (2) youth perceptions of the program, and (3) associations between parent and child lifestyle behaviours within the same intervention context (*Santos et al.*, 2023).

2. Materials & Methods

2.1 Study Design

The cross-sectional data were drawn from the Autumn 2024 baseline evaluation of the GHP quasi-experimental study, which globally evaluates the medium- and longer-term associations between participation in the GHP and lifestyle behaviours, well-being, and academic achievement among Quebec adolescents.

2.2 Design of the Global Health Program

The GHP intervenes among 10,000 students from 48 public schools distributed in nine administrative regions of Quebec (Canada). GHP aims to guide students toward health promotion and long-term behavior change through two strategies integrated into classroom hours: i) offering outdoor-oriented activities and ii) developing and offering educational content components integrated into school subjects (nutrition, life balance and stress management, human body, and first aid) (https://www.fondationsanteglobale.com/).

1. Outdoor Activities: Introduction to a variety of outdoor activities (e.g., geocaching, canoeing and kayaking, mountain biking, hiking, etc.) with structured learning progression tailored to students' skill levels. These activities aim to enhance motor skills development across diverse outdoor environments.
2. Curriculum-Integrated Components:
    a. Nutrition: Promotion of healthy and balanced eating habits (e.g., understanding satiety cues, making nutritious food choices, incorporating all food groups into meals and snacks, etc.).
    b. Life balance and stress management: Techniques to maintain equilibrium across life domains and effectively manage stress (e.g., yoga, breathing exercises, heart rate coherence, postural stretching, etc.).
    c. Human body and first aid: Knowledge of human anatomy and development of basic first aid skills (e.g., management of frostbite, fractures, cardiac arrest, burns, etc.).

These programs are incorporated into the school curriculum with the goal of enhancing students' overall well-being. Interventions are delivered by school personnel, primarily teachers, who are provided with

training and resources by the program through school leaders. The school leaders work collaboratively with other teachers, committees, and mentors to support the program's goals and sustain its activities, sharing experiences across the network of participating schools and helping to cultivate a school culture that values health, physical activity, and well-being. Guided by these principles, more than 450 school leaders actively prioritize health as a foundation for the success and development of young Quebecers.

2.3 A Study Embedded within a Behavior Change Framework

According to the COM-B framework for behavior change (Capability, Opportunity, Motivation → Behavior), three factors drive behavior: capability (psychological and physical ability), opportunity (external social and environmental conditions), and motivation (conscious and unconscious processes that energize action). Behavior occurs when all three are present and interacting, and change requires modifying at least one. The GHP addresses these components by reducing barriers, strengthening motivation, and integrating purposeful physical education into the curriculum, framing health as part of students' overall intellectual, physical, emotional, and social development.

2.4 Participants

All 48 schools enrolled in the GHP in Québec (Canada) were recruited and all GHP participants and their families were invited to take part in the study. The invitation was sent by the Director of the GHP via email. Data were collected using an online questionnaire (software Qualtrics) available in both French and English between September and November 2024. Participants (≥14 y.o.) or parents/guardians (<14 y.o.) provided electronic consent and those in primary schools answered the questionnaire in the presence of their parents to help with the comprehension of the questions.

The initial baseline sample included 658 students aged 6 to 17 years and 147 families who completed the survey (one member represented the family). The analyses required matched parent-child dyads. Matching was performed using unique identifiers provided by participants. Although 658 students and 147 family representatives completed the baseline survey, many responses could not be linked because a corresponding parent or child questionnaire was unavailable, identifiers were incomplete or inconsistent, or data were missing for variables included in the analyses. After merging the valid data, 54 complete parent-child pairs were retained for the present study.

2.5 Data Collection Questionnaire

2.5.1 Parental GHP Engagement

The engagement question was an in-house item specifically developed to assess the level of parental involvement in the GHP intervention. Parents were asked to respond to an open-ended qualitative question: 'What is your engagement in the activities and projects of the GHP?' Their descriptive answers were then systematically categorized into a three-level scale to allow for standardized analysis of engagement across participants. To develop this classification, two members of the research team (SMP and RFG) independently reviewed all responses and identified recurring patterns of parental involvement. Based on these patterns, responses were categorized as 1) no or minimal engagement, 2) occasional engagement, or 3) frequent engagement. The coders compared their classifications and discussed discrepancies until consensus was reached. When consensus could not be reached, a third researcher (RG) reviewed the response and participated in the final decision. Formal inter-rater reliability statistics were not calculated because the coding process was conducted primarily to create analytical categories for the present study.

2.5.2 Students' Perception of GHP Activities on Well-Being

Students' perception of GHP activities on well-being was assessed using the in-house question "Do the activities offered by the Global Health Program help you find ways to soothe your mind and body, in order to reduce anxiety and daily stress?" on a four-point Likert scale, ranging from strongly disagree to strongly agree. For descriptive purposes, we categorized the answers "strongly agree" and "agree" as "Yes" and "strongly disagree" and "disagree" as "No". The four-point scale was used to avoid neutral responses and capture clear perceptions of well-being.

2.5.3 Students' Perception of School Leaders' Implication

Students' perceptions of school leaders' implication in the GHP were assessed using a seven-item in-house scale measured on a five-point Likert scale, ranging from strongly disagree to strongly agree.

The five-point scale was used to allow finer discrimination. It included statements such as "The school leader... i) was able to create a pleasant and enjoyable atmosphere; ii) was dynamic and encouraged everyone's participation during the sessions; iii) inspires me to be physically active and have good lifestyle habits regularly". A total score was computed for the purpose of analysis and categorized into positive skills, neutral, and to be improved.

2.5.4 Demographics

Self-reported age, sex, parental education, participation in GHP activities (number of years of participation, activities performed) were collected for both participants and families in two different questionnaires.

2.6 Students' Lifestyle Behaviors

2.6.1 Physical Activity (PA)

Participants were asked to report the amount of time spent doing each of the activities listed in the Physical Activity Questionnaire for Children or Adolescents (PAQ-C; PAQ-A) (Mestre & Reychler, 2021) for the past week. The PAQ-C is appropriate for children aged 6-14 who are currently in the school system and have recess as a regular part of their school week. The nine PAQ-C questions are organized using a segmented time-of-day or day-of-the-week strategy. It provides a summary PA score derived from nine items, each scored on a five-point scale. The PAQ-A is appropriate for students aged 14 to 20 years old who are currently in the school system, and it provides a summary PA score derived from eight items (no recess item), each scored on a five-point scale.

2.6.2 Screen Time

To assess sedentary total time and screen time, participants completed five items from the Canadian Health Measures Survey (Government-of-Canada, 2019). These questions asked the average time spent on various screen-based activities over the past seven days. An example item is: "In the last seven days, how many hours of your free time do you spend on ... watching TV, DVDs, movies or videos on the internet". Participants were asked to provide their responses in hours and minutes for each item. The CHMS questionnaire is appropriate for school-aged children (ages 12-17).

2.6.3 Sleep

Participants were also asked to report their sleep patterns by responding to four questions regarding their usual bedtimes and wakeup times on both weekdays and weekends (Government-of-Canada, 2019). For example: "What time do you usually turn off the light to sleep / wake up during the school week (Sunday through Thursday)?"; "What time do you usually turn off the light to sleep / wake up on weekends (Saturday and Sunday)?". Reported times were rounded to the nearest 15 minutes. Average daily sleep durations were then calculated.

2.7 Parents' Lifestyle Habits

Parents' lifestyle habits were assessed using items from the Canadian Health Measures Survey Household Questionnaire (Government-of-Canada, 2019), which has been validated for use with the adult population. For physical activity, participants were asked to report the frequency and duration of moderate physical activities in the last seven days as: "Over the past seven days, how many days and how much time in total did you spend doing activities that make you sweat a little and breathe harder?". Sedentary time and screen time were evaluated through five items asking them to estimate the average number of hours and minutes spent daily on-screen activities. Sleep patterns were assessed by asking participants to report their typical bedtime and wakeup time on both weekdays and weekends. Average daily sleep time was calculated.

2.8 Data Analysis

Continuous and categorical variables were descriptively summarized using means and standard deviations (SD) and percentages. Normality of continuous variables' distributions was checked by computing their level of skewness and inspecting their QQ-plots. To examine the relationship between 1) parental engagement in the GHP activities and the students' participation in the program and perception of the school leaders' implication, and 2) the correlation of parental lifestyle habits with those of their children participating in the GHP, bivariate tests (chi-square [$\chi 2$] and Spearman correlations) as well as bias-corrected bootstrap analyses with 95% CI were conducted for the correlation analysis due to the small sample size and reduced power. Although some variables met normality criteria, others showed deviations from normality, and the overall sample size was relatively small. To ensure conservative and robust inference under these conditions, we elected to use non-parametric tests.

Statistical significance was defined as $p \leq 0.05$. All analyses were performed using IBM SPSS (IBM SPSS Statistics, Version 28.0. Armonk, NY, USA).

3. Results

Table 1 presents the characteristics of the 54 matched participants (families and students). The average number of years of participation in the GHP was 1.1 ± 1.2 years. The students' sex distribution was equal (50% female, 50% male), with a mean age of 13.3 ± 0.2 years. The majority of the responding family members were female (90.7%) with a mean age of 43.1 ± 5.7 years. Most mothers and fathers had completed college or university education (♀96.3%, ♂83.3%). For physical activity, families had an average of 3.7 ± 1.6 hours of physical activity per week, while students had an average score of 2.3 ± 0.7 (from 1 - inactive to 5 – very active). Regarding sedentary time, families reported 1.9 ± 2.2 hours per day, compared to 8.1 ± 5.2 hours per day for students. The average daily sleep duration was 8.3 ± 1.0 hours for families and 9.9 ± 0.6 hours for students. Most students (75.9%) reported that participation in the GHP had a positive effect on their well-being and 51.9% had a positive perception of their school leaders' implication.

Table 1. Characteristics of parents and students (*n* = 54).

Participant's characteristics	Families	Students
	Means (SD) or n (%)	
Years of participation in GHP	-	1.1 ± 1.2
Sex, n (%)		
Female	49 (90.7%)	27 (50%)
Male	5 (9.3%)	27 (50%)
Age, mean (SD)	43.1 ± 5.7	13.3 ± 0.2
Mother's education, n (%)		
Attended college / university	-	51 (96.3%)
Attended high school only	-	3 (3.7%)
Father's education, n (%)		
Attended college / university	45 (83.3%)	
Attended high school only	9 (16.7%)	
Physical activity, mean* (SD)	3.7 ± 1.6	2.3 ± 0.7
Sedentary time, mean per day (SD)	1.9 ± 2.2	8.1 ± 5.2
Sleep, mean per day (SD)	8.3 ± 1	9.9 ± 0.6
GHP perceptions, n (%)		
Well-being		
Yes	-	41 (75.9%)
No	-	13 (24.1%)
School leaders		
Positive	-	28 (51.9%)
Neutral	-	26 (48.1%)

Note: GHP: Global Health Program. Data are presented in means (*SD*) or %. *Physical activity for parents: represented by hours/week for parents; physical activity for students: PAQ-C and PAQ-A questionnaire - Scores are interpreted as follows: 1 and 2 = Inactive; 3, 4 and 5 = Active.

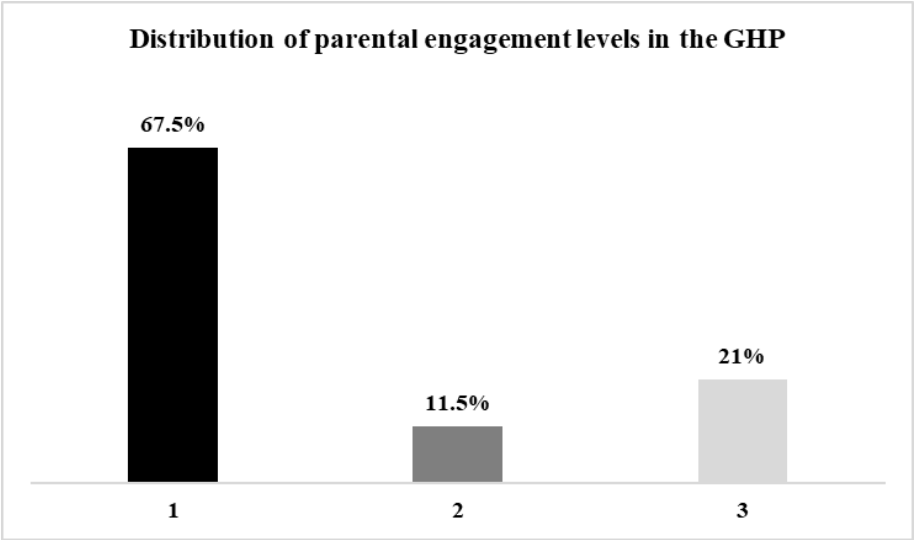

Figure 1. Parental engagement in GHP activities**.**

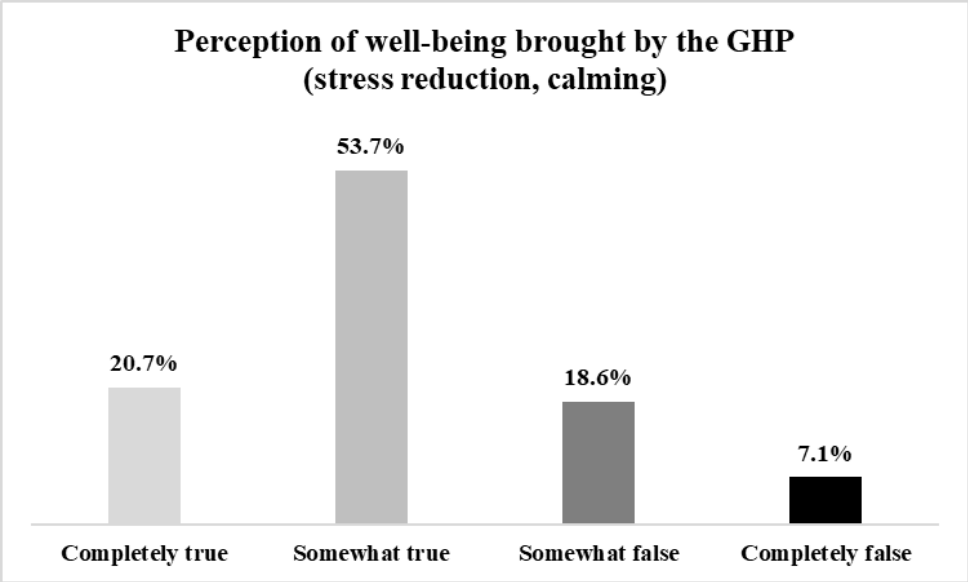

Figure 2. Students' perception of GHP activities on their well-being.

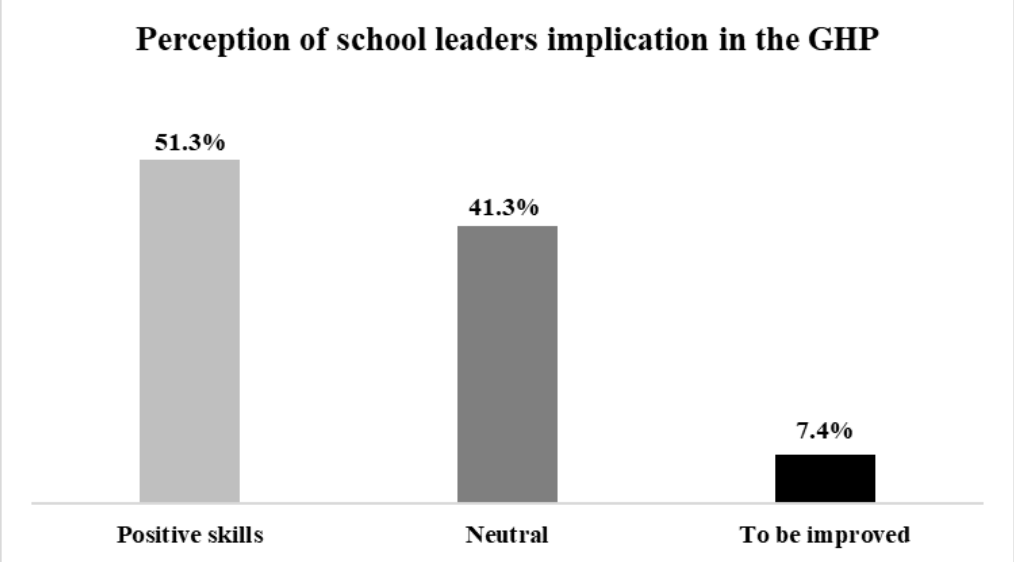

Figure 3. Students' perception of GHP school leaders' implication.

Table 2. Association between parental engagement in the GHP and students' participation in program activities and perceptions of well-being and school support.

Participants' perceptions and implication	Parental engagement		
	1	2	3
Implication			
Few activities	79.5% †	50% ×	20% †×
More activities	20.5% †	50% ×	80% †×
Well-being			
Help to relax	88%	83.3%	80%
Do not help to relax	22%	16.7%	20%
School leaders			
Positive	51%	33%	40%
Neutral	49%	67%	60%

The implication was evaluated by the number of activities in which participants were involved at their schools, as: outdoor activities, activities related to eating habits/nutrition; activities related to life balance and stress management; activities related to the human body and first aid. χ^2 tests were used to examine associations between parental engagement and student outcomes. † and × indicate descriptive differences between groups and are not intended to imply statistical significance unless reported in the main text.

Table 3. Correlation of parental lifestyle habits with those of their children participating in the GHP.

	Parents' lifestyle habits					
Children's lifestyle habits	**Sleep**		**Screen-time**		**Physical activity**	
	ρ	95% CI	ρ	95% CI	ρ	95% CI
Sleep	-0.231	-.926, .745	0.23	-.680, .837	0.098	-1.00, 1.00
Screen-time	0.282	-.355, .845	0.159	-.574, .778	0.048	-.333, .474
Physical activity	-0.169	-.926, .778	0.053	-.875, .845	-0.143	-.647, .474

ρ = Spearman's correlation coefficient. CI = confidence interval. No significant correlations were found ($p > .05$).

Figure 1 shows that 67.5% of parents had minimal engagement in the GHP, represented by level 1, while only 21% engaged in the program activities frequently (i.e. level 3).

Figure 2 shows that 74.4% of students perceived that the GHP helped them improve their well-being.

Figure 3 shows that 51.3% of students had a positive perception of their school leaders' implication in the GHP.

Table 2 presents the associations between parental engagement, students' participation in the GHP activities, and students' perceptions, as evaluated using chi-square tests. Assumptions for chi-square tests were verified by examining expected cell counts. A significant association was observed between parental engagement and students' participation in GHP activities ($\chi^2 = 8.77$, $p = .01$), with higher parental engagement associated with a greater proportion of students reporting involvement in multiple activities. Specifically, students with minimal parental engagement were more likely to report participation in fewer activities (79.5%) compared to those with frequent parental engagement (20%).

In contrast, no significant associations were found between parental engagement and students' perceptions of well-being ($\chi^2 = 8.26$, $p = .19$), nor

between parental engagement and perceptions of school leaders' involvement (χ^2 = 1.50, p = .65).

Table 3 presents Spearman correlations between parental and children's lifestyle behaviours (sleep, screen time, and physical activity). No statistically significant correlations were observed for any of the behavioural domains (all p > .05), indicating no evidence of association between parental and child behaviours in this sample.

4. Discussion

This study aimed first to determine the relationship between the level of parental engagement in the GHP activities and the perceptions of participants regarding the program, its activities, and school leaders' implication. We first hypothesized that higher parental engagement is associated with more positive perceptions of the program among participants. Second, we evaluated the correlation between parental lifestyle habits and those of their children participating in the GHP, hypothesizing positive associations for physical activity, sedentary time, and sleep.

Overall, the findings provided partial support for our hypotheses. Students with higher parental engagement were significantly more likely to report participation in multiple GHP activities. Specifically, those reporting high parental engagement were more frequently involved in multiple activities compared to those with low parental engagement (80% vs. 20%). This finding suggests an association between parental engagement and student participation in program activities. However, given the cross-sectional design, no causal interpretation can be made. Students may be more likely to participate in school-based health and wellness programs when parents are actively engaged, possibly due to shared values, encouragement, or modeling of health-conscious behaviors. This result is consistent with previous research highlighting associations between family involvement and student participation in school-based health initiatives (Burns *et al.,* 2019*;* Drouka *et al.,* 2023*;* Spencer *et al.,* 2018).

In contrast, no significant differences were observed between levels of parental engagement and students' perceptions of whether school activities supported relaxation and well-being. Similarly, no significant association was found between parental engagement and students' perceptions of school leaders' involvement. These null findings indicate that, in this sample, parental engagement was not statistically associated with these perception-based outcomes (Yang *et al.,* 2023). Future research with larger samples and more specific validated measures of psychosocial outcomes may help clarify these relationships (Fisher & Refael Fanyo, 2022). Regarding perceptions of school leaders, the absence of a significant association may reflect the complexity of how students form perceptions of authority figures; however, this interpretation remains speculative and should be interpreted with caution.

Finally, no significant correlations were found between parental and children's behaviours for screen time, sleep, or physical activity. This aligns with evidence suggesting that although family environments influence health behaviours, the strength of parent-child behavioural concordance may vary depending on age and contextual factors (Petersen *et al.,* 2020). However, in recognition of the complex and multidimensional nature of movement behaviours, the parental influence may be relatively weak (Petersen *et al.,* 2020). In this sample, the lack of significant associations may reflect increasing autonomy in adolescents, alongside the influence of peer and school environments. Parents might model healthy behaviors, but children and adolescents may not necessarily adopt them if peer influence, school context, or personal preferences differ (Su *et al.,* 2022). However, these explanations remain hypothetical, as the present study did not directly test these mechanisms.

5. Limitations

Self-report bias or differences in perception between parents and children may have contributed to weak correlations. Children may overestimate their physical activity or underestimate screen time, while parents may report idealized behaviours (Thorn *et al.,* 2013). To address these issues, future research should incorporate objective measures such as actigraphy, wearable fitness trackers, or screen-use tracking apps, as these are recommended to obtain more accurate and less biased data.

In addition, the cross-sectional design of this study limits causal inference, as associations between parental engagement and youth outcomes can only be interpreted as correlational rather than directional or causal. A selection bias may have occurred if parents who chose to participate were more health-conscious or engaged in their children's well-being than non-respondents. The relatively small number of matched parent-child dyads (n = 54) may have introduced selection bias, as participating families may have been

more engaged in the GHP than non-participating families and therefore not fully representative of the overall study population. To have a more representative sample of the population, future studies could use a more randomized sampling method and strategies to improve parent-child response matching (paired recruitment procedures or mandatory dyadic identifiers at baseline).

Finally, the reliance on a single regional school-based program in Québec (Canada) may limit the generalizability of the findings to the wider GHP population and to other school-based health promotion programs implemented in different cultural, educational, or policy contexts.

5.1 Practical Implications

Schools may need to implement targeted outreach strategies to engage families with lower engagement levels to promote more equitable health outcomes for all students. Families with lower engagement may face barriers such as time constraints, language differences or socio-economic limitations. Schools may also need to improve the engagement of families in school-based health programs. Future research may explore which aspects of parental engagement (e.g., communication, modeling, encouragement) most influence student participation in health-promoting activities, such as the GHP. It could also investigate other outcomes like school climate, peer influence, or cultural expectations to understand how they interact with parental engagement. Our future studies on the GHP data will consider longitudinal approaches to track changes in parental engagement over time and clarify how it can affect students' perceptions and behaviours.

Future research should investigate which aspects of parental engagement (e.g., communication, modeling, encouragement) most effectively influence student participation in health-promoting activities. Also, studies should examine moderators and mediators such as school climate, peer influence, or cultural expectations to understand how they interact with parental engagement. Our future studies on the GHP data will consider longitudinal approaches to track changes in parental engagement over time and clarify how it can affect students' perceptions and behaviours.

6. Conclusion

This study highlights the role that parental engagement may play in supporting students' participation in a school-based health program and shaping their perceptions of program activities. Students with more engaged parents were significantly more involved in the activities; however, parental engagement was not significantly associated with students' perceptions of well-being or school leaders' involvement. Therefore, the evidence does not support broad conclusions regarding uniformly more positive perceptions across all program dimensions.

Although some associations, such as those between parental and children's lifestyle habits, were non-significant, these findings may reflect adolescent autonomy as well as the influence of external factors such as peers, school climate, and cultural expectations. Strengthening school-family partnerships remains a promising strategy for supporting health promotion in school-based programs, but future research should further clarify the specific mechanisms through which parental engagement influences different domains of student outcomes.

References

Arafa, A., Yasui, Y., Kokubo, Y., Kato, Y., Matsumoto, C., Teramoto, M., Nosaka, S., Kogirima, M. (2024). Lifestyle Behaviors of Childhood and Adolescence: Contributing Factors, Health Consequences, and Potential Interventions. *American Journal of Lifestyle Medicine*. [DOI] [PubMed]

Burns, R.D., Bai, Y., Fu, Y., Pfledderer, C.D., Brusseau, T.A. (2019). Parent Engagement and Support, Physical Activity, and Academic Performance (PESPAAP): A Proposed Theoretical Model. *International Journal of Environmental Research and Public Health*, 16(23), 4698. [DOI] [PubMed]

Cavanagh, M., McDowell, C., Connor Bones, U.O., Taggart, L., Mulhall, P. (2024). The Theoretical and Evidence-Based Components of Whole School Approaches: An International Scoping Review. *Review of Education*, 12(2), e3485. [DOI]

Doggui, R., Gallant, F., Bélanger, M. (2021). Parental control and support for physical activity predict adolescents' moderate to vigorous physical activity over five years. *International Journal of Behavioral Nutrition and Physical Activity*, 18(1), 43. [DOI] [PubMed]

Drouka, A., Brikou, D., Causeret, C., Al Ali Al Malla, N., Sibalo, S., Ávila, C., Alcat, G., Kapetanakou, A.E., Gurviez, P., Fellah-Dehiri, N., Masson, M., Kontogianni, M.D., Yannakoulia, M. (2023). Effectiveness of School-Based Interventions in Europe for Promoting Healthy Lifestyle Behaviors in Children. *Children*, 10(10), 1676. [DOI] [PubMed]

Fisher, Y., Refael Fanyo, R. (2022). Parents Perceptions of Teachers Authority and Parental Involvement: The Impact of Communality. *Front Psychol*, 13, 908290. [DOI] [PubMed]

Government-of-Canada. (2019). Canadian Health Measures Survey (Cycle 6) - Household Questionnaire. [WebLink]

Government-of-Canada. (2023). Tracking Health through Daily Movement Behaviour: Data Blog. [WebLink]

Institut National De Santé Publique Du Québec. (2025). *Public Health Indicator: Lifestyle Habits*. Government of Québec. [Weblink]

Loth, K.A., Vomacka, E., Hazzard, V.M., Trofholz, A., Berge, J.M. (2024). Associations between Parental Engagement in Disordered Eating behaviors and use of Specific Food Parenting Practices within a Racially, Ethnically, and Socioeconomically Diverse Sample. *Appetite*, 195, 107253. [DOI] [PubMed]

Mahmood, L., Flores-Barrantes, P., Moreno, L.A., Manios, Y., Gonzalez-Gil, E.M. (2021). The Influence of Parental Dietary Behaviors and Practices on Children's Eating Habits. *Nutrients*, 13(4), 1138. [DOI] [PubMed]

Maia, C., Braz, D., Fernandes, H. M., Sarmento, H., Machado-Rodrigues, A. M. (2025). The Impact of Parental Behaviors on Children's Lifestyle, Dietary Habits, Screen Time, Sleep Patterns, Mental Health, and BMI: A Scoping Review. *Children*, 12(2), 203. [DOI] [PubMed]

Morales Mestre, N. (2021). Functional Exercise Capacities and Lung Function in Children with Congenital Heart Diseases: Evaluation Tools and Clinical Assessment. *(Doctoral dissertation, UCLouvain)*. [WebLink]

Murray, J., Rioux, C., Parent, S., Séguin, J.R., Pinsonneault, M., Fraser, W.D., Castellanos-Ryan, N. (2024). Factors Associated with the Rate of Initial Parental Engagement in a Parenting Program Aimed at Preventing Children's Behavioural Problems. *Prevention Science*, 25(8), 1250-1261. [DOI] [PubMed]

Petersen, T.L., Møller, L.B., Brønd, J.C., Jepsen, R., Grøntved, A. (2020). Association between parent and child physical activity: a systematic review. *International Journal of Behavioral Nutrition and Physical Activity*, 17(1), 67. [DOI] [PubMed]

Santos, F., Sousa, H., Gouveia, É.R., Lopes, H., Peralta, M., Martins, J., Murawska-Ciałowicz, E., Żurek, G., Marques, A. (2023). School-Based Family-Oriented Health Interventions to Promote Physical Activity in Children and Adolescents: A Systematic Review. *American Journal of Health Promotion*, 37(2), 243-262. [DOI] [PubMed]

Spencer, G., Hood, P., Agboola, S., Pritchard, C. (2018). Parental Engagement in School-Based Health Promotion and Education. *Health Education*, 118(6), 513-527. [DOI]

Su, D.L.Y., Tang, T.C.W., Chung, J.S.K., Lee, A.S.Y., Capio, C.M., Chan, D.K.C. (2022). Parental Influence on Child and Adolescent Physical Activity Level: A Meta-Analysis. *International Journal of Environmental Research and Public Health*, 19(24), 16861. [DOI] [PubMed]

Thorn, J. E., DeLellis, N., Chandler, J. P., & Boyd, K. (2013). Parent and child self-reports of dietary behaviors, physical activity, and screen time. *The Journal of Pediatrics*, 162(3), 557-561. [DOI] [PubMed]

World-Health-Organization. (2024). Determinants of health. [WebLink]

Yang, D., Chen, P., Wang, K., Li, Z., Zhang, C., Huang, R. (2023). Parental Involvement and Student Engagement: A Review of the Literature. *Sustainability*, 15(7), 5859. [DOI]

Yu, Z., Qin, W., Li, J. (2022). Intergenerational Transmission of Parental Risky Health Behaviors in Chinese children: Are there socioeconomic status differences? *Frontiers in medicine,* 9, 842817. [DOI]

Acknowledgments

We want to thank all participants, families, school leaders, GHP members, the general director, coordinators and school boards involved in the intervention program.

Informed Consent

Informed consent was obtained from all participants. Electronic consent was obtained directly from participants aged 14 years and above, while for participants below 14 years of age, electronic consent was obtained from their parents or legal guardians. Participants enrolled in primary school completed the questionnaire in the presence of a parent or guardian to assist with comprehension.

Ethics Approval Statement

Ethical approval for this study was obtained from the Institutional Review Board.

Author Contributions

Roseane de Fátima Guimarães: Conceptualization, methodology, protocol development, data analysis, writing – review and editing. Rosalie Gaudet: Data curation, writing – review and editing. Sarah-Maude Perron: Data curation, formal analysis, writing – original draft. All authors contributed to the final version of the manuscript and approved the submitted version.

Funding Source

This work was supported by the Research Network on cardiometabolic health, diabetes and obesity (CMDO/FRQS 35330) and by the UQTR Research Chair in youth lifestyle and health. These funding agencies played no role in the study design; the collection, analysis, and interpretation of data; the writing of the report; and in the decision to submit the article for publication.

Does this article pass screening for similarity?

Yes

About the License