

Debate

Widening the gap? Unintended consequences of health promotion measures for young people during COVID-19 lockdown

Stephanie A. Alexander ^{1,*} and Martine Shareck²

¹Fondation d'entreprise MGEN pour la santé publique, 3 square Max Hymans, 75748 Paris Cedex 15, and

²Département des Sciences de la Santé Communautaire, Faculté de Médecine et des Sciences de la Santé, Université de Sherbrooke, 3001 12e Avenue Nord Sherbrooke, J1H 5N4 Québec, Canada

*Corresponding author. E-mail: salexander@mgen.fr

Summary

During the first wave of the COVID-19 pandemic, global measures preventing the spread of the new coronavirus required most of the population to lockdown at home. This sudden halt to collective life meant that non-essential services were closed and many health promoting activities (i.e. physical activity, school) were stopped in their tracks. To curb the negative health impacts of lockdown measures, activities adapting to this new reality were urgently developed. One form of activity promoted indoor physical activity to prevent the adverse physical and psychological effects of the lockdown. Another form of activity included the rapid development of online learning tools to keep children and youth engaged academically while not attending school. While these health promoting efforts were meant to benefit the general population, we argue that these interventions may have unintended consequences and inadvertently increase health inequalities affecting marginalized youth in particular, as they may not reap the same benefits, both social and physical, from the interventions promoting at-home physical activities or distance learning measures. We elaborate on several interventions and their possible unintended consequences for marginalized youth and suggest several strategies that may mitigate their impact.

Key words: COVID-19, inequalities, youth, physical activity, education

INTRODUCTION

In the context of the COVID-19 pandemic, global measures to prevent the spread of the new coronavirus have led governments globally to implement lockdown measures (Bambra *et al.*, 2020). These measures broadly involved restrictions to social life and requirements to shelter in place, which were implemented around the

world to varying degrees of severity (BBC News, 2020). Due to the unprecedented nature of the sudden halt to collective life, a series of new concerns emerged for public health authorities, including the effects a lockdown might have on the population's physical and mental health and the effect that school closures would have on the opportunities for learning and for completing the

2019–2020 school year (Van den Broucke, 2020). Problems anticipated due to lockdown included an increase in stress, fear and anxiety (Brooks *et al.*, 2020), physical health problems (e.g. pain/weakness, weight gain) (Margaritis *et al.*, 2020), and the risk of falling behind in coursework and dropping out of school (Canadian Federation for Students, 2020).

The COVID-19 pandemic has by many accounts also shone a light on the flagrant social inequalities that already exist (van Dorn *et al.*, 2020). Indeed, while interventions were introduced to accompany the population as it began to shelter in place, it became clear that even well-intentioned interventions assumed that everyone had an adequate place in which to shelter and in which these new activities could be adopted. Not only were there differences in the places and possibilities for living in lockdown (i.e. house, apartment, shelter, street), the threat of the coronavirus itself was greater for those living in more crowded spaces.

In this article, we argue that interventions created during early lockdowns to maintain physical activity and address disruptions to education may inadvertently increase health inequalities. To illustrate this, we outline several campaigns and interventions that emerged during the first COVID-19 lockdowns in France and Canada in March 2020, some of which are still currently in place (November 2020) or have been reinstated. While these efforts intended to promote health for the whole population, we suggest they may produce unintended negative consequences for marginalized youth—already disproportionately affected by the turn towards ‘life in the home’—by aggravating existing social and health inequalities. We suggest various strategies to mitigate these consequences, which if addressed before crises arise, may help reduce inequalities. We discuss two kinds of interventions in this article: (i) those broadly promoting physical activity at home, and (ii) those promoting online schooling. We draw our examples from France and Canada, where the authors currently reside and experienced lockdown measures first hand.

CONTEXT OF LOCKDOWN MEASURES DURING THE COVID-19 PANDEMIC

The emergency measures around the new coronavirus grew quickly from tracking the increasing cases in the city of Wuhan, China in late 2019 to the identification of 4 million cases of COVID-19 worldwide by early May 2020 and over 54 million by mid-November 2020 (European Centre for Disease Prevention and Control, 2020; World Health Organisation, 2020b) (As numbers

are continuously increasing, this count is accurate for 16 November 2020.). Already mid-January 2020, Wuhan was placed under quarantine and by late February to early March 2020, many countries around the world were implementing some form of lockdown to stop the virus’ spread (e.g. Vietnam, Italy, Iran, Philippines, Malaysia, followed by much of Europe and countries in the Americas) (BBC News, 2020). As such, for many countries, either a full or localized lockdown was a main feature of the public health measures taken to ‘flatten the curve’ (BBC News, 2020). Lockdowns typically included regulations to ensure the population sheltered in place, worked from home, and that daycares, schools and non-essential services be closed.

Country-specific responses were diverse, however, and varying degrees of restriction were implemented (BBC News, 2020). While many opted for lockdowns, other responses included aggressive forms of contact tracing and tracking (e.g. Taiwan, Singapore), significantly boosting the number of COVID-19 tests conducted (e.g. South Korea) as well as relatively low-level strategies that involved simply encouraging social and physical distancing, banning large gatherings and restricting travel (e.g. Sweden, Japan) (London School of Economics News, 2020; Time Magazine, 2020). All responses to the COVID-19 pandemic have subsequently evolved and continue to do so according to each country’s or region’s level of virus circulation.

This article addresses the lockdown situations in France and in the province of Québec (Canada) as the authors directly experienced lockdown living in these two localities. The pandemic responses were similar (i.e. lockdowns and service closures), but were different enough to emphasize particularities in their responses. In France, the first national lockdown was put in place on 17 March and enforced until 11 May 2020. To leave the house during this period, a state-issued form had to be completed indicating name, address, purpose and exact time and duration of the outing. One of five eligible reasons could be indicated for leaving the home. (Travel for: (i) medical appointments, (ii) groceries in authorized shops, (iii) exercise or taking out pets (1 h and no further than 1 km), (iv) essential work (including a letter from the employer stating your presence was required), (v) providing assistance to family, vulnerable populations or childcare.) Failing to abide by the requirements or not carrying a valid state-issued form could result in a fine of 135 Euros. As residents of France were only permitted to leave the home for 1 h at a time and travel no further than 1 km from their place of residence, much of the population left their homes only once per week for essential necessities, such as groceries. Given these

restrictions on the population's movement, there was a legitimate concern from the public health authorities that the population would be significantly less active and that this would have negative health effects. As such, significant efforts were made to encourage physical activity among the population during the lockdown months.

In Canada, lockdown measures varied by province. In the province of Québec, a health emergency was declared as early as 13 March 2020, with the implementation of measures such as physical distancing, closing of public spaces and prohibition of private gatherings. This culminated in a full lockdown on 24 March 2020 after which only essential outings were permitted, although enforcement was not as strict as in France. As education is a provincial responsibility in Canada, on 16 March 2020 Québec's Ministry of Education and Higher Education announced the closure of all schools and higher education institutions ([Gouvernement du Québec, 2020b](#)). While other provinces also shut down schools and university classes, Québec was the only Canadian province to reopen some elementary schools on 11 May 2020, a hotly debated decision ([Radio Canada, 2020](#)). High schools, colleges and universities, some of which had turned to online teaching in the meantime, remained closed for the summer. What was distinct in Québec's response was the early efforts made to develop teaching materials and new platforms to adapt coursework and teaching methods to distance and online learning. One significant, although criticized, online learning tool was already released on 30 March 2020 ([Gouvernement du Québec, Ministère de l'Éducation et de l'Enseignement Supérieur, 2020](#)).

In the next section, we present interventions for physical activity and education during lockdown and examine how they may inadvertently produce unintended negative consequences. We draw on elements of Allen-Scott *et al.*'s typology of unintended negative consequences of public health interventions, which encompasses physical, psychosocial, economic, cultural and environmental consequences ([Allen-Scott *et al.*, 2014](#)). Due to the diverse responses to the pandemic globally and the ever-changing situation within countries, it is not possible within the scope of this article to expand our analyses beyond France and Quebec (Canada), nor to topics beyond physical activity and education. We recognize that what we describe here and the possible mitigating strategies suggested will be most useful for those countries experiencing similar lockdown situations. Nevertheless, there are some central principles to designing these mitigation strategies that can apply to other situations in other contexts.

INTERVENTIONS FOR PHYSICAL ACTIVITY AND EDUCATION DURING LOCKDOWN

Interventions promoting physical activity during lockdown

A first type of campaign that emerged within days of lockdown encouraged families to keep up physical activity while staying at home. Available everywhere online, articles and blog posts proliferated in March and April 2020 to promote physical activity during lockdown globally. For instance, one of many opinion pieces published in a popular science journal (i.e. *The Conversation*) entitled *How to stay fit and active at home during the coronavirus self-isolation* ([Stamatakis *et al.*, 2020](#)) was written to motivate families everywhere to find new ways to stay active. The article includes incitements to take the stairs, use one's own body weight for strength exercises, play actively with our pets, and that we can all 'dance the Covid19 blues away'. Indeed, even formal dance classes offered free attendance as they moved from the studio to free online sessions ([May 2020](#)). There were also living room toning workouts prepared and conducted via the storm of new online applications rapidly gaining popularity, such as Zoom or Houseparty and YouTube channels, all of which created or updated their platforms to adapt to the new lockdown situation and guide homebound families through daily exercise routines. The message became abundantly clear: not only were all of our previous activities still possible, but they were perhaps even more necessary now to stave off the increasing physical and mental health concerns that living in lockdown during a pandemic might bring with it.

The place of public health organizations in promoting physical activity during lockdown was also prominent through newsletters, television campaigns and blog posts published on their respective websites to outline the importance of staying active during lockdown. Suggestions always included child-friendly activities that could be done at home or in the backyard. Lockdowns around the world generated fears of decreasing physical activity and as such, the promotion of at-home physical activities became globally prevalent. For example, the WHO developed the 'Be Active campaign' to provide ideas for how to stay active while at home during lockdown, and they created social media tiles with simple tips for being active in the home ([World Health Organisation, 2020a](#)). Drawing on international physical activity guidelines that recommend 60 min of physical activity per day ([World Health Organisation, 2020a](#)), ideas for staying active in the home included: pilates and yoga, dancing, walking or stair climbing,

aerobics, ping-pong, basketball, yardwork, home workouts (with online links) and stationary biking. Similarly, the *Active Healthy Kids Global Alliance*, a Canadian-initiated organization promoting and evaluating youth physical activity in over 49 countries, also provided an online guide entitled *Guidance on healthy movement behaviours for kids during the covid-19 pandemic* (Active Healthy Kids Global Alliance, 2020a,b). They write that ‘depending on your accessibility to places, take a walk around the block, or use driveways, backyards, sidewalks, cul-de-sacs, and forests to be physically active’.

In France specifically, where a restrictive first lockdown was in place for 2 months, the public health authorities were worried about the effect this would have on the population’s physical and mental health (Santé Publique France, 2020). In anticipation of the possible harms lockdown might inflict, France’s national public health agency, Santé Publique France, developed a survey to examine the evolution of health behaviours and mental health during lockdown (Santé Publique France, 2020). France’s *Ministry of Sports* (Ministère des Sports, Gouvernement de la République française, 2020a) and the *National Observatory for Physical Activity and Sedentarism* [Observatoire National de l’Activité Physique et de la Sédentarité (ONAPS), 2020b] in turn provided their own recommendations for maintaining physical activity during lockdown. For instance, the French *Ministry of Sports* encouraged families to engage in physical activity at home and provided a list of French sport federations all of whom had developed online classes for a variety of activities ranging from cycling, golf and fencing to judo, chess, bowling and gymnastics (Ministère des Sports, Gouvernement de la République française, 2020b). Every sports club appeared to have an online version of its activities, so that life could go on ‘as before’.

For a broader and perhaps less strictly athletic audience, the French public broadcaster, *France Télévisions* created a televised physical activity programme that was aired during lockdown (and beyond) and which gained immense popularity in France (France Télévisions, 2020). The new show aptly named *#Restez en forme* (#Stay in shape) with the byline *Restez chez vous* (Stay at home) appeared daily during a morning time slot of 10:30 and featured two qualified trainers demonstrating strength and cardio exercises for the public to do in their living rooms. Each episode featured two new guests participating from their homes via video: one guest was a known professional athlete and the other was a parent/guardian and child duo. The idea was that physical activities during lockdown could be done by everyone,

from the professional athlete who needs high intensity training to families and children of all activity levels.

The message behind these campaigns was that despite the global pandemic and the necessity of lockdown, we should all aim to maintain an optimal level of physical activity to prevent any adverse physical and psychological effects. With all these tools made available, what excuse could any family, parent or child have to not emerge from lockdown ready to pick up where they left off?

Interventions for maintaining academic activities during lockdown

Another type of intervention that was introduced to ease the negative impacts of lockdown focused on maintaining academic learning for students of all levels and ages. Recognizing that education is essential to young people’s development and an important social determinant of health (The editors, 2020), in the face of school closures, authorities urgently devised plans to prevent discontinuity in the learning process. Although there was variability in the types of measures implemented between countries, provinces, and even types of schools (public vs. private schools in Québec), and in the guidance and quality of resources provided to educators and parents, measures mainly involved the development of online learning tools (Children’s Commissioner for England, 2020; Fortier, 2020; Gouvernement du Québec, Ministère de l’Éducation et de l’Enseignement Supérieur, 2020).

During lockdown, Québec’s *Ministry of Education and Higher Education* collaborated with the education network to offer accessible educational activities delivered online for the duration of the pandemic. Already by 30 March 2020 it had developed ‘L’École ouverte/The Open School’ (<https://ecoleouverte.ca/en/>), an online platform meant to allow pre-school, elementary and secondary school students, as well as young people enrolled in adult education or vocational training, ‘to choose their own path and learn at their own rhythm’ (Gouvernement du Québec, 2020b). Rather than offer virtual classes or downloadable lessons tailored to each grade level, the website served as an aggregating platform where weblinks to external online resources were provided (e.g. links to news or museum websites). For families and students without access to a computer and/or high-speed internet, paper-based lessons were to be provided by mail, although the *Ministry’s* website did not describe how to apply for this service. In order to reach a wider audience, three hours’ worth of educational material was also offered on public television via a programme entitled ‘Tele-Québec en classe’ (Télé-

Québec, 2020). Because the challenges brought about by the pandemic for young people and their families were acknowledged, engaging in online and home schooling was not made mandatory. For students enrolled in higher education, the decision of whether courses would be converted to an online format and what that would concretely look like was left to each institution's discretion, but most turned to online classes to allow their students to complete the Winter semester (Gouvernement du Québec, 2020b).

Community and private sector initiatives also emerged either when authorities were slower to provide guidelines and adequate resources or as a complement to government-led initiatives. It took the Québec government a few weeks to provide schools with harmonized guidelines, which left parents to manage on their own at first. This time gap led a private tutoring company to initiate, already within two weeks of the start of lockdown, an online series of free 20-min French language and Math classes for elementary school students called 'La classe en ligne'. Making use of innovative technology and hosted by a passionate teacher, 'La classe en ligne's' popularity quickly grew with a reported 35 000 Quebec families logging in daily (La Presse, 2020), and several hundred more families in other provinces viewing the videos as well. Although this was not mandated by the authorities, individual schools took the initiative of posting educational materials and activities on their social media pages, and some teachers chimed in regularly to stay in touch with their students through videoconferencing while others turned to in-person visits when they were unable to reach their students through online communication.

In early May, kindergartens and elementary schools were allowed to re-open in Québec to wrap-up the school year, except in some regions where the virus was still active, and high schools and universities remained closed until the Fall term (Gouvernement du Québec, 2020c). While elementary schools re-opened, attendance was non-mandatory, and teachers observed a lower attendance among children from disadvantaged backgrounds and among those who had learning disabilities: 64% of elementary students attending more advantaged schools returned to school compared to 50% of those attending more disadvantaged schools (Sioui, 2020). In terms of higher education, plans for the Fall semester were left to each institution's discretion, although the government recommended that institutions adopt a hybrid online and in-person approach and pay special attention to new incoming students and to those living with a disability or with anxiety (Gouvernement du Québec, 2020d). As of November 2020, elementary and

high schools have re-opened for in-person teaching but with various and evolving guidelines such as mandatory mask wearing for certain grade levels and alternating in-person attendance with online learning. Even with most students back in school, distance learning is still advised for those with special permission (e.g. personal or household vulnerability to the virus) and students are forced to isolate during school outbreaks (415 active outbreaks as of 10 November 2020, representing 27.8% of all outbreaks in the province). Regarding higher education, most institutions have gone ahead with hybrid courses for the Fall and Winter semesters (Université de Sherbrooke, 2020; McGill University, 2020a,b).

What these trends towards online learning during lockdown illustrate is that not only have many students missed out on learning in person and collectively with their peers for more than 3 months, once in place, the online learning trend may remain widespread post-lockdown. While this preparedness for online teaching is certainly advantageous in cases of subsequent lockdowns or as a complement to in-person teaching, the unequal access that youth have to online learning tools cannot be ignored (Lancker and Parolin, 2020).

UNINTENDED CONSEQUENCES OF HEALTH PROMOTION INTERVENTIONS

While perhaps not the first to contemplate the question, Gugglberger's editorial in this journal (Gugglberger, 2018) entitled *Can health promotion also do harm?* in which she explicitly confronts the question of harm caused by health promotion interventions, is particularly relevant for our own considerations of unintended effects of health interventions in the time of COVID-19. Gugglberger argues that unintended effects of health promotion interventions—both the good and the bad—are 'usually not foreseen, can be difficult to observe, but occur nonetheless' (p. 557) (Gugglberger, 2018).

According to Gugglberger (Gugglberger, 2018), the stigmatization of a population who either engages in an unhealthy behaviour (e.g. smoking) or who does not engage in a recommended behaviour (e.g. physical activity or online classwork) is the 'most widely discussed unintended effect of health promotion interventions in the literature' (p. 558). Given that the COVID-19 pandemic resulted in considerable changes to our daily habits and inspired significant stress, anxiety and frustration (Government of Canada, 2020), injunctions to adapt our health and social behaviours according to the new lockdown situation may have numerous additional unexpected effects.

Allen-Scott *et al.* propose a typology of unintended negative consequences of public health interventions (Allen-Scott *et al.*, 2014). These include: (i) physical consequences (harm occurs to the physical being of the person); (ii) psychosocial consequences (harm to psychological and social aspects, connecting social conditions and mental health); (iii) economic consequences (production, distribution or consumption of goods); (iv) cultural consequences including the damage to a group's 'way of life' and (v) environmental consequences (damage to circumstances, objects or conditions). Their typology is likely more adapted to examining long-term, complex public health interventions than to the urgently developed COVID-19 interventions we discuss here. Nonetheless, we find this typology useful and draw on it to organize the analysis of interventions illustrated in this article. We suggest that the central unintended consequence of the lockdown interventions we discuss may result in the widening of already existing social inequalities in health. We disentangle this and identify the possible physical, psychosocial and economic inequalities that may emerge due to the lockdown interventions promoting physical activity and online homeschooling.

Unintended consequences of physical activity interventions

Discussing the socially differentiated health impacts of outdoor environments, Abraham *et al.* suggest that not everybody has equal access to health-promoting landscapes and as such, 'unequal access may function as a way in which inequalities in the distribution of resources contribute to the (re-)production of health inequalities' [(Abraham *et al.*, 2010), p. 65]. Socially disadvantaged groups who do not have access to safe outdoor spaces in which to engage in physical activity are less likely to be physically active and are therefore 'likely to suffer more often from obesity than people with access to such spaces' [(Abraham *et al.*, 2010), p. 65]. We suggest that the possibility of being physically active at home during lockdown is similarly socially patterned; since not all families can engage in physical activities during lockdown in the same way due to their different life situations, not all families are able to equally reap the benefits of new forms of physical activity either. This we suggest can have multiple consequences for the less advantaged households.

The French National Observatory for Physical Activity and Sedentarism [Observatoire National de l'Activité Physique et de la Sédentarité (ONAPS), 2020a] conducted a survey with 28 400 respondents about their physical activity practices during France's strict first lockdown period (between 17 March and 11 May 2020). The

results suggest that on average the levels of physical activity did not change significantly for most respondents, except for the adolescent group, whose levels of physical activity had diminished [Observatoire National de l'Activité Physique et de la Sédentarité (ONAPS), 2020b]. While the overall results of the survey may be indicative of positive consequences of French physical activity campaigns during lockdown, since there is no detailed breakdown of the results by different socio-demographic groups, it is difficult to know whether these benefits were experienced equally for inhabitants of different kinds of households. Indeed, looking at the groupings of the survey respondents, 64% were between the ages of 18 and 64 years and 70% were living in homes that included either individual yards or gardens. Given this population of respondents, the positive health consequences may only be applicable to older groups and to those living in homes with gardens.

One element that the incitements to engage in physical activity at home during lockdown have in common is that they required an inordinate amount of motivation and organization. This may have been especially true for those families who were also dealing with multiple additional complexities related to the COVID-19 pandemic and which are not equally experienced by all families. For instance, the COVID-19 related experiences of job and income loss or fear thereof, employment and scheduling changes, new childcare requirements, sickness and overcrowding in homes are all more common for families already experiencing disadvantage (Bambra *et al.*, 2020). Furthermore, youth whose families already engage in physical activities together and have the time and organizational habits of physical activity routines would also be those most able to continue these routines during lockdown. Therefore, the suggestion that all families can continue to engage in daily physical activities during lockdown may simply place an additional burden on those families who are already managing multiple health, economic and logistical stressors related to COVID-19. We would identify this as an unintended negative psychosocial consequence of the physical activity campaigns during lockdown.

In addition, the promotion of physical activities at home during lockdown assumed that each family had access to sufficient space in which to be active (e.g. backyard, vacant living room). Families without this space were thus excluded from participating fully in many of the promoted lockdown activities. As suggested by Teran-Escobar *et al.* who conducted a survey examining barriers to physical activity during the COVID-19 lockdown in France, smaller homes were indeed associated with lower levels of physical activity during

lockdown (Teran-Escobar *et al.*, 2020). Furthermore, while youth who adopt suggested physical activities could benefit from feelings of satisfaction and accomplishment, youth who cannot participate in the physical activities may not experience this. Indeed, being part of a regular online exercise class can benefit physical health, but may also allow for virtual connections outside of the home and a means of socializing with peers. Not having the possibility to participate in at-home activities during lockdown may thus lead to increased isolation and feelings of exclusion. All of this may have further negative psychosocial consequences for youth.

Lastly, it is known that being physically active is not only beneficial for weight maintenance, but also for muscle and bone health and for psychological well-being (Sallis *et al.*, 2020). However, given the unequal living situations for families, the physical and psychosocial benefits of being physically active during lockdown were likely not equally experienced either. This, we suggest, could be considered a negative physical consequence of the interventions, since youth in less advantaged families will not reap the same physical health benefits as those from more advantaged families. This would have the potential to further exacerbate any pre-existing inequalities in health that are socially structured. Furthermore, not only will youth from less advantaged families not benefit from continued physical activity during lockdown, but they will also carry the burden of the negative physical and psychosocial consequences of being more sedentary during lockdown than they previously were.

Unintended consequences of online education

Although online learning may yield positive results for students (Means *et al.*, 2013), some may not benefit as much, such as those with learning difficulties, suffering from mental health issues or with fewer economic means (Bettinger and Loeb, 2017; Van den Broucke, 2020). The turn to online and distance learning during lockdowns without thorough consideration of marginalized youth may therefore exacerbate any pre-existing social and health inequalities (Colao *et al.*, 2020). An increased feeling of exclusion and stigma may inadvertently result when not all families and young people have the space, privacy, calm, and technological tools (i.e. personal computer, high-speed and unlimited internet connection) to fully engage in, and benefit from, online learning activities. The Quebec government attempted to address some of these challenges by providing additional funds to educational institutions for online and distance learning, and by collecting 30 000

tablets and personal computers for schools to provide students with the required materials. It is not known, however, how many students benefited from this. Furthermore, the Ministry left a key element of online learning in the hands of families: ensuring and paying for an internet connection. Instead, if internet connection was a problem, the Ministry recommended downloading course materials via hotspot connections, via the school's internet network (accessible from outside school buildings), or via LTE mobile internet keys purchased and loaned by schools (Gouvernement du Québec, 2020a). Thus despite its intention to support families less able to fully engage in online learning, the Québec government did not secure all that was needed for at-home schooling (Gouvernement du Québec, 2020a).

Given this situation, the psychosocial consequences of online learning may include increased stress and anxiety for young people and their parents. For example, not being able to access or fully engage in online learning services, the fear of not graduating on time, or falling behind when self-isolating due to school outbreaks are major stressors (Statistics Canada, 2020a). Furthermore, schools, colleges and universities are not only settings where young people learn academically; they are also places where they socialize with their peers and access physical activity facilities, cafeterias and health clinics which provide comprehensive services to address their unique health care needs (Brindis & Sanghvi, 1997). For more marginalized youth, schools can also be a lifeline, shielding them from poverty and violence at home (The editors, 2020). In a UK study of 4550 students, 60% of children who benefited from free school meals in January and February 2020 were not receiving any support (i.e. free school meals or food vouchers) during lockdown (Children's Commissioner for England, 2020). The move to online learning may therefore lead to increased stress due to the inability to socialize and find support among friends, and to receive support from services that young people would normally access.

The sudden closure of academic institutions and online learning might also have long-term economic consequences, which would be felt more strongly among marginalized youth. The transition from high school to college or from college to university is particularly critical moments in young people's lives, and dropout rates are suspected to increase due to the pandemic. The multiple disruptions might prevent some students from returning to school once it reopens regularly again, while others may have to postpone (re)entering higher education due to the need to work to compensate for revenues lost because of the pandemic (Canadian Federation for Students, 2020). Still, others might not be

keen to pay the price for online courses without also reaping the social and academic benefits of on-campus life (Burki, 2020). In a survey of 1100 Canadian high school and post-secondary students, 50% reported that COVID-19 made it difficult to pay for schooling and 30% were reconsidering their plans to attend higher education in the Fall (Canadian Federation for Students, 2020). While registrations across Quebec universities had increased by 1.3% by November 2020 compared to 2019 numbers, the proportion of first registrants in an undergraduate programme had decreased by 8.3%. The long-term economic consequences on students thus remain uncertain (Bureau de la coopération interuniversitaire, 2020).

Some fields of study which involve hands-on learning and job placements were also affected by the lockdown (Statistics Canada, 2020a). A national survey found that Canadian students who had a work placement cancelled or denied because of COVID-19 were more concerned about the financial impact of this delay, their ability to pay for future expenses, and having to use their savings to live in the meantime (Statistics Canada, 2020b). Studies have also documented that compared to receiving in-person training, students find online classes more difficult, score lower (Heppen *et al.*, 2017), and are more likely to drop out (Bettinger *et al.*, 2017). These effects may be more pronounced among students already struggling in their classes, suggesting that online learning might exacerbate existing inequalities (Bettinger *et al.*, 2017).

MITIGATING UNINTENDED CONSEQUENCES

One assumption that appears to underlie the campaigns and interventions discussed in this article is that doing *something* is better than doing *nothing* when it comes to promoting physical activity and implementing online learning. While the measures have not been evaluated and there are surely positive impacts from these interventions, we suggest that the main problem is that some groups benefit more from them than others, and that those who are less likely to benefit tend to be those already disadvantaged.

First, it has previously been shown that media and mass communication campaigns promoting health were not only less likely to have positive effects, but were sometimes more likely to increase already existing social and health inequalities (Lorenc *et al.*, 2013). Interventions designed for the general population without considering the specific needs and resources of the most marginalized groups have also been hypothesized

to contribute to a widening of social inequalities in health (Frohlich and Potvin, 2008).

Second, the interventions discussed above were ultimately settings-based interventions, with the home being the main setting. However, they failed to consider the physical and social context within which they were implemented, a context which not only shapes the way families and youth live daily, but also how they can—or cannot—benefit from health promotion interventions. Rather than considering homes in their complexity to address social inequalities in health, the COVID-19 interventions mainly sought to address the issue of interest (i.e. increasing physical activity and facilitating online learning), which can exacerbate inequalities (Shareck *et al.*, 2013).

Third, by providing families with informational material and assuming they would take up activities for which they were not necessarily prepared or equipped, these types of interventions ultimately placed the responsibility of being active and keeping up with learning on parents, children and young people in particular, at a time in which other health and life concerns may have been a priority (i.e. sickness, job and income loss) (Lorenc and Oliver, 2014).

Last, as outlined by the Organisation for Economic Co-operation and Development (OECD) (2020), especially in crisis situations, it is necessary to ‘harness young people’s sense of agency by engaging them in the formulation, co-creation and/or implementation of policy responses and recovery plans’. Indeed, some countries already made efforts to include youth in their planning strategies for COVID-19. For instance, the *African Union Youth Envoy* held virtual consultations with youth from 40 African countries to include their perspectives in recovery plans, and in the Netherlands children, youth and youth organizations were also involved in planning recovery measures (OECD, 2020). Several European countries launched digital ‘hackathons’ for youth to suggest ideas for how to slow the spread of the virus, or facilitated peer-to-peer support for youth studying in lockdown (OECD, 2020). While these methods may not reach all youth, particularly those who are not digitally connected or engaged in youth groups, these kinds of inclusive consultations may be key to creating health policies that improve the lives of all youth.

Mitigating unintended consequences of strategies for physical activity

For the promotion of physical activity during or post-COVID-19, it has to be acknowledged explicitly that living situations are not equal, and that expectations to be

active and stay active while living in lockdown will not be adopted as easily by those with fewer means to do so.

One angle at which this inequality could be addressed draws on the recent evidence identifying the reduced risk of COVID-19 infection while playing or being active outdoors (Qian *et al.*, 2020). Indeed, such findings have led some researchers to question the closure of parks and playgrounds in many countries and the requirement for children to stay indoors during lockdown, and to suggest that this lack of outdoor physical activity could have other lasting negative effects on children (Ball *et al.*, 2020; de Lannoy *et al.*, 2020; ESPUM, 2020; Stenning and Russell, 2020). One strategy to address youth physical activity during lockdown and which would be more inclusive of disadvantaged youth would involve maintaining (or insisting on re-opening) access to green spaces and parks for children. This approach was already implemented in France for the second national lockdown that began on 30 October 2020 for at least 4 weeks. In this way, all parks and green spaces could still be used to engage in individual forms of exercise (e.g. jogging, walking and moving).

The ability to access parks, green spaces and playgrounds, however, depends on how far these are from one's home. Given restrictions in the distance travelled from the home during lockdowns, simply opening parks and playgrounds may still not render them more accessible to all youth. In this situation, the transformation of outdoor spaces (e.g. streets, back alleys) may be a means of providing youth with opportunities for play and physical activity regardless of the distance between their homes and available parks and green spaces. For instance, as a variation of the well-known Dutch *Woonerf*, also called *living street* or *home zone* (Gill, 2006; United Nations Children's Fund, 2012), residential streets in various neighbourhoods could be temporarily closed to traffic. This may be especially relevant in more disadvantaged neighbourhoods or in locations where accessing parks and playgrounds is more difficult. Such street interventions were endorsed in a United Nations Children's Fund (2012) report which suggested that creating public play spaces for children in urban settings globally is one means of providing children with a wide range of diverse social, psychological and physical health benefits. Compared to being indoors, access to safe outdoor spaces can provide youth with opportunities for play and physical activity with friends, while still maintaining a safe distance from one another (Mitra *et al.*, 2020). Such modifications of public spaces, put in place relatively easily and even temporarily and co-created with youth, could provide children and parents living in more disadvantaged communities with more

equal access to opportunities for physical activity and socializing (see Gill, 2021). This type of intervention could, as such, address not only the physical activity concerns of a lockdown situation, but could also ameliorate the psychosocial difficulties related to isolation and lack of social contact, and address concerns of overcrowding that some youth may have encountered while staying in the home during the pandemic lockdown.youth

Mitigating unintended consequences of strategies for online learning

With regards to online learning, the onus of having a tablet or computer and high-speed unlimited internet should not fall on families and young people themselves. One potential solution to address this is for governments to subsidize internet access for all. The Canadian Radio-television and Telecommunications Commission has acknowledged this need and is attempting to address it through its \$750 M 'Broadband Fund—Closing the digital divide' programme which will fund infrastructure and access initiatives over a 5-year period (Canadian Radio-television and Telecommunications Commission, 2020). However, short-term solutions are also needed given that online learning will continue beyond the Fall 2020. Schools and universities should be provided with the means to purchase the technological tools (e.g. computers, high-speed internet) for their students who need them to pursue online learning. The Canadian Federation for Students recently advocated for financial support beyond tuition to cover costs related to online learning and ensure an equitable recovery from COVID-19 for all higher education students, regardless of socio-economic status or geographic location (Canadian Federation of Students, 2020).

Complementary approaches which could help mitigate the unintended consequences of the turn to online learning may also be needed. Accessible tutoring services should be provided to youth who may not benefit as much from online learning as others. Investments should also be made to train professors to create inclusive online learning programmes that cater to a diversity of students (e.g. include closed captioning, sign language or descriptive audio in course materials) (Canadian Federation of Students, 2020) and acknowledge that online learning might have to be done in suboptimal conditions, for instance, if one lives in a busy house or has childcare duties. This highlights the need for a gendered approach to developing online learning strategies and curricula that are flexible and allow for self-paced studies, a recommendation made by UNESCO for youth from the Global South but which undoubtedly

applies more broadly (UNESCO, 2020). If online learning is to stay with us, online curricula must be continuously improved to 'strengthen the quality of these courses and hence the educational opportunities for the most in-need populations' (Bettinger & Loeb, 2017).

Finally, strategies to support academic continuity via online learning should view educational institutions holistically and recognize the special role they play in young people's physical, emotional and social development. As such, they should find ways to maintain continuity in other benefits young people reap from attending school in-person, such as socializing with peers and accessing food distribution, psychosocial and health services (Colao *et al.*, 2020; UNESCO, 2020). In these circumstances, innovative hybrid approaches might be needed to ensure the advantages of life at school or on campus and of in-person interactions are preserved.

CONCLUSION

COVID-19 appears to be with us for the long term and strategies to promote health for countries and regions in lockdown will continue to be developed. In this article, we argue that to avoid increasing social inequalities in health among young people, efforts to address these concerns will need to consider the varying living situations and needs of young people, and the possible unintended consequences that health promotion interventions may have on them. As such, it will be especially pertinent to engage young people and their families in co-creating suitable interventions, regardless of the health issue, and root the health practices in people's daily life circumstances.

FUNDING

Martine Shareck was supported by a Fonds de recherche du Québec – Santé (FRQS) Junior 1 Research Scholar and a Tier 2 Canada Research Chair.

CONFLICT OF INTEREST STATEMENT

The authors declare they have no conflict of interest.

REFERENCES

- Abraham, A., Sommerhalder, K. and Abel, T. (2010) Landscape and well-being: a scoping study on the health-promoting impact of outdoor environments. *International Journal of Public Health*, 55, 59–69.
- Active Healthy Kids Global Alliance. (2020a) Active Healthy Kids Global Alliance - *Our History*. <https://www.activehealthykids.org/about/#our-history> (last accessed 5 November 2020).
- Active Healthy Kids Global Alliance. (2020b, April 6). *Guidance on Healthy Movement Behaviours for Kids during the COVID-19 Pandemic*. <https://www.activehealthykids.org/2020/04/06/guidance-on-healthy-movement-behaviours-for-kids-during-the-covid-19-pandemic/> (last accessed 5 November 2020).
- Allen-Scott, L. K., Hatfield, J. M. and McIntyre, L. (2014) A scoping review of unintended harm associated with public health interventions: towards a typology and an understanding of underlying factors. *International Journal of Public Health*, 59, 3–14.
- Ball, D., Gill, T. and Yates, A. (2020) COVID-19 AND CHILDREN'S PLAY (Written for the Play Safety Forum). Play Safety Forum. https://www.playscotland.org/resources/print/COVID-and-Play-Report-1.pdf?plscml_id=19939 (last accessed 25 October 2020).
- Bambra, C., Riordan, R., Ford, J. and Matthews, F. (2020) The COVID-19 pandemic and health inequalities. *Journal of Epidemiology and Community Health*, jech-2020-214401. 10.1136/jech-2020-214401.
- BBC News. (2020, April 7) *Coronavirus: The World in Lockdown in Maps and Charts*. <https://www.bbc.com/news/world-52103747> (last accessed 2 November 2020).
- Bettinger, E., Fox, L., Loeb, S. and Taylor, E. S. (2017) Virtual classrooms: how online college courses affect student success. *American Economic Review*, 107, 2855–2875.
- Bettinger, E. and Loeb, S. (2017) Promises and pitfalls of online education. *Evidence Speaks Reports*, 2, 4.
- Brindis, C. D. and Sanghvi, R. V. (1997) School-based health clinics: remaining viable in a changing health care delivery system. *Annual Review of Public Health*, 18, 567–587.
- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N. *et al.* (2020) The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet*, 395, 912–920.
- Bureau de la coopération interuniversitaire. (2020). *Données préliminaires relatives aux inscriptions au trimestre d'automne 2020*. https://www.bci-qc.ca/wp-content/uploads/2020/10/Insc_automne_2020.pdf (last accessed 10 February 2021).
- Burki, T. K. (2020) COVID-19: consequences for higher education. *The Lancet Oncology*, 21, 758.
- Canadian Federation for Students. (2020, May 12). *Survey: Post-Secondary Students Reconsidering Fall Semester Plans in Wake of COVID-19*. Canadian Federation of Students. <https://cfs-fcee.ca/survey-post-secondary-students-reconsidering-fall-semester-plans-in-wake-of-covid-19/> (last accessed 10 February 2021).
- Canadian Federation of Students. (2020, September 15). *Free Education Is Key to a Post-COVID-19 Just Recovery*. Canadian Federation of Students. <https://cfs-fcee.ca/free-education-is-key-to-a-post-covid-19-just-recovery-2/> (last accessed 10 February 2021).
- Canadian Radio-Television and Telecommunications Commission. (2020, June 1). *Broadband Fund: Closing the Digital Divide*

- in Canada. CRTC. <https://crtc.gc.ca/eng/internet/internet.htm#status> (last accessed 10 February 2021).
- Children's Commissioner for England. (2020, June 11). *The Numbers behind Homeschooling during Lockdown*. <https://www.childrenscommissioner.gov.uk/2020/06/11/the-numbers-behind-homeschooling-during-lockdown/> (last accessed 10 February 2021).
- Colao, A., Piscitelli, P., Pulimeno, M., Colazzo, S., Miani, A. and Giannini, S. (2020) Rethinking the role of the school after COVID-19. *The Lancet Public Health*, 5, e370.
- de Lannoy, L., Brussoni, M. and Tremblay, M. (2020, June 24). *Should I Go outside in the COVID-19 Era?* Outdoor Play Canada. <https://www.outdoorplaycanada.ca/should-i-go-outside-in-the-covid-19-era/> (last accessed 5 November 2020).
- ESPUM. (2020). *Webcast: Jouer dehors pendant la crise Covid-19: risques ou bénéfiques pour la santé?* [YouTube Video]. <https://www.youtube.com/watch?v=GSEIDv2xdCM> (last accessed 5 July 2020).
- European Centre for Disease Prevention and Control. (2020, October 12). *COVID-19 Situation Update Worldwide*. <https://www.ecdc.europa.eu/en/covid-19-pandemic> (last accessed 5 July 2020).
- Fortier, M. (2020, May 23) *Confusion en éducation*. Le Devoir. <https://www.ledevoir.com/societe/education/579469/confusion-en-education> (last accessed 10 February 2021).
- France Télévisions. (2020). # *Restez en forme*. In # *Restez en forme*. France 3. France 2. <https://www.france.tv/france-3/restez-en-forme/> (last accessed 10 November 2020).
- Frohlich, K. L. and Potvin, L. (2008) Transcending the known in public health practice: the inequality paradox: the population approach and vulnerable populations. *American Journal of Public Health*, 98, 216–221.
- Gill, T. (2021) *Urban Playground: How Child-friendly Planning and Design Can Save Cities*. Riba Publishing.
- Gill, T. (2006) Home Zones in the UK: history. *Policy and Impact on Children and Youth*. *Children, Youth and Environments*, 16, 90–103.
- Gouvernement du Québec. (2020a) *Questions and Answers on Education and Families during the COVID-19 Pandemic*. <https://www.quebec.ca/en/health/health-issues/a-z/2019-coronavirus/answers-questions-coronavirus-covid19/questions-answers-education-families-covid-19/> (last accessed 10 February 2021).
- Gouvernement du Québec. (2020b, March 22). *Communiqué de presse | Pandémie de la COVID-19 - Fermeture des établissements scolaires et maintien des services de garde d'urgence jusqu'au 1er mai*. <https://www.quebec.ca/nouvelles/actualites/details/pandemie-de-la-covid-19-fermeture-des-etablissements-scolaires-et-maintien-des-services-de-garde-dur/> (last accessed 10 February 2021).
- Gouvernement du Québec. (2020c, June 26). *Reprise graduelle des activités en lien avec les mesures de ralentissement de la COVID-19*. <https://www.quebec.ca/sante/problemes-de-sante/a-z/coronavirus-2019/reprise-graduelle-activites-mesures-ralentissement-covid19/> (last accessed 5 July 2020).
- Gouvernement du Québec. (2020d, July 3). *Rentrée en enseignement supérieur pour l'automne 2020 (COVID-19)*. <https://www.quebec.ca/education/cegep-et-universite/rentree2020-cegep-universite/> (last accessed 10 February 2021).
- Gouvernement du Québec. Ministère de l'Éducation et de l'Enseignement Supérieur. (2020, July 7) *Open School - Home*. <https://ecoleouverte.ca/en/> (last accessed 10 February 2021).
- Government of Canada. (2020, May 13). *Differences in the Concerns of Canadians with respect to the COVID-19 Pandemic*. <https://www150.statcan.gc.ca/n1/pub/45-28-0001/2020001/article/00019-eng.htm> (last accessed 10 February 2021).
- Gugglberger, L. (2018) Can health promotion also do harm? *Health Promotion International*, 33, 557–560.
- Heppen, J. B., Sorensen, N., Allensworth, E., Walters, K., Rickles, J., Taylor, S. S. *et al.* (2017) The struggle to pass algebra: online vs. face-to-face credit recovery for at-risk urban students. *Journal of Research on Educational Effectiveness*, 10, 272–296.
- La Presse. (2020, April 30) *La fin des classes pour Madame Marie-Ève*. La Presse, <https://www.lapresse.ca/societe/famille/2020-04-30/la-fin-des-classes-pour-madame-marie-eve> (last accessed 10 February 2021).
- Lancker, W. V. and Parolin, Z. (2020) COVID-19, school closures, and child poverty: a social crisis in the making. *The Lancet Public Health*, 5, e243–e244.
- London School of Economics News. (2020, January 20) *COVID-19: Complex Reasons for Different Country Responses*. <https://www.lse.ac.uk/News/Latest-news-from-LSE/2020/e-May-20/COVID-19-Complex-reasons-for-different-country-responses> (last accessed 5 July 2020).
- Lorenc, T. and Oliver, K. (2014) Adverse effects of public health interventions: a conceptual framework. *Journal of Epidemiology and Community Health*, 68, 288–290. <https://doi.org/10.1136/jech-2013-203118>
- Lorenc, T., Petticrew, M., Welch, V. and Tugwell, P. (2013) What types of interventions generate inequalities? Evidence from systematic reviews. *Journal of Epidemiology and Community Health*, 67, 190–193.
- Margaritis, I., Houdart, S., El Oudrhiri, Y., Bigard, X., Vuillemin, A. and Duché, P. (2020) How to deal with COVID-19 epidemic-related lockdown physical inactivity and sedentary increase in youth? *Archives of Public Health*, 78, 52–52.
- May, E. (2020, May 8) The rise of the online dance class in lockdown. *Springback Magazine*, <https://springbackmagazine.com/read/the-rise-of-the-online-dance-class-in-lockdown/>
- McGill University. (2020a) *Fall 2020 Semester*. Office of the Provost and Vice-Principal (Academic). <https://mcgill.ca/provost/messages/fall-2020-semester> (last accessed 10 February 2021).
- McGill University. (2020b) *Planning the Winter 2021 Semester*. Office of the Provost and Vice-Principal (Academic). <https://www.mcgill.ca/provost/planning-winter-2021-semester> (last accessed 10 February 2021).

- Means, B., Toyama, Y., Murphy, R. and Baki, M. (2013) The effectiveness of online and blended learning: a meta-analysis of the empirical literature. *Teachers College Record*, **115**, 1–47.
- Ministère des Sports, Gouvernement de la République française. (2020a) *Coronavirus COVID-19: Avec le ministère des Sports, faire du sport chez soi, c'est facile!* <http://www.sports.gouv.fr/accueil-du-site/actualites/article/coronavirus-covid-19-avec-le-ministere-des-sports-faire-du-sport-chez-soi-c-est> (last accessed 4 July 2020).
- Ministère des Sports, Gouvernement de la République française. (2020b) *Coronavirus COVID-19: Les fédérations françaises se mobilisent pour le sport à domicile.* <http://sports.gouv.fr/IMG/pdf/listeappspportfedes.pdf> (last accessed 5 July 2020).
- Mitra, R., Moore, S. A., Gillespie, M., Faulkner, G., Vanderloo, L. M., Chulak-Bozzer, T. *et al.* (2020) Healthy movement behaviours in children and youth during the COVID-19 pandemic: exploring the role of the neighbourhood environment. *Health & Place*, **65**, 102418.
- Observatoire National de l'Activité Physique et de la Sédentarité (ONAPS). (2020a) *ONAPS Actualités.* <http://www.onaps.fr/> (last accessed 10 November 2020).
- Observatoire National de l'Activité Physique et de la Sédentarité (ONAPS). (2020b) *Résultats enquête - L'activité physique pendant le confinement.* <http://www.onaps.fr/news/resultats-enquete-l-activite-physique-pendant-le-confinement/> (last accessed 10 November 2020).
- OECD. (2020) *Youth and COVID-19: Response, Recovery and Resilience (OECD Policy Responses to Coronavirus).* OECD. <http://www.oecd.org/coronavirus/policy-responses/youth-and-covid-19-response-recovery-and-resilience-c40e61c6/#section-d1e1219> (last accessed 10 November 2020).
- Qian, H., Miao, T., Liu, L., Zheng, X., Luo, D. and Li, Y. (2020) Indoor transmission of SARS-CoV-2. *MedRxiv*. 10.1101/2020.04.04.20053058
- Radio Canada. (2020, April 27). *Les écoles primaires du Québec rouvriront graduellement à compter du 11 mai.* <https://ici.radio-canada.ca/nouvelle/1697763/plan-deconfinement-quebec-ecoles-garderies> (last accessed 10 February 2021).
- Sallis, J. F., Adlakha, D., Oyeyemi, A. and Salvo, D. (2020) An international physical activity and public health research agenda to inform coronavirus disease-19 policies and practices. *Journal of Sport and Health Science*, **9**, 328–328.
- Santé Publique France. (2020). *Covid-19: une enquête pour suivre l'évolution des comportements et de la santé mentale pendant l'épidémie.* <https://www.santepubliquefrance.fr/etudes-et-enquetes/covid-19-une-enquete-pour-suivre-l-evolution-des-comportements-et-de-la-sante-mentale-pendant-l-epidemie#block-242829> (last accessed 10 November 2020).
- Shareck, M., Frohlich, K. L. and Poland, B. (2013) Reducing social inequities in health through settings-related interventions – a conceptual framework. *Global Health Promotion*, **20**, 39–52.
- Sioui, M.-M. (2020, May 22) *Les élèves des milieux défavorisés moins nombreux à retourner à l'école.* Le Devoir. <https://www.ledevoir.com/societe/education/579427/retour-inegal-en-classe> (last accessed 10 February 2021).
- Stamatakis, E., Murray, A., Bull, F. and Edwards, K. (2020, March 25) How to stay fit and active at home during the coronavirus self-isolation. *The Conversation*, <https://theconversation.com/how-to-stay-fit-and-active-at-home-during-the-coronavirus-self-isolation-134044> (last accessed 30 June 2020).
- Statistics Canada (2020a, May 14). *COVID-19 Pandemic: Academic Impacts on Postsecondary Students in Canada.* <https://www150.statcan.gc.ca/n1/pub/45-28-0001/2020001/article/00015-eng.htm> (last accessed 10 February 2021).
- Statistics Canada (2020b, May 25). *COVID-19 Pandemic: Impacts on the Work Placement of Postsecondary Students in Canada.* <https://www150.statcan.gc.ca/n1/pub/45-28-0001/2020001/article/00022-eng.htm> (last accessed 10 February 2021).
- Stenning, A. and Russell, W. (2020) *Improving Safe Access to Street Space for Children's Play and Physical Activity* [(Short paper)]. <https://blogs.ncl.ac.uk/alisonstenning/files/2020/04/Improving-Safe-Access-to-Street-Space-for-Childrens-Play-and-Physical-Activity-FINAL.pdf> (last accessed 20 October 2020).
- Télé-Québec. (2020) *Télé-Québec en classe.* <https://enclasse.telequebec.tv/> (last accessed 10 February 2021).
- Teran-Escobar, C., Forestier, C., Ginoux, C., Isoard-Gautheur, S., Sarrazin, P., Clavel, A. *et al.* (2020) Psychological, socio-demographic, and environmental factors related to physical activity during the COVID-19 lockdown. *SportRxiv*, <https://doi.org/10.31236/osf.io/k67qn>
- The editors. (2020) Education: a neglected social determinant of health. *The Lancet Public Health*, **5**, e361.
- Time Magazine. (2020, June) *The Best Global Responses to COVID-19 Pandemic.* Time.Com. <https://time.com/5851633/best-global-responses-covid-19/> (last accessed 5 June 2020).
- UNESCO. (2020, March 31). *Covid-19 School Closures around the World Will Hit Girls Hardest.* UNESCO. <https://en.unesco.org/news/covid-19-school-closures-around-world-will-hit-girls-hardest> (last accessed 10 November 2020).
- United Nations Children's Fund. (2012). *The State of the World's Children 2012: Children in an Urban World.* UNICEF, New York.
- Université de Sherbrooke (2020). *Études - Coronavirus - Université de Sherbrooke.* <https://www.usherbrooke.ca/coronavirus/faq/etudes/#c300198-1> (last accessed 10 February 2021).
- Van den Broucke, S. (2020) Why health promotion matters to the COVID-19 pandemic, and vice versa. *Health Promotion International*, **35**, 181–186.
- van Dorn, A., Cooney, R. E. and Sabin, M. L. (2020) COVID-19 exacerbating inequalities in the US. *The Lancet*, **395**, 1243–1244.
- World Health Organisation. (2020a). *#HealthyAtHome - Physical activity.* <https://www.who.int/news-room/campaigns/connecting-the-world-to-combat-coronavirus/health>

yathome/healthyathome-physical-activity (last accessed 5 June 2020).

World Health Organisation. (2020b). *WHO Coronavirus Disease (COVID-19) Dashboard*. <https://covid19.who.int/> (last accessed 10 November 2020).