

Strengthening the adaptive capacities of individuals and communities in times of pandemic: the key role of the sense of coherence

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Summary

The pandemic has had profound repercussions on the mental health and well-being of the population, and many factors are involved in such a singular context. An important protection factor to consider is sense of coherence (SOC), which is a psychological resource that helps to understand a stressful event, to give meaning to it, and to manage it. Strengthening of SOC is optimal when the environment in which the individual evolves provides various physical and social resources that contribute to the individual's adaptability.

The purpose of this publication is to: 1) demonstrate the key role that SOC plays in the mitigation of psychosocial impacts of the COVID-19 pandemic, and 2) offer effective courses of action to increase SOC and, in general, the adaptability of individuals and communities.

First the results of an international survey on the psychosocial impacts of the COVID-19 pandemic are presented. This online survey, conducted from May 29 to June 12, 2020, in eight countries (including Canada), suggested that people with higher SOC are three times less likely to have generalized anxiety disorder or major depression. Further, of all the factors examined in this study, SOC was by far that most closely correlated with symptoms of anxiety and depression during a pandemic.

Based on these observations, the identification of courses of action to strengthen this protective factor proves relevant. It is important to promote the implementation of such interventions not only on an individual level but also a community level by supporting the creation of favourable living environments.

There are two major lines of intervention in health promotion that support the strengthening of SOC and adaptability during stressful situations: empowerment and reflection. In addition to these approaches, principles supporting the development and adaptation of interventions that aim to increase SOC, on an individual and a community level, are presented. Today's state of knowledge suggests that to strengthen SOC we must promote interventions that: a) **are centered on a positive approach** b) **favour collaborative work** c) **are locally based** d) **are adapted to the context and local culture** e) **are inclusive**.

More specifically, four areas of intervention enable the actualization of these lines of intervention and principles during a pandemic. These are:

1. sport and recreation programs
2. programs focused on the development of mindfulness
3. artistic and cultural activities
4. Storytelling

Concrete examples of interventions are provided for each of these areas.

We will see that the diversification of interventions available to the population combined with favourable environments are two factors for success not to be overlooked in strengthening individual and community adaptability.

Sommaire

La pandémie a de profondes répercussions sur la santé mentale et le bien-être de la population et plusieurs facteurs sont en cause dans un contexte aussi singulier. Un important facteur de protection à considérer est le sentiment de cohérence (davantage connu sous le nom de *sense of coherence*, ou SoC), qui est une ressource psychologique permettant de comprendre un événement stressant, d'y donner un sens et de le gérer. Le renforcement du SoC est optimal lorsque l'environnement dans lequel évolue l'individu offre diverses ressources physiques et sociales contributives à sa capacité d'adaptation.

La présente publication vise à : 1) démontrer le rôle clé que joue le SoC dans la réduction des impacts psychosociaux de la pandémie de COVID-19 et 2) proposer des pistes d'action efficaces pour rehausser le SoC et, de manière générale, la capacité d'adaptation des individus et des communautés.

Les résultats d'une enquête internationale sur les impacts psychosociaux de la pandémie de COVID-19 sont d'abord présentés. Cette enquête en ligne, menée du 29 mai au 12 juin 2020 dans huit pays (dont le Canada), montre que les personnes disposant d'un SoC plus élevé seraient trois fois moins à risque de présenter un trouble d'anxiété généralisée ou une dépression majeure. Par ailleurs, de tous les facteurs examinés dans cette étude, le SoC est de loin le facteur le plus fortement lié aux symptômes d'anxiété et de dépression en temps de pandémie.

Devant de tels constats, l'identification de pistes d'action permettant de renforcer ce facteur de protection s'avère pertinente. Il importe de favoriser la mise en œuvre de telles interventions non seulement à l'échelle des individus, mais également des communautés, en soutenant la création d'environnements favorables dans les milieux de vie.

Deux grands axes d'intervention en promotion de la santé soutiennent le renforcement du SoC et la capacité d'adaptation face aux situations stressantes, soit la réflexion et l'*empowerment*. Au-delà des axes, les principes soutenant le développement ou l'adaptation d'interventions ciblant le rehaussement du SoC à l'échelle des individus et des communautés sont présentés. L'état des connaissances actuel suggère que pour renforcer le SoC, on doit promouvoir des interventions : a) **centrées sur une approche positive**, b) **favorisant le travail collaboratif**, c) **de proximité**, d) **adaptées au contexte et à la culture locale** et e) **inclusives**.

Plus précisément, quatre domaines d'interventions permettent d'actualiser ces axes et principes d'intervention en contexte de pandémie. Il s'agit des :

1. programmes sportifs et de loisir ;
2. programmes centrés sur le développement de la pleine conscience ;
3. activités artistiques ou culturelles ;
4. récits de vie.

Des exemples concrets d'interventions sont présentés pour chacun de ces domaines.

On retiendra ainsi que la diversification des interventions mises à la disposition de la population combinée à des environnements favorables demeurent deux ingrédients de succès du renforcement de la capacité d'adaptation individuelle et collective à ne pas négliger.

La version complète de ce document en français est [disponible ici](#).

Context

There is no doubt that the pandemic has and will continue to have a major impact on the mental health and well-being of the population in Quebec (Dubé et al., 2020), Canada (NCCID, 2020; CAMH, 2020; and Rotermann, 2020) and elsewhere in the world (Rajkumar, 2020). Actions to strengthen the adaptive capacity of individuals and communities in this context should be promoted from a public-health perspective. Gaining better understanding of the factors associated with this adaptive capacity is crucial to strengthening the mental health and well-being of populations during this pandemic. According to the most recent scientific evidence, the sense of coherence (SOC) is one of the key factors to consider when intervening.

SOC is a psychological resource for understanding, making sense of, and managing stressful events (Lindström and Eriksson, 2010). SOC is therefore a predisposition to life that influences the way living is perceived and the challenges it presents. There is a positive relationship between the level of SOC and the ability to cope with adversity. SOC reinforcement is optimal when an individual's environment offers a variety of physical and social resources that contribute to their adaptive capacity (Vaandrager and Kennedy, 2017). In fact, in order to successfully manage a stressful situation, an individual needs an SOC that provides both individual coping skills and resources within the community (e.g., material resources, information, communication, support networks) that can be used to deal with the stressors of daily life (Idan et al., 2016; Mittelmark et. al., 2016).

This interaction between the individual and their community is a two-way phenomenon. On the one hand, the presence of resources in the community contributes to increasing individual SOC. Using these resources to overcome stressful situations—not simply having access to them—enables the individual to gradually increase their SOC. On the other hand, people with high SOC are better able to identify and mobilize relevant resources in the face of adversity. Although relatively understudied in Canada, the concept of SOC is central to the theory of salutogenesis, a theory widely used and applied in Europe. Salutogenesis, as opposed to pathogenesis, focuses on the factors that generate health rather than those generate disease.

Evidence shows that a high SOC protects against anxiety, depression, burnout, and despair (Eriksson and Lindström, 2006; Lindström and Eriksson, 2010; Remes et al., 2017). This resource enables some people to cope with the stress of negative life experiences such as divorce (Richardson and Ratner, 2005; Ristkari et al., 2008; Ungar and Florian, 2004), sexual assault (Priebe et al., 2009; Renck and Rahm, 2005), discrimination (Nielsen et al., 2008), bullying at school (Janosz et al., 2008), and other negative life experiences (Eriksson et al., 2006; Lindström et al., 2006; Lindström et al., 2010; Remes et al., 2017), or even war (Ebina and Yamazaki, 2008). A high SOC is therefore associated with better health, particularly better mental health (Eriksson and Lindström, 2007).

In short, SOC is a critical factor in enabling individuals to adapt to stressful situations, such as the pandemic, and thereby reduce negative impacts on mental health and well-being.

Objectives

The paper aims to: (1) Demonstrate the key role SOC plays in reducing the psychosocial impacts of the COVID-19 pandemic and (2) propose effective courses of action to enhance SOC and, more generally, the adaptive capacity of individuals and communities to reduce the negative psychological health consequences of the COVID-19 pandemic.

Methodological approach

In discussing objective 1, the results of an international survey on the psychosocial impacts of the COVID-19 pandemic are presented herein. This online survey was conducted by a team of researchers from the Université de Sherbrooke, in collaboration with numerous national and international partners (see Appendix 1). It was conducted from May 29 to June 12, 2020, with a representative sample of 1501 Canadian adults and 7305 adults residing in seven other countries or regions (United States, England, Switzerland, Belgium, Hong Kong, Philippines, and New Zealand). This survey extended a similar pilot survey conducted two months earlier, involving 600 Canadian adults (300 in Quebec and 300 outside Quebec; April 8–11, 2020). In addition to the prevalence of various mental disorders, including generalized anxiety and major depression, the international survey examined the role of a wide range of potential¹ risk and protective factors, including SOC.²

A literature review was carried out in meeting objective 2. The Medline and PsycInfo databases were searched to identify scientific articles presenting effective interventions for increasing SOC. Publications were retained if they were studies of specific interventions applicable in a community context and methodologically rigorous. In addition, other references—including grey literature documented recommended by experts—were considered. These publications presented either promising interventions based on experiential knowledge or general theoretical concepts about SOC and the main principles of intervention to strengthen SOC. It should be noted that this review was intended to be brief and nonexhaustive.

¹ Sociodemographic characteristics (age, gender, household composition, education, occupation), perceived threat at different levels, voluntary isolation of quarantine, financial loss, stigmatization, trust in authorities, level of information, sources of information used, mistaken beliefs, and sense of coherence.

² Measured with SOC-3—a 3-item scale—with a score of ≥ 4 indicating a high SOC (Chiesi et al., 2018). The three items examined were: "Do you usually feel that things that happen to you are difficult to understand?" "Do you usually perceive your life as a source of personal satisfaction?" and "Do you usually see a solution to problems and difficulties that others find hopeless?"

Main findings from the international survey

The findings of the international survey from nearly three months after the start of the pandemic are revealing. First, the following psychological problems were found to be common in Canada (Université de Sherbrooke, 2020):

- Moderate to severe symptoms of generalized³ anxiety were present in 19.6% of the adult population surveyed.
- Moderate to severe symptoms of major⁴ depression were even more frequent (25.5%) in the adult population surveyed.
- Nearly one third (30.8%) of the adult population surveyed had moderate to severe symptoms of generalized anxiety or major depression.
- These levels are higher than those reported in Canada prior to the pandemic for generalized anxiety and major depression (2.5% and 6.8%, respectively; Pelletier et al., 2017; Lukmanji et al., 2019).⁵

The study also identified several factors significantly associated with an increased or decreased risk of generalized anxiety or major depression among Canadian adults (Table 1). In addition to certain sociodemographic characteristics, there are also factors directly related to the pandemic, such as isolation and financial loss, as well as information-related factors, such as use of social networks and misconceptions that increase the risk of anxiety or depression among adults.

Table 1. Risk and Protective Factors Associated with Probable Generalized Anxiety Disorder or Major Depression (Canada, n=1501)

Risk Factors	Protection Factors
Female	Male
Young adult (18-44 years old)	Elderly adult (65 years old and over)
Parent with child(ren) at home	High sense of coherence
Essential worker	Trust in health organizations
Perceived threat to self or family	Trust in health experts
Perceived threat to country or the world	Television as a source of information
Voluntary isolation or quarantine	
Financial losses	
Victim of stigmatization	
Entourage as a source of information	
Social networks as a source of information	
Erroneous beliefs	

³ Measured using a 7-item scale, the GAD-7, with a score of ≥ 10 (Lowe et al., 2008).

⁴ Measured with HQP-9—a 9-item scale—with a score of ≥ 10 (Levis et al., 2019).

⁵ Caution should be exercised when comparing current levels of prevalence of anxiety or depression with those observed prior to the pandemic, as methodologies (e.g., mode of recruitment, measurement scale) differ between studies.

Of all the factors examined in this study, SOC was by far the one most strongly associated with generalized anxiety disorder and likely major depression during a pandemic in Canada and around the world. In the Canadian sample, moderate to severe symptoms of generalized anxiety disorder were observed in 8.1% of respondents with high SOC and 26.2% of those with low SOC. Similarly, symptoms of major depression were significantly less common among people with high SOC compared to those with lower SOC (10.6% versus 34.2%). In other words, this study suggests that Canadians with a high SOC would be **three times less likely** to have generalized anxiety disorder or major depression.

The study reveals that nearly 4 out of 10 adults in Canada (39.6%) had a high SOC. That notwithstanding, SOC does not appear to be evenly distributed across social groups, with older adults and those with higher levels of education showing the highest proportions of high SOC (Table 2).

Table 2. Proportion of Respondents with High Senses of Consistency (Canada, n=1501)

Sociodemographic Characteristics	High Sense of Coherence
Sex	
Female	35.6%
Male	38.5%
Age	
18–44 years old	23.7%
45–64 years old	41.9%
65 years or older	48.3%
Education	
Secondary or less	27.8%
College	39.6%
University	43.8%
Province	
Quebec	42.3%
Ontario	33.5% ¹
Rest of Canada	37.1%
Total	36.9%

¹ Significant differences between groups ($p < 0.05$)

Thus, the main findings of this study are that:

- 1) SOC is a powerful protection factor against the psychological impacts of the COVID-19 pandemic.
- 2) SOC is not evenly distributed in the population.

These findings are consistent with a growing number of studies conducted in various European countries showing the close link between SOC and mental health during pandemics (Dymecka et al., 2020; Gómez-Salgado et al., 2020; Schäfer et al., 2020).

Some courses of action

Given the magnitude of the psychosocial impacts of the pandemic, it is important to develop strategies to intervene across the entire mental-health continuum (from health promotion to rehabilitation), not only in clinical settings but also in community settings. Community-based interventions aimed at strengthening SOC appear to be the best way to promote the mental health of the population (Généreux et al., 2020a).

The interventions chosen must inevitably be supported by collective and societal strategies aimed at creating social and physical environments conducive to health (e.g., neighborhoods, schools, municipalities, dwellings, development of green spaces, sports and cultural infrastructure). The development of supportive SOC environments is close related to the processes aimed at developing resilient communities. According to several authors, we must build on (INSPQ, 2020):

- collective action based on deliberation, planning, innovation, and collective learning;
- highlighting the results and successes achieved by the community;
- flexibility of interventions and strong local leadership that facilitate integration and coordination of actions and coherence in decision-making; and
- strong and well-articulated social networks that promote the sharing of expertise, innovations and local knowledge.

Salutogenic public policies at the municipal, provincial, and federal levels must also be developed and implemented as a coherent whole to facilitate interventions that promote the development of SOC for populations of all generations (Lindström and Eriksson, 2010). These policies may be in the area of sports, recreation, culture, or education.

In order to target interventions to strengthen SOC, it is important to understand its various components: the ability to understand (cognitive component), the ability to make sense (emotional component), and the ability to manage stressful situations (behavioural component; Antonovsky, 1979; Antonovsky, 1987). SOC generates health through various mechanisms that are directly related to any of its three components (Super et al., 2016):

- First, it influences our assessment of a stressful situation (causes, effects, actions to be taken), thereby diminishing the emotional impact.
- Second, it influences our perception of a negative situation in such a way that we feel confident in our ability to overcome the situation and thereby makes it appear less serious and less stressful.
- Third, it influences our actions by allowing us to choose appropriate coping strategies and to make better use of the resources at our disposal to counter the stressors we are exposed to.

Any action targeting any of these three components will help strengthen SOC and, in turn, increase adaptability to stressful situations. The scientific literature suggests that relevant effective interventions generally involve two intervention themes, namely reflection and empowerment (Super et al., 2016). In other words, through reflective action or empowerment (ideally both), health-promotion interventions can strengthen one or more SOC components. These interventions can occur in the community through actions that target the physical (e.g., spatial planning), social (e.g., social support, opportunities for participation), political (e.g., nondiscriminatory rules and norms), and economic (e.g., financial support) environments as well as through actions that aim to strengthen the capacities of individuals (INSPQ, 2020).

Individual and collective reflection: a way to contribute to understanding and giving meaning to the pandemic

It is important to recognize that, while the actual stressful situations are important, so are the ideas that we have about them. SOC can thus be seen as a filter through which we see the world around us. This filter deserves attention because it can either support or hinder health-promotion efforts aimed at empowering individuals and communities to deal with stressful situations. Reflective activities are anything that raises awareness of the individual's personal values, goals, beliefs, and behavioural responses in the context of stress. Identifying them might make it easier to identify and demystify a mistaken belief unnecessarily increasing anxiety levels (Super et al., 2016; Okan et al., 2019).

This reflection can be practised at the collective level as well as the individual level. Indeed, given the many upheavals brought about by the pandemic, it is important to recognize the suffering in the community by giving a voice to citizens and allowing them to relate their personal experiences and share what they have learned. This can inspire other citizens as well as also guide the development of interventions and crisis-management decisions.

In this way, reflection can restore structure to the lives of people and communities (Kargilis et al., 2014). Regardless of the area of intervention, the activities deployed must promote the free expression of individuals so that they feel they have been heard and are important in their community. When people are heard and taken into consideration, they can take a step back, acknowledge their feelings, and better understand events. This gives them an opportunity to better identify their needs and concerns and thereby guide future interventions.

Individual and collective empowerment: a way to contribute to managing the stress generated by the pandemic

The empowerment of individuals and communities is based on the optimal use of the available resources. Simply having access to a large number of internal (individual) or external (community) resources for combatting stress does not necessarily produce health. Individuals and communities must use these resources, beginning with identifying them and then mobilizing them to cope with stressful situations.

The current crisis has psychologically affected a significant portion of the population. These individuals need to analyze how adversity during a pandemic gives rise to certain perceptions and beliefs that can aggravate their suffering. This is the starting point of the process of updating values, reassessing personal goals, and building a sense of meaning in one's life (Park, 2006; Schulenberg, 2016). Realistically, not all the individuals embarking on such a psychological journey can count on the help of a health professional (e.g., psychologist or social worker) and not just because of limited resources. Indeed, many people suffering in a post-disaster context are unwilling to seek help in a formal clinical setting (Généreux et al., 2019).

This path can be facilitated by community-based interventions that focus on empowerment, thereby actively mobilizing the various resources available to individuals and communities to cope with adversity (Super, 2016). The success of such an approach lies with a community framework that is consistent (with values, personal goals, etc.) and that gives meaning to the individual's approach. Repeated

experimentation (i.e., having several opportunities to put a resource into practice) is a valuable technique in this context because it allows for better internalization of available resources, while promoting commitment, motivation, a sense of effectiveness, and problem solving (Hechanova Maria et al., 2018; Mayer and Boness, 2011; Mooney 2011; Super et al., 2016; Schulenberg, 2016). Through repeated experiences, an obstacle becomes a surmountable challenge worthy of personal investment (Byrne and Shepherd, 2015). Thus, individuals or communities that have had coherent and significant experiences related to a difficult event (e.g., strong local mobilization in response to a plant closure resulting in massive job losses) will be better equipped to manage new stressful situations, such as a pandemic.

Main principles and approaches to SOC interventions

A number of principles have been proposed to support the development or adaptation of interventions targeting the enhancement of individual and community SOC's:

- **Interventions focused on a positive approach:** Different movements (e.g., positive psychology, salutogenesis, and appreciative inquiry) invite us to focus on the strengths, capacities, and strategies developed subsequent to a disruption. It is important to reflect the resources already available to the individual and the community, which can be done at the community level, for example, by mapping its strengths (Généreux et al., 2020a; Berger et al. 2016; McKnight et al., 1993; Shing et al., 2016; Üzar-Özçetin et al., 2019).
- **Interventions that promote collaborative work:** Intersectoral partner engagement and interdisciplinary work is required, which requires: (1) the ability of actors to focus on the collective task and (b) recognition of the diversity of stakeholder expertise (Lindström and Eriksson, 2010). Group interventions and collaborative work, more generally, promote self-help as well as the development of a sense of belonging and cohesion among members through social interaction and mutual support (Mayer and Boness, 2011).
- **Outreach:** Outreach interventions at the community level (e.g., school, work, municipal, community) are more effective in stimulating reflection and empowerment. Not only are they more personalized and accessible, this type of action is also more conducive to citizen engagement and participation (Gil-Rivas, 2016; Maas, 2017; Mooney, 2011).
- **Interventions adapted to local context and culture:** Interventions must be adapted to the socio-cultural, historical, and religious context to be specific, acceptable, and effective (Gil-Rivas, 2016; Shing et al., 2016). Thus, both the development of new interventions and the implementation of previously developed interventions must be subject to community ownership in order to take into account the complexity of disasters (dynamic context, non-linearity, interconnections) and local culture (O'Sullivan et al., 2014).
- **Inclusive interventions:** Special attention must be paid to the social inequalities in health that are most acutely revealed in health crisis situations. Thus, both in developing and implementing interventions, we must not only consider, but also include groups that are often overlooked, including the young, the elderly, and people in vulnerable situations (INSPQ, 2020). It is desirable, for example, to ensure the participation of young people in post-disaster interventions, especially since they have the (still underestimated) potential to bring their families and their entire

community together. A school-based approach that encourages accountability, collaborative work, problem-solving, and diversity fosters stronger SOC and sense of community (Davidson et al., 2012; Mayer and Boness, 2011; Schreuder et al., 2014; Breunig et al., 2010). An inclusive approach enables marginalized groups to understand, feel competent, and make sense of what they are doing. These groups can then become important ambassadors of well-being for their communities, for example, by organizing and facilitating activity sessions (e.g., sports, cultural) or by becoming actively involved in the creation of meaningful works or spaces.

Fields of intervention

Actions to strengthen SOC should therefore include two main thrusts: reflection and empowerment, and respond to certain principles, including a positive and proximity approach, collaboration, cultural anchoring, and inclusiveness. In the context of a pandemic, these thrusts and principles can be actualized through a number of effective or promising concrete interventions. These interventions are presented below in four categories.

1) Sports and leisure programs

Whether through the acquisition of meaningful experiences; the development of multiple skills, discipline, and rigour; or through challenges that put into practice the ability to identify useful resources to overcome obstacles, individual and group sports help to strengthen SOC. By building on strengths and abilities, this area of intervention is directly based on the principle of a positive approach. In addition, any form of recreation that provides pleasure—including individual or group sports—can be used as a distraction technique when negative emotions are overwhelming. This technique makes room for positive emotions that give meaning to what is happening (Super et al., 2018).

Sport-centered approaches, however, have proven to be more effective in increasing SOC when integrated on a regular and long-term basis. For example, a resistance-training program (i.e., strength and endurance training) conducted on a weekly basis for nine months showed positive effects on the quality of life and SOC of the seniors who participated (Kekäläinen et al., 2018). Because of its accessibility and ease of implementation in communities, promoting, supporting, or creating walking clubs could be attractive, safe options in the context of a pandemic. As observed after the Lac-Mégantic railway tragedy, implementing such an initiative would have the effect of engaging the community in regular physical activity, while encouraging reflection, sharing of experiences, reappropriation of space, and a sense of belonging (Généreux et al., 2019).

2) Programs focused on the development of mindfulness

Often achieved through relaxation or meditation techniques that produce peace of mind, mindfulness provides grounding and a state of “being here now.” This type of activity calls for an increased awareness of feelings experienced by the individual (e.g., thoughts, emotions, actions) and those coming from the environment (e.g., noise, atmosphere, events). By offering respite, such approaches allow people to focus on themselves, take a step back, and ultimately to better understand themselves and make sense of what is happening to them, thereby increasing their SOC (Super et al., 2016).

Mindfulness-based stress reduction (MBSR) is one example. This standardized eight-week program combines mindfulness meditation, yoga, and other techniques that reduce stress and improve well-being. Based on interaction between the mind, body, and environment, this type of program has yielded various benefits in different groups of people, facilitating consistency, quality of life and fulfillment for participants (Sarenmalm et al., 2017; Foureur et al., 2013).

As the proximity principle suggests, such approaches benefit from being implemented in different living environments to reach more people. They can be carried out in open areas in the context of a pandemic (e.g., parks, forests, or gardens), which encourages contact with natural settings. These approaches, which are compliant with current health regulations, are accessible to all and offer the chance to observe the richness of these environments and to realize what unites us, allowing us to reconnect with what is essential and to appreciate the present moment. Therefore, a walk in the forest, a birdwatching outing, or an outdoor meditation or yoga session are all simple, safe activities that can be organized to facilitate this consciousness-raising practice.

3) Artistic or cultural activities

By appealing to the emotional, perceptual, and creative faculties, arts and culture facilitate the reflexive and liberating process in situations of adversity. When a significant portion of the population is harmed by the pandemic's direct or indirect effects, art could prove to be an alternative and complementary means to conventional therapeutic approaches that promote recovery subsequent to such disruptive events. Indeed, art makes it possible to bring out what is difficult to express, to put one's life in order, to create a living memory of events, and to foster a caring community (Fancourt and Finn, 2019). The following example illustrates how art can support well-being through collaborative work with different sectors of society. In a study of public-sector workers, participation over a nine-month period (16 days in total) in group activities using an artistic form of expression (psychodramatic method) was found to be effective in strengthening SOC, as were activities that focused on dialogue (analytical method; Kahonen et al., 2012).

In this time of pandemic, a health-promotion intervention using artistic expression could, among other things, consist of an exhibition space in which the members of a community would contribute to producing a collective work while sharing their personal creations (e.g., photos, videos, painting, theater, music, dance). Consequently, their reappropriation of a common space through art would create a sense of belonging and reciprocity within a community, thereby promoting acceptance of a difficult situation. After the Lac-Mégantic tragedy, a Photovoix-type project aimed at giving citizens a voice through photography and allowed them to share their various experiences as the community recovered. This initiative was greatly appreciated by the people who took part in the project as well as members of the community who came to see the photo exhibit (Généreux et al., 2019). This relatively simple and inexpensive project sent a strong and powerful message to the community: Lac-Mégantic is not just a tragedy.

4) Life storytelling

Looking back over the course of a lifetime highlights life's defining experiences that go into building a person's identity. A person's life story is their subjective experiences with respect to the broader sociocultural context. Recounting their life story is an exercise that allows the person to organize their thoughts, reframe a stressful situation, and, ultimately, make sense of it. A life story can elicit exchanges of experiences with others, as well as constructive feedback that facilitates the positive interpretation of

memories, thus generating a sense of usefulness and personal satisfaction (Hourzad et al., 2018). Lastly, the personal experiences recounted contain inspiring life lessons for others, which can strengthen collective empowerment (Kargilis et al., 2014).

In this time of pandemic, exchanges (written, telephone, virtual, in-person but out of doors) could be arranged to allow everyone to express themselves as well as to reflect and share their experiences with respect to the disruptions in recent months. Among other things, the Living Legends program includes two key components: life review writing workshops and intergenerational exchange sessions. This program has been shown to increase SOC in seniors by helping them to give meaning and purpose to their lives (Chippendale and Boltz, 2015). Closer to home, in the Eastern Townships, a project was recently launched to first gather verbal life stories of citizens of all ages related to the pandemic, then make a written synthesis of them for sharing with the community.

In short, SOC can be strengthened through concrete actions of varying diversity but all sharing the same reflection and the power to act as areas of intervention. Whether through the arts, sports, meditation, or storytelling, a wide range of simple and accessible actions can be deployed at the community level (see Appendix 2 for more examples). Designed in a participatory, inclusive, and locally sensitive manner, such actions help address the needs expressed by community members while building on local strengths and resources.

Conclusion

SOC is a powerful protective factor against the pandemic's adverse effects on mental health and well-being. A variety of effective or promising community-based interventions to strengthen SOC could be applied in different settings (e.g., school, work, or municipality) and adapted to the local context and culture. Four areas of interventions to strengthen SOC in the context of the pandemic were identified: sports and leisure programs, mindfulness development programs, artistic and cultural activities, and life storytelling. The development of a broad inventory of interventions, touching on different areas and implemented in different settings, will allow a greater number of individuals to be reached according to their interests and needs. The diversification of interventions made available to the population to support adaptation strategies allows individuals to use the resources that best suit their situation (Maas et al., 2017).

Sound coordination is essential in order to enable actors from different settings to develop a comprehensive understanding of needs, capacities, and intervention strategies, while ensuring their complementarity and consistency with local values (Généreux et al., 2020b). The ultimate goal of the proposed action is to build adaptive capacity of both individuals and communities through the development of a shared vision, as well as through empowerment, connection among community members, and a collaborative approach, all rooted in a culture of innovation and inclusion (O'Sullivan et al., 2014). All of this must obviously take place within a broader framework (e.g., physical and social environments, public policies) that is conducive to health.

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APPENDIX 1

List of national and international partners in the research project

Universities

University of Sherbrooke (Canada)

University of Ottawa (Canada)

University of Neuchâtel (Switzerland)

University of Geneva (Switzerland)

Catholic University of Louvain (Belgium)

Centro Universitário de Brasília (Brazil)

University of the Philippines (Philippines)

Chinese University of Hong Kong (Hong Kong)

University of Canterbury (New Zealand)

Health organizations

Direction de santé publique de l'Estrie (Canada)

Quebec Ministry of Health and Social Services (Canada)

Public Health Agency of Canada (Canada)

National Collaborating Centre for Infectious Diseases (Canada)

Department of Health (Philippines)

Public Health England (United Kingdom)

World Health Organization (Switzerland)

APPENDIX 2

Available Resources and Tools

Field of intervention	Examples of interventions	Web link	References
Sports and wellness programs	Sports participation	https://bmcpublihealth.biomedcentral.com/articles/10.1186/1471-2458-14-703	Super et al., 2014
	Resistance-training program	https://pubmed.ncbi.nlm.nih.gov/29124498/	Kekalainen et al., 2018
	Resource Enhancement and Activation Program	https://pubmed.ncbi.nlm.nih.gov/26293542/	Tan et al., 2016
Mindfulness	Mindfulness-based stress reduction (MBSR)	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5430085/pdf/CAM4-6-1108.pdf https://pubmed.ncbi.nlm.nih.gov/24099232/	Sarenmalm et al., 2017 Foureur et al., 2013
	Mind-body medicine (MBM)	https://pubmed.ncbi.nlm.nih.gov/25060154/	Gimpel et al., 2014
	Meditation program	https://www.tandfonline.com/doi/abs/10.1080/15528030.2019.1600631	Pandya, 2020
	Benson's relaxation technique	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7325782/	Mowla et al., 2020
	Bodyknowledging Program (BKP)	https://onlinelibrary.wiley.com/doi/epdf/10.1111/scs.12498	Heggdal & Lovaas, 2018
Artistic and cultural activities	Psychodramatic and analytic methods	https://pubmed.ncbi.nlm.nih.gov/23170866/	Kahonen et al., 2012
	In the Shadow of Terror (art therapy)	https://www.tandfonline.com/doi/abs/10.1080/07421656.2002.10129408	Gonzalez-Dolginko, 2011
Life storytelling	Living Legends program	https://pubmed.ncbi.nlm.nih.gov/26114464/	Chippendale & Boltz, 2015
	Narratives about a flood disaster	https://www.sciencedirect.com/science/article/abs/pii/S0890406511000582	Tuohy & Stephens, 2012
	Positive psychology supervision through narratives	https://www.tandfonline.com/doi/abs/10.1080/00050060801978647	Howard, 2008
	Entrepreneurial narratives of failed businesses	https://journals.sagepub.com/doi/10.1111/etap.12046	Byrne & Shepherd, 2015