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Insights on the COVID-19 pandemic: Youth engagement through Photovoice

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ABSTRACT

Youth engagement in disaster risk reduction is a growing area of research, practice and policy. The COVID-19 pandemic highlighted the need for improved opportunities for youth to participate and have their voices heard. Our Photovoice study explores experiences, perceptions, and insights of youth regarding the COVID-19 pandemic, while providing an opportunity for youth to participate in disaster risk reduction and contribute to resilient communities. We conducted nine focus groups from February 2019 to August 2020 with four teenaged youth; we analyzed the data using reflexive thematic analysis and hosted two virtual Photovoice exhibitions. Our results explore youth experiences of public health measures, impacts of the pandemic, pandemic magnification of social inequities, and the power of youth to create change. We provide six calls to action, focusing on a holistic, upstream, all-of-society approach for stakeholders to collaborate with youth in creating change on complex social justice issues to support COVID-19 recovery.

1. Introduction

The Sendai Framework for Disaster Risk Reduction (2015) is a global framework to reduce vulnerability to disasters; it emphasizes preparedness and strategies to enable disaster recovery and foster resilience [1]. One recommendation from the Sendai Framework is to strengthen disaster preparedness among high-risk populations, through all-of-society engagement and partnership [1]. This requires empowerment through inclusive, non-discriminatory participation and community engagement [1,2]. Sustainability of disaster risk reduction (DRR) strategies depends on partnership and ownership of local communities [3]; this can be facilitated through action research that enables co-creation of knowledge by individuals who are experts on their own lived experiences.

Similarly, the United Nations (UN) Research Roadmap for the COVID-19 Recovery emphasizes inclusive solutions and a human rights lens for transformative societal change, for an equitable, resilient, and sustainable future [4]. Amongst the 25 research priorities, the Roadmap emphasizes the need to scale up knowledge mobilization, improve social cohesion and community resilience, and engage
marginalized populations; these are essential for pandemic recovery.

In 2011, the United Nations Office for Disaster Risk Reduction (UNDRR) estimated over 100 million young people are affected by disasters every year [5]. Research has shown that youth are at heightened risk of experiencing disaster-related negative health outcomes (e.g. injury, psychological trauma, loss, death, etc.) [1,6,7]. The Sendai Framework recognizes children and youth as agents of change, with recommendations to promote youth leadership, and create opportunities for youth to contribute to DRR [1]. These principles align with Article 12 in the UN Convention on the Rights of the Child, which states children have the right to participate in decisions that affect them and have the right to express their views freely in everything, in any form [8].

Over the last decade more research and initiatives placed children at the center of DRR [5]. However, given the ongoing nature of the COVID-19 pandemic, more research is needed to explore the youth experience of the pandemic—in real time—and the unique challenges stemming from this transitional life stage [10]. Hence, the purpose of this article is to present findings from a Photovoice project focused on youth engagement in the context of disasters and COVID-19. The full project spans 2019 to 2021; this timeframe includes knowledge mobilization. The purpose was the same pre-pandemic and during the pandemic (to explore youth participation in DRR), with the additional objective to explore youth experiences of the pandemic. In this article, we present results related to youth experiences and perceptions of the social contexts of the COVID-19 pandemic.

2. Methods

2.1. Study design

We used Photovoice research methods [11] to foster participation and co-creation of knowledge on youth experiences and insights on the COVID-19 pandemic. Photovoice is a form of community-based participatory research (CBPR) that uses pictures and descriptions to explore topics of importance to participants and their communities [11,12]. Consistent with traditional approaches to Photovoice, participants are considered experts of their own lives, and the research approach empowers critical thinking and problem solving [13,14]. As such, participants are considered co-researchers and are involved in every aspect of the research project—from project design to implementation [12].

2.2. Student context and participants

The co-researchers in our study are members of the EnRiCH Youth Research Team (EnRiCH YRT); a youth-led, community-based initiative in which youth aged 13–30 years collaborate on DRR research, knowledge mobilization, and community-based projects [15]. The request for the Photovoice study came directly from the youth members of the EnRiCH YRT. Of the 24 youth members of the team, four elected to participate. We (the co-researchers) participated in the conception of the research, chose the research topic (i.e. youth engagement in DRR), designed Photovoice assignments for each session, contributed to data analysis, designed and assembled the exhibitions.

This study was approved by the University of Ottawa ethics review board and consent was obtained from youth co-researchers and parents prior to the first session. Our study took place in Ottawa, Ontario, Canada. Ottawa is the capital of Canada with a population of approximately 1.4 million people [16]. English and French are both widely spoken languages, given the close geographic and economic ties with Gatineau, Quebec. Our team lives in various neighbourhoods scattered across the city, and into Quebec. Our Photovoice group was created from the EnRICH YRT, a youth mentoring program focused on disaster risk reduction [15].

From February 2019 to June 2021, four of us participated as youth co-researchers in this study; at the start of the project we were between the ages of 14–16 years. The remaining four members of our team include undergraduate and graduate students and a professor. Of the eight members of our Photovoice research team, four identify as non-white, three of whom are youth co-researchers.

At the time of the COVID-19 focus groups from June to August 2020, pandemic measures in our region were slowly being relaxed with declining cases leading out of the first wave of the pandemic. On June 12th, 2020, Ottawa went into “Stage 2 Reopening” with the re-opening of malls and stores inside buildings; outdoor sports fields, ball diamonds, and splash pads; and barber shops and salons [17]. By July 17th, 2020, Ottawa entered “Stage 3 Reopening” with the return of dine-in options at restaurants, indoor gyms, and indoor movies. Mitigation measures included plexiglass barriers in businesses, mandatory masks in public indoor spaces (which became a bylaw on July 15th, 2020), limited gathering capacities, strict social bubbles, social distancing of six feet or more, community testing sites, travel restrictions, and COVID-19 isolation periods. By the end of August, cases started to rise again, eventually leading to more shutdowns and restrictions, with Ottawa entering the second wave of the pandemic in mid-September that year.

2.3. Data collection and analysis

Over a 16-month period, our team hosted nine focus group sessions; six in-person sessions (from February to June 2019), and three virtual sessions in 2020 (between June and August). Each session lasted two hours and was audio recorded. Every session was attended by four youth co-researchers, two research assistants, the principal investigator, and the lab director. In this article, we present the results from the three virtual sessions, which focused on the COVID-19 pandemic. Data from the 2019 focus group sessions are published separately, please see [54].

Our Photovoice protocol was similar to Wang and Burris [11] and we used Instagram, but in a slightly different way than Yi-Frazier and colleagues [18]. The youth co-researchers used cell phones to take pictures, with the option of borrowing a digital camera from our lab (one participant used the digital camera).
Our Photovoice Research Protocol:
1) Identify objectives and intended outcomes;
2) Submit application for ethics approval;
3) Recruitment and information session;
4) Focus group #1: Facilitated discussion and explanation of first Photovoice assignment;
5) Take pictures between focus group sessions;
6) Transcribe audio recordings and create initial codes between focus group meetings;
7) Focus groups #2–9: Member check codes from previous session, present pictures, group discussions, decide next assignment;
8) Identify themes;
9) Refine themes through member checking;
10) Plan Photovoice exhibitions with community partners; and
11) Host Photovoice exhibitions.

We used reflexive thematic analysis [19] to analyze the data. After transcribing all focus group sessions, the undergraduate and graduate students read through all transcripts and created a set of initial codes using the comment box in Microsoft Word to select a section of text and tag it with a code label. We also used PowerPoint to facilitate remote collaborative analysis throughout the pandemic while transforming codes into themes. Consistent with Braun & Clarke’s [20] work on reflexive thematic analysis, the purpose of our use of multiple coders was not to reach consensus on every code. Rather, it was to collaboratively gain richer and more refined insights into the data. Consistent with Wang & Burris [21]; we further refined these codes through member checking with the youth co-researchers, turned the codes into themes and confirmed them with the team.

2.4. Photovoice exhibitions

We hosted two Photovoice exhibitions in 2021 to showcase our work and connect with community stakeholders. The first exhibition was an online gallery on Instagram. This exhibition includes themes from all our focus group sessions and is available at the following Instagram handle: @yrtphotovoiceproject. The second exhibition occurred at the Disaster and Resilience Summit 2021 in a virtual workshop format; our full team, along with community partners from The Canadian Red Cross, presented a selection of results to attendees. Our workshop included discussions with attendees about how to implement youth engagement in their respective organizations. For more details on our research methods and Photovoice exhibitions, please see our methods paper [55].

Fig. 1. COVID-19 themes from the first wave of the pandemic.
3. Results

In this section, we present our results pertaining to the COVID-19 pandemic; written from the perspectives of the high school students on our team — therefore the terms ‘we’ and ‘our’ represent the voices of the high school students. Our results are divided into four categories: 1) experiences with COVID-19 measures during the first wave; 2) impacts of COVID-19 public health measures; 3) pandemic magnification of social inequities; and 4) the power of youth. Fig. 1 is a conceptual model summarizing the pandemic themes from our discussions.

3.1. Experiences with COVID-19 measures

Four themes emerged with regards to youth perceptions and observations of COVID-19 response measures: 1) citizens’ decision-making: from apathy to hoarding; 2) the role of social determinants of health; 3) rationalizing public health measures; and 4) pandemic fatigue. We talked about our perceptions of the pandemic and decision-making around public health measures; we expressed concern about lack of public compliance with the restrictions and how this reflects different attitudes toward the pandemic, social justice and governmental regulation.

3.1.1. Citizens’ decision-making: from apathy to hoarding

We believe many people are apathetic about social justice issues, climate change and disasters until they are personally affected by them:

“... I saw this Tik Tok about a girl not caring about COVID and staying quarantined and [she] had gone out despite the warning, and accidentally ended up passing COVID to her grandma … she sent out that warning to a lot of people ... there were a lot more people that started to actually care and realize it as an actual risk ...” (Session 7, June 17th, 2020).

Apathy and lack of awareness of risk were apparent during the COVID-19 pandemic. Despite continuous public health messaging, some citizens continued to flout COVID-19 measures, posting social gatherings or mask-less interactions on social media. To combat apathy and ill-informed decision-making in a crisis, we believe there is a need for better education on disaster preparedness: “That whole hoarding craze was harmful because groups of people that were actually at risk of COVID-19 were not able to access resources — the food that they needed.” (Session 7, June 17th, 2020).

For instance, better education and messaging about disaster preparedness could have prevented the panic buying and toilet paper hoarding that occurred at the start of the pandemic:

“... you cannot prepare completely for a pandemic, but I feel like a lot of people at the start went about it in a totally wrong way, like the whole toilet paper thing ... Educating people on how to properly prepare themselves is very important” (Session 7, June 17th, 2020).

3.1.2. The role of social determinants of health

We recognize the impacts of COVID-19 disproportionately affect certain populations:

“... COVID-19 is obviously hitting certain populations harder than others, for example in the U.S., there are Indigenous groups, [like the] Navaho Nation, and they are getting hit the worst, even though they are a small population. When we are talking about COVID-19, we should be looking at it from a diverse lens” (Session 7, June 17th, 2020).

When discussing how to respond and recover from the pandemic, it is important to include populations at heightened risk and consider the social determinants of health using a public health lens. We understand how socioeconomic status and social location influence the way a person experiences and navigates this pandemic. For example, one team member reflected on how she can stay safe at home, while many others do not have that option: “... I live in a single home and I do not have to go to work ... We have to look at economic differences and how they affect different people and how [some] are more vulnerable” (Session 7, June 17th, 2020).

3.1.3. Rationalizing public health measures

Many of us juggle part time jobs and school. For us, social distancing was hard to rationalize because, in our roles as essential workers we were forced to be around countless strangers throughout the work day; yet during the same time period we could not see friends or family members outside of our households:

“I find it so hard to force myself to social distance working in a service job. Because it feels like I am exposed to so many people and like why not make it another and hang out with my friend? And I know that I cannot because that would mean exposing my friend to all of the people too ... it feels wrong being like, I can talk to probably a thousand people a day [at my service jobs], but not one more.” (Session 8, June 24th, 2020).

While we are aware public health measures stop the transmission of the virus, we feel our lived experience as essential workers contradicts the messaging:

“I have three jobs right now, and so, I am seeing so many people. Like I am genuinely probably seeing so many more people than I have ever seen before and we are in a pandemic and it feels so weird.” (Session 8, June 24th, 2020).

3.1.4. Pandemic fatigue

In June 2020, Ottawa emerged from its first lockdown. Citizens were experiencing pandemic fatigue and they were desensitized to
public health messaging — feeling less anxious about the virus and eager to move forward with their lives:

“... I read an article saying people are starting to become less anxious about COVID ... Basically they are forgetting to bring masks, forgetting about two meter distance rules, so once that [end of lockdown] hits, everyone is just like ‘oh let’s forget about PPE.’” (Session 8, June 24th, 2020).

We thought of many factors that contribute to pandemic fatigue: heightened focus and emotional energy redirected towards the Black Lives Matter Movement; fewer COVID cases in Ottawa compared to bigger cities like Toronto; and the transition into summer:

“I think one of the dilemmas, is [COVID-19] is not the top priority in people’s minds at the moment. People are more focusing on the Black Lives Matter movement, which is equally, if not more, important, but then I feel like for a lot of people, there is only space to focus on one thing at a time so [COVID-19] does not take priority.” (Session 8, June 24th, 2020).

We noticed how pandemic fatigue emerged so early in the pandemic. Outdoor spaces were packed with people not wearing masks:

“... This [picture was] taken at Andrew Haydon Park. I went there today, it was super empty. But unlike the day I took this photo, it was literally filled and bustling with people, and that kind of contradicts every other picture I took ... people are kind of clumping up in parks and it is a bit concerning because a lot of these people are not wearing masks or taking proper social distancing measures ...” (Session 8, June 24th, 2020) (see Image 1).

Despite public health measures, we observed large groups of people entering small businesses, customers not wearing masks in food service locations, and food servers not always wearing masks either. We believe some public health measures, like plexiglass covering food service areas, are useless:

“There is a bit of entitlement going on, mostly from the customers. I say entitlement as in ‘we do not need to wear [a mask]. It is not going to hurt us.’ And then, I do not know why we [employees in my workplace] do not wear masks. Honestly, it is dumb.” (Session 8, June 24th, 2020).

“... We have shields above the counter, but they do not do anything. It is basically two plexiglass squares and then everywhere else there is nothing. So they are totally useless, they just kind of hit us in the face when we are trying to [serve customers].” (Session 8, June 24th, 2020).

We assume inconvenience, itchiness, discomfort, and difficulty breathing are reasons people might be struggling to follow public health masking rules. We found public health violations sparked feelings of fear around the virus: “... when I was hanging out with my friends the other day [outdoors], we saw this group of like 50 people gathered in one place ... it was kind of terrifying to see that many people not caring about the restrictions.” (Session 8, June 24th, 2020).

3.2. Impacts of COVID-19 public health measures

The impacts of the pandemic span social networks, family, school, and work. While some impacts were positive, other impacts — such as adverse effects on mental health — were detrimental to our well-being. Four themes emerged from our discussions and photos about the impacts of COVID-19 measures: 1) positive impacts; 2) social impacts; 3) scholarly impacts; and 4) impacts on mental health.

3.2.1. Positive impacts of the pandemic

The positive impacts from the pandemic were calmness and stillness during the first lockdown and acts of pandemic kindness. One of the silver linings of the pandemic is that it allowed everyone to slow down; people were able to enjoy outdoor spaces, like in Image 2,
and physical activities more as a result of fewer vehicles on the road: “[The parking lot] is quiet. You can walk through it and nobody is going to run you over. Or you can practice how to drive … It has been really nice having empty parking lots to skate in …” (Session 8, June 24th, 2020).

During the pandemic we did wholesome acts of kindness we would normally not consider doing, such as delivering care packages to our friends, see Image 3. We were creative in the ways we connected with family and friends, and how we showed them love and support:

“… There are three boxes, those are for my best friends, and then in the front, those bags have little cookies I made that I delivered to a whole bunch of my friends. In the back there is a book I gave to my kids that I nanny. So these are just a little bit different – something I do not think I ever would have considered doing. Like dropping off a care package for my friends … because I would have just been like ‘hey let’s hang out’. We all gave each other stuff [during the pandemic].” (Session 8, June 24th, 2020).

3.2.2. Social impacts of the pandemic

The social impacts of the pandemic were interesting, and we had five themes on this topic: 1) youth as essential workers; 2) major life transitions cloaked by the pandemic; 3) feelings of boredom; and 4) changes to socialization: together, but apart.

3.2.2.1. Youth as essential workers.

During the first lockdown in 2020, some of us continued to work as essential workers in several jobs. One youth co-researcher supported a local surgeon by working as their nanny, Image 4. She explained that despite everything happening in the world — and the constant news about COVID — the children were blissfully unaware:

“… these are the kids I have been nannying. They are one and three, and their mother is a surgeon, so she has been at work … So I have been looking after them … that has been definitely an important part of my quarantine personally because it has been a totally different experience working with kids … because they have no idea of anything that is happening right now. All that they know is that they get to stay home and have fun and play all day … Which is totally weird to be around people who like do not know that there is a pandemic going on. They are completely unaware of it.” (Session 8, June 24th, 2020).

For our team member, time with the kids was refreshing since she was able to ‘forget’ about the uncertainty and chaos of the pandemic for a few hours. She was able to create a fun environment for the kids and maintain a sense of normalcy. She found activities to pay the positivity forward, such as colouring a colouring page that says “not all heroes wear capes” (Image 5) and gifting it to their local mail carrier. While working with children was protective, she stated that it was a lot of work to take on, when the rest of the world was staying home and slowing down:

“Definitely [nannying has contributed] positively [to my mental health and coping]. It has been a total relief to interact with people who are not my family. And also babies are just fun to hang out with. The only thing has been that it is a lot of work. Knowing every day that people are like ‘oh whatever I will sleep in and do a bit of my school work and whatever.’ And it is like, no, I have to get up at eight AM, go to work for four hours, come home, do school work for two hours, go back to work for two hours, sometimes go to a different job, and then come home and do more school work … that was definitely really difficult for a while to do.” (Session 8, June 24th, 2020).

Our team member’s commitment to her job during the pandemic is an important example of the active societal roles youth played as essential workers throughout the pandemic. We believe the government needs to promote greater awareness of the contributions youth essential workers’ made during the COVID-19 pandemic: “I feel like if the government came out and somehow talked about it —talked about the youth as essential workers or about compensating them in whatever way— then people would be aware of it.” (Session 7, June 17th, 2020). Many jobs deemed essential during the pandemic are low seniority roles filled by youth. We feel society either does not recognize youth fill these roles, or does not care. It is especially important to acknowledge these roles and the compounding effects of young age, low seniority in the workplace, and the pandemic context.
Image 3. Care packages assembled and delivered to friends during the pandemic.

Image 4. A child goes for a walk with his younger sibling and nanny during the pandemic.
“... I was going to talk about being appreciative ... I have heard a lot of horror stories, of how customers treat youth workers or young people working ... the whole ‘the customer is always right’ and that whole power dynamic. They push that to the breaking point a lot.” (Session 7, June 17th, 2020).

Youth workers in essential service jobs faced added stress of being relatively new in the workplace and/or having low seniority positions. Additional challenges came from adapting to changes in workplace policies as the pandemic context changed. The visibly young age of youth essential workers —combined with low seniority positions in customer service roles— places these workers in precarious positions where they may be disrespected by customers:

“... I saw a picture of a sign at the McDonalds drive-thru that is like ‘keep in mind that these kids are young, this is their first job, be nice.’ And it is kind of sad that people need that reminder ...” (Session 7, June 17th, 2020).

3.2.2.2. Major life transitions cloaked by the pandemic. During the pandemic, some of us experienced typical high school transitions, such as graduation and moving out on our own for the first time; this was a big deal for us and we watched friends experience transitions in different ways. Some official celebrations, like graduation ceremonies and high school proms, were cancelled. Many students were not able to celebrate important milestones and achievements with friends and family:

“I feel for all of the graduates. I really do feel for [name] a little bit because all she got was a little name on a screen and that is it. Four years [of school] and not to have it be properly recognized ...” (Session 8, June 24th, 2020).

3.2.2.3. Feelings of boredom. The pandemic cancelled many events such as concerts, vacations, and other forms of socialization. As such, COVID-19 enabled people to enjoy more family time, spend time with pets, and do puzzles and activities that would normally not fit into busy schedules (Image 6). While some of us enjoyed the stillness from the first lockdown, others equated this time with feelings of boredom:

“... I had a totally different quarantine experience than most people who were at home 24/7 because I have been working. But there was about three weeks I was not working or doing anything and this picture is from those three weeks. This is one of the only pictures I have of quote unquote “normal”. It is just me doing a puzzle with my cat. And I feel like that represents a lot of people’s time at home, as doing mundane activities, hanging out with your pets because there is not really anyone to hang out with ...” (Session 8, June 24th, 2020).

3.2.2.4. Changes to socialisation: together, but apart. The way humans socialize changed drastically during the pandemic. For example, ‘going out with friends’ came to mean going online and chatting using applications like Facetime. This temporary transition to socializing solely online meant skipping yearly traditions (e.g. holidays, graduations, birthdays) or adapting traditions to online. In many cases, traditions and events were simplified to fit the minimal options provided by virtual gatherings. We found adapted traditions and events were often disappointing because they were ‘just not the same’; we also fear some traditions may never return:

Image 5. A colouring craft “Not all heroes wear capes” done by the nanny with the children.
At the Mayfair every month, they do a showing with a shadow cast and call backs and me and my friends go every single month without fail… And we tried so hard to host one online where we all got dressed up and tried to do the call backs and it just would not work. We got maybe 20 minutes into the movie and it was so disappointing. It is a tradition that we just had to let go of because we could not do it.” (Session 8, June 24th, 2020).

Throughout the pandemic, people relied on technology to stay connected, through social media, email, video conferencing, or text messages. With public health measures advising people to stay at home, reduce in-person contacts and eliminate non-essential travel, people found other ways to connect. Replacing in-person traditions with virtual substitutions was disappointing for many; but technology was also an unexpected opportunity. Technology allowed people to attend events that would otherwise not be as accessible or affordable if the events were in person (e.g. conferences):

“I got invited to a conference for youth online… I do feel without having online stuff, I do not think the conference itself would have happened. And it is interesting how we can network through Zoom or online even though we are so many kilometres apart. And it is actually very interesting to do that,” (Session 8, June 24th, 2020).

This permitted new networking opportunities, with many people making new friends online during the pandemic:

“… the relevance to Zoom right now is definitely going to change how [we] interact in society and who we feel we can interact with. Because I know before it was super taboo to have internet friends and have people you have only met online, but now… everyone is only interacting online more or less. So I think it is a different culture that we will come back into,” (Session 8, June 24th, 2020).

3.2.3. Scholarly impacts of the pandemic
At the beginning of the pandemic, schools closed abruptly; there was a scramble to adapt schooling online. Given the uncertainty around COVID-19, public health guidelines were released in two-week intervals. Schools went from being closed for two weeks, to being closed for the rest of the school year. For most of us, school was a burden, given the expectation placed on us to focus on school work while being worried about the future of our schooling, and the virus itself: “At the start, [school] was in the back of my head. Like [with] the pandemic, it was like, what? You want me to think of school while people are dying?” (Session 7, June 17th, 2020).

We experienced different levels of motivation and ability to focus in school. One of our team members said they were motivated at first to self-learn, but then slowly lost that motivation the longer we were told that schools would stay closed: “… for me in the beginning, it gave me motivation to actually learn by myself, but as it went on, I have lost all of my motivation…” (Session 7, June 17th, 2020). Other team members had no motivation to begin with.

3.2.4. Mental health impacts of the pandemic
We discussed ways in which COVID-19 negatively affected our mental health in 2020, and ways to improve mental health for youth. Six themes emerged from these discussions and photos: 1) uncertainty around the repercussions of the pandemic on youth; 2) pressure to be productive; 3) social media overload and mental health; 4) mental health literacy; 5) social isolation and access to mental health resources; and 6) protecting the mental health of essential workers.

3.2.4.1. Uncertainty around the repercussions of the pandemic on youth. We felt increased stress, anxiety and uncertainty about our future given the pandemic. We felt uneasy about our near futures (i.e. post-secondary and jobs):

“I am applying to university in a couple of months. Like would I even be able to go to school, you know? So there is the whole uncertainty about the future that hits youth more than adults… I think that is a different pressure on youth.” (Session 7, June 17th, 2020).

We saw adults as having more stable lives throughout the pandemic, and having more stability post-pandemic, due to their stage of life:
“It is already hard to navigate university decisions or job decisions and what you want to do in the future, but adding a whole pandemic on it, and the repercussions of a pandemic afterwards? It is like a whole different level ...” (Session 7, June 17th, 2020).

We acknowledge adults were also impacted by the pandemic; however, our perspective is contextualized within the unique pressures COVID-19 placed on youth. Especially in high school, youth are in a unique transition stage in life and the pandemic will significantly influence our future life trajectories:

“... It is a whole wave of uncertainty for a year or two ... And that year or two for people from ages 16 to 19 can really mess things up. Whereas, if you are in your 30s or your 40s, it is just another year sort of ...” (Session 7, June 17th, 2020).

3.2.4.2. The pressure to be productive. We felt we were not doing enough productive work during the early stages of the pandemic, especially around school work, or using our new found downtime to learn new skills (e.g. learning a new language). When talking about motivation to accomplish school work once we moved to the online format, one team member said: “... for me, I never had any motivation in the first place but I did feel guilty for not doing as much as I could have. But I am like oh well. I’ll probably learn this later.” (Session 7, June 17th, 2020). We assumed online learning would not last through the end of the school year and we would have an opportunity to learn at a later date in a traditional environment. We reflected on how society places value on productivity, measuring self-worth by levels of productivity:

“... a big problem school teaches subconsciously, I even have this problem ... placing your self worth in your productivity ... if you are not productive, you are like ‘oh my god I hate myself’ ... And honestly it got worse during COVID-19, when you are bombarded with everything. You are forced to be productive, there is [still] that push to be productive,” (Session 7, June 17th, 2020).

This emphasis on productivity is true in our day-to-day lives, but it was emphasized during the pandemic because of the perception of having more free time to reach ahead, rather than use that time for self-care. This pressure for constant productivity has negative consequences on mental health:

“Even my own mom said at the beginning of the pandemic, ‘You have extra time so you should build on skills while you are in the pandemic. Your friends are going to come out of the pandemic with a skill’ but I knew for myself, not everything needs to be accomplished, even though you have extra time because the pandemic itself is already taxing for people, even for myself. So I was focusing on myself first and then, if I have the time and energy, I move on to building new skills.” (Session 7, June 17th, 2020).

3.2.4.3. Social media overload and mental health. We talked at length about how social media was saturated with heavy, energy draining content during the pandemic; people relied heavily on social media to connect with others and keep updated on current events. Under the lens of the pandemic, social media felt saturated with constant change and uncertainty around COVID-19, the resurgence of the Black Lives Matter Movement, and global disasters (e.g. hurricanes, wildfires, the explosion in Beirut, the crisis in Yemen, etc.). We needed to step away from social media because our mental health was suffering from constant bombardment of uncertainty and worrying about what the next crisis might be. We experienced compassion fatigue and news fatigue; but we acknowledge our privilege in being able to take a break from issues of social justice, despite caring passionately about them.

“I kind of have been avoiding [social media] to be honest. I was not in the first week or so [of the Black Lives Matter protests]. I was posting things on my stories. But then I was like this is really taxing and I am already like panicking about the virus and everything else going on, so for my mental health I decided to back off ...” (Session 7, June 17th, 2020).

3.2.4.4. The need for mental health literacy. Improved access to mental health resources is needed —especially mental health curriculum in schools. Some students feel shame when asking for help as a result of there being no discussion about mental health in health class for how to take care of your physical body but no one has really taught us how to take care of our mental health ...” (Session 7, June 17th, 2020).

Shame and stigma is a major barrier in talking about mental health and accessing support services. We feel the education system should be a safe place for conversations about mental health; this can be done by having more discussions in school between teachers and students to normalize discussions about mental health and accessing supports.

The school system is an important resource meant to prepare students for the future. Lack of mental health literacy in schools is a major gap in our education. We want to see the same emphasis on mental health as physical health in schools. Mental health literacy in school is a strong prevention tool:

“I think especially surrounding COVID right now, it would be really important for the school to consider their mental health literacy because I do not think there is really any point in time where schools have taught us about our mental well-being ... they have an emphasis in health class for how to take care of your physical body but no one has really taught us how to take care of our mental health ...” (Session 7, June 17th, 2020).
“... prevention would make it a lot better. Because you would have learned all of the tools you need to make your mental health on the better side of the scale and I think then the provincial governments would not have to spend [as much on] accessible services if we would start with education and making sure that people know how to maintain their own good mental health.” (Session 7, June 17th, 2020).

As image 7 illustrates, mental health matters. We want to see school systems value the mental health of their students over pressure to get good grades: “A lot of people and parents put school over their mental health just to get good grades and treat it like it is the end of the world. That is a lot pressure...” (Session 7, June 17th, 2020). We envision a mental health literacy curriculum that not only teaches self-care, but how to manage stress, and how to identify symptoms of poor mental health versus mental illness:

“I guess there is this whole self-care thing. But I also think we should delve deeper into... understanding what mental illnesses are and the difference between bad mental health and good mental health. And how you can have bad mental health without having a mental illness.” (Session 7, June 17th, 2020).

We would like to see discussions about how trivializing the seriousness of mental health through dismissive or diminishing remarks can be a barrier to helpful discussions around mental health:

“... a lot of people trivialize mental health, turn it into a joke. Especially ironically enough, people that suffer from it themselves... There is a lot of things school does not teach you, like 1) mental health and 2) your grades do not equal how good of an adult you will become. ... how to do things that nobody else will teach you, like taxes or how to manage your mental health and how to manage your stress. Those are two very real problems you will face as an adult and I feel like school is one of the few places that will prepare you for the future, other than your parents. But not everybody has parents that actually could talk to them, so school is your second line of defence for stuff like that.” (Session 7, June 17th, 2020).

Finally, we would like to see discussions about how there is no one-size-fits-all solution to mental health. For instance, self-care has limited effectiveness for youth living in poverty. To holistically understand and address youth mental health, perspectives that consider the impacts of systemic inequities and the social determinants of health must be understood and acted on:

“... I feel as though people are like ‘do not forget about self-care’ but self-care is not going to help [youth living in poverty], and we need to dismantle this one lens look at mental health, or problems that arise from the pandemic.” (Session 9, August 11th, 2020) (see image 8).

Strategies such as talking to a therapist might not be feasible for youth living in poverty because of lingering trauma and struggles. While therapy, if accessible, is a good solution to learn coping mechanisms, it should be paired with practices that target the ‘causes of the causes’ of the trauma to support youth in managing their vulnerable circumstances. One example is helping families with food and living expenses. A multipronged approach is needed to address the complex root causes of inequities, which lead to disproportionate impacts of disasters.
3.2.4.5. Social isolation and access to mental health resources. Social isolation was a pertinent and universal challenge during the pandemic. Quarantine and lockdowns reduced opportunities for social interaction and people felt cut off from their social circles—an important mental health resource:

“... being cut off from everyone and being stuck inside, and not communicating with people, that takes a toll on your mental health. And if you do not have the tools to navigate that and if you are not taught mental health literacy, it is hard to get back up from that ...” (Session 7, June 17th, 2020).

We worry isolation can be harmful for mental health when people do not have access to necessary resources and tools to cope. To ensure people can manage their mental health, adequate supports and resources need to be in place prior to future disasters. Some people do not have access to mental health resources, such as counsellors or therapists—due to financial barriers, long waitlists, lack of access to online services, lack of awareness about resources, and how to access them. There is a need for action to raise awareness about mental health and how to access mental health resources. Current efforts by the provincial government are insufficient; more needs to be done to increase access to in-person therapy sessions, and reduce wait times. When people get access to these services, more sessions should be provided, as well as alternatives to online services for those who might have financial/technological barriers:

“... a lot of Ontarians do not have access to mental health [services] because it is actually really hard to access mental health counsellors or therapists ... if you do not have the money, you will need to go on a really long waitlist, through your family health team, or through community organizations, like Family Services Ottawa ... I heard from the provincial government that they have added more money to increase mental health but that it is not enough. It is only online and it is self-help. You know some people might take self-help seriously, but some people might not have access to online services and there has to be a pathway for people to have access to services like this and also make the services longer. Because when I was researching that ... the family health team, they can only go for 12 sessions and that is it. I think there needs to be more.” (Session 7, June 17th, 2020).

We mentioned examples of how to fill this gap at individual and community levels by creating easily accessible mental health coping guides and social support communities. For instance, one team member manages an Instagram account for their high school’s mental health club that is solely dedicated to talking about mental health and highlighting important community resources:

“... sometimes people do not really know that they have opportunities to access services such as the Youth Services Bureau, so I think for my own part, what I have been doing during the pandemic with my friend is managing our school’s mental health club [Instagram] account, for which we created resources and brought that awareness to light. I think that is another good thing we can do. And also some practical advice when you are feeling low and need a ‘pick me up’ kind of day. There should be a guide or a way to kick start that.” (Session 7, June 17th, 2020).

3.2.4.6. Protecting the mental health of essential workers. During the pandemic, essential workers are a large group whose mental health is at risk. Doctors and nurses were dealing with the pandemic on the frontlines and with this responsibility comes emotional and psychological stressors. Other essential workers, like grocery store clerks, were also at increased risk of exposure in their workplaces. We recommend the government take action to improve accessible mental health resources, particularly to protect essential workers during pandemic:
“... A really big group that I feel their mental health is especially going to be very affected are the essential workers, like the doctors and nurses, seeing death every day, that takes a toll on you ... As well as people working in essential work. So I feel like getting them very accessible mental health help is also something the government should be looking into” (Session 7, June 17th, 2020).

It is important to move beyond words of appreciation to tangible and improved protections for essential workers. Essential workers —many of whom are youth— risked their health by working in jobs deemed essential during the pandemic. While words of appreciation in the form of ‘thank you essential workers’ signs are nice gestures, they lack meaningful action and respect towards essential workers:

“I have seen this sign at the gas station: ‘Thank you essential workers.’ And I am just like ‘you are literally not doing anything with that’ ... What is the thank you going to do? Give them more money? Give them safety? ... Because it is nice, but it is not doing anything really.” (Session 7, June 17th, 2020).

We feel essential workers are not getting the compensation, recognition and appreciation they deserve. More meaningful expressions of gratitude to essential workers would be to donate money to increase their earnings, and improve safety measures.

3.3. Pandemic magnification of social inequities

While the pandemic was top of mind in 2020, the issues of social injustice and racism took a front seat after the murder of George Floyd. Protests broke out in major cities in the United States and Canada to highlight injustice and systemic racism inherent in North American society. Our themes reflect our passion about the Black Lives Matter movement, combatting racism and addressing social inequities.

3.3.1. Racism: a public health issue

For people who are Asian, the discrimination, threat of violence, and violence stemming from anti-Asian racism adds a layer of mental health strain and complexity to the impacts from the pandemic. For example, some basic acts, such as sneezing or coughing, became anxiety-provoking:

“With this picture, it was during an afternoon where I could not go out because there was really bad pollen – I suffer with allergies. My friend and I, we sometimes talk about allergies and how she went out on an evening run [during the pandemic] and accidentally coughed in public and sneezed. People looked at and judged her in a really weird way. So I think for me, as a South Asian person, I have fear that if I sneeze or cough in public because of my allergies, that I cannot go out just because of that” (Session 8, June 24th, 2020) (see Image 9).

Our team talked about the importance of attending the BLM protests, see Image 10, and the need to show support and solidarity: “... I definitely felt it was more important [to attend] - the benefits outweighed the risks, for the protests. And there [were] so many safety measures taken. There [were] people handing out masks and hand sanitizer everywhere.” (Session 8, June 24th, 2020).

Image 9. Sunlight in a bedroom window represents feeling trapped indoors during allergy season for fear of sneezing in public as a person of South Asian descent.
3.3.2. Youth are leaders of the current Black Lives Matter Movement

One of our team members, who attended BLM protests (see Image 11) in Ottawa in 2020, noticed most protesters were young and they wondered if reduced risk of COVID-19 transmission might have influenced people’s decisions to attend. They felt there might be generational differences in opinions about what solutions are needed to address systemic racism. The protests themselves were
organized and led by youth who wanted to see drastic changes in their community around policing. This is yet another example of the capability of youth to take action and make a difference:

“I would say like 98% were youth, people below 25 or 30 … It was all organized by youth. All the volunteers were youth, and it is just very telling of how, more often than not, adults will kind of go ‘oh youth cannot do anything.’ They are like ‘Just wait! It is going to be your turn eventually.’ Like no, we can do a lot of stuff, we can organize protests with thousands of people, we can make changes. The protests were very much youth run, youth-led … I mean, also it could be a matter of older people being more at risk [of COVID-19] and so not wanting to show up.” (Session 8, June 24th, 2020).

3.3.3. Teaching and dismantling systemic racism in the Canadian education system

We believe education must include the history of racism in Canada. We are frustrated how school curricula gloss over major events in Canadian history, such as Residential Schools, or the 60’s Scoop; we worry that even when courses do discuss historical events, they may be tainted by bias:

“In my grade 10 history class, I purposefully asked my teacher ‘are we going to be talking about residential schools, the history of the Indigenous people, anything of the form?’ and she goes, ‘No. We do not have time. We only can cover things from the curriculum.’ Which first of all, on a teacher level: ‘we do not have time’ to cover one of the most important crises that happened in Canada’s history?! And then from a curriculum, or board, or Ontario-wide level, there is nothing about it in the curriculum. There is nothing about Residential schools in the curriculum, there is nothing about the 60’s Scoop, … you do not learn anything about the culture, or the way the culture was stripped away at all.” (Session 8, June 24th, 2020).

We need to dismantle systemic racism within the education system. For instance, there is a link between systemic racism and DRR education. Some schools, in more affluent neighbourhoods have more resources to provide opportunities to learn about DRR. Not every student can afford to pay to attend conferences or field trips to learn more about disasters outside of school. Due to systemic racism, many people living on or just above the poverty line in more impoverished neighbourhoods are black, Indigenous, or new immigrants:

“… I used to live in an area where it was predominantly Black and people who were on or just above the poverty line. And I think they might not have the same resources we do. Or also the same opportunities to learn about disaster risk reduction. Because I attend [school name] and … people consider it the crème de la crème, and I think … even though it is the same curriculum, for Ontario kids, the thing is we do not have the same opportunities … especially with schools … Because I know [some people] … do not have the same opportunities as me to go, for example, to a health conference like HOSA [Health Occupations Students of America], DECA [Distributive Education Clubs of America], any of those experiences, because money is a big issue for them, because they cannot have these enrichment experiences that they can go on and learn more about these kinds of things …” (Session 8, June 24th, 2020).

Similarly, many of the disaster preparedness guidelines from experts involve buying and stocking up on supplies to be prepared for 72 hours without emergency services. This may not be possible for people living paycheck to paycheck; it creates unfair disadvantage. Inequities need to be addressed and factored into community disaster preparedness planning:

“… there is a higher level of people of color living in poverty and living in more impoverished neighbourhoods due to systemic racism … When you are living paycheck to paycheck, it is not possible to have this two week store [of supplies] that they recommended for COVID … And then, if disaster did happen, rebuilding is so incredibly costly. That leads to homelessness … If you can only afford your food and your rent for the month and just about nothing else, how are you going to rebuild? You cannot reduce the risk or like mitigate any future risks when you cannot get rid of the current crisis that they are in” (Session 8, June 24th, 2020).

3.3.4. How to begin addressing systemic inequities in DRR education and ability to prepare for disasters

In terms of solutions, we suggest youth create organizations and social media accounts to educate citizens on opportunities to get involved in DRR, spread information about DRR, and educate society on how systemic inequities are barriers to preparedness and participation:

“… There has been an uprise where youth have actually taken up opportunities to make an organization or like an awareness page, especially on Instagram. So there has been a few that have been related to COVID. There has also been just generally letting youth know about opportunities, especially in their communities and I think one way we can start, is if we create some sort of organization, like our Youth Research Team, that can go beyond uOttawa itself, I do feel if we reach out to other schools and let ourselves be known more in the daylight, I do feel like the education will come across better, especially throughout the rest of Ottawa.” (Session 8, June 24th, 2020).

We believe it is important to value different types of expertise —such as expertise that comes from formal education, work experience, and lived experiences. In this way, the term “expert” becomes more inclusive to a variety of people who can be included at the decision-making table. It is important for those currently in power to reframe this term to learn to value people who would usually not be deemed “experts” on big societal issues like DRR, climate change, the pandemic, and systemic racism:

“A lot of it is education, I would say that makes somebody an expert … a lot of people would consider a PhD [for a master’s] would make somebody an expert … But I feel like there is more to it than that. You can get education from different ways … an expert [on racism] could be someone who is black, because they have lived experience. So I think it is a lot of the education aspect, either through formal education, or through lived experiences.” (Session 8, June 24th, 2020).
3.3.5. The need for targeted solutions and support for youth living in poverty
A subpopulation overlooked in discussions about youth engagement, equitable access to mental health support, disaster preparedness, and the pandemic are youth living in poverty. We discussed how this group is often hit the worst during disasters, like the current pandemic. This is a unique population that needs specific targeted practices, policies and support. We believe there is a need to dismantle the classist lens through which we look at these issues and related solutions by breaking down problems to their root causes. Image 12 represents the absence of the voices of youth living in poverty from important discussions:

“I wanted to represent a group of people. I noticed when we talk about youth engagement and involvement, equitable access to mental health, or disasters and preparing for them, we tend to overlook a certain group of people and we always look at it through a certain lens or we look at it through the average youth, like a 14 to 18 year old person in school. But we do not tend to talk about youth living in poverty, or [who are] homeless. These people are especially hit the worst in all aspects in this pandemic, or through environmental disasters. We need to look at ways to directly provide them with help rather than rely on other solutions … We have to be careful when we talk about this because we do not want to look at it through a classist lens either.” (Session 9, August 11th, 2020).

One way to begin to dismantle the classist lens is to provide more opportunities for people who are often overlooked, like youth living in poverty. Opportunities like grassroot volunteer organizations focused on including diverse voices in disaster education and preparedness, partnering with big organizations, like the Canadian Red Cross, who can provide resources and vertical communication channels:

“… For example having diversity not only age, but gender and also class differences as well. So we can have all of these different perspectives instead of just one perspective. Ethnicity, religion as well. Because it is not just one kind of youth. We cannot really box everyone into one category so diversity is very important, not only listening to them, but also providing more opportunities to them as well.” (Session 9, August 11th, 2020).

3.4. Power of youth and calls to action
Youth have a desire and willingness to contribute to DRR and create organizations that help make a difference in awareness and advocacy. However, we worry our advocacy might not have a noticeable impact at higher levels (e.g. government) or even at the community level. We have opinions and ideas on how to improve major social justice issues and barriers we observed and experienced personally during the pandemic, as represented by Image 13:

“So this picture, I did a really quick sketch today … I thought of things happening throughout our community and issues that surround for example, Black Lives Matter, [gender] equity, LGBTQ+, mental health, etc. There are tons and tons out there. What is really interesting, I have seen this phenomenon on Instagram during the pandemic, teens are creating organizations, like youth, and all of us are wanting to
make a difference, but at the end of the day, there is no real change. Even though there is change in awareness, advocacy, etc., but there is no real change in terms of the government level or ... real change that you can see in the community.” (Session 9, August 11th, 2020).

4. Discussion

Strategies are needed to create opportunities for youth participation. Below, we outline six calls to action to support stakeholders in creating opportunities. Recommended actions focus on the impacts of COVID-19 measures, pandemic magnification of social inequities, and the power of youth to create change (Fig. 2).

4.1. Call to action #1: use a population health lens

Apply a population health lens to COVID-19 recovery to ensure those disproportionately affected by disasters are prioritized and included in discussions.

We approached our discussions with a critical population health lens – the study of health status and determinants of health of populations [22], placing the role of social and moral determinants of health at the center [23]. This lens addresses the underlying social, economic, and environmental conditions upstream of the issue, to shift the distribution of health risk [24], reduce health inequalities and inequities [25], and prevent disease and promote health [22]. The COVID-19 pandemic exacerbated existing inequities, while revealing and creating new social, economic, and environmental vulnerabilities [4]. We emphasize the importance of reducing inequities in COVID-19 recovery through preventative policies and actions addressing mental health and systemic racism through education, and applying an all-of-society approach to DRR.

4.2. Call to action #2: improve school curricula

Improve school curricula with educational materials and open discussions about DRR, systemic racism in Canada, and mental health literacy in schools.

DRR education can improve disaster preparedness for the next pandemic or disaster. As Ronan and colleagues note, creating disaster education programs with interconnected curricula, teaching real world scenarios, and applying a variety of teaching methods can not only improve youth disaster preparedness, but community resilience [26–29]. Disaster education improves disaster risk perceptions and can improve uptake of public health measures in future disasters and pandemics [28].

There is an urgency to teach the history of racism in Canada in our education system by embracing anti-racist teachings (such as the use of reflexive storytelling) [30]. This can be done by incorporating learning resources with contributions from Indigenous authors,
such as Greenwood et al. [31]; and teaching students about the Truth and Reconciliation Commission of Canada [32] 94 calls to action, in school curricula. These resources, among many others, explore determinants of health of Indigenous peoples [31] and promote evidence-based strategies for social change [32].

Mental health literacy is defined as knowledge and beliefs about mental disorders [33]. It is an important skill to recognize, manage, and prevent mental illness, and a gap in the Ontario education system. Improving mental health literacy can contribute to increased use of mental health services [34]. Useful strategies for teaching healthy mental health literacy include whole-of-community campaigns, interventions in education settings, Mental Health First Aid training, and informative websites [33]. Applying a social and moral determinants of health lens [23] to improvements within the education system will ensure populations at higher risk receive access to opportunities for DRR learning, and high-quality education [4]. Curricular and extracurricular opportunities can be implemented to fill educational gaps about DRR, racism, and mental health literacy.

4.3. Call to action #3: research youth experiences of COVID-19

The experiences of youth during COVID-19—and implications for our well-being—remain relatively unknown [10]. Our study explored our experiences and unique challenges as adolescents during the pandemic. Youth, specifically during adolescence, is characterized by major shifts in personal relationships, physiological changes, increased need for social belonging and independence [10]. The two to three year pandemic will continue to have social and mental health impacts on our lives. Included under research priority 2.3, the UN [4] Roadmap emphasizes the need for research on the long-term impacts of pandemic school closures, and how to reduce educational disruptions in future emergencies. Future studies should explore potential delays in post-secondary schooling, detrimental effects on learning, postponement of our workforce trajectory [4], and the economic, mental, and social impacts of the pandemic on a diverse range of youth, using an asset-based and critical population health lens. It is critical the youth perspective, especially youth from lower socioeconomic conditions [35], be included in pandemic recovery to support safe environments and our wellbeing [10].
4.4. Call to action #4: include youth as stakeholders

Youth are important stakeholders in DRR and pandemic recovery; we would like to be taken seriously as stakeholders with opportunities to participate in decision-making activities, assume leadership roles in DRR and climate change action, as well as pandemic response and recovery initiatives. Youth are not a homogenous population; it is critical to dismantle the dominant classist lens through which major issues like DRR and the COVID-19 pandemic are viewed.

Stakeholders should meaningfully include youth as active stakeholders in pandemic response and recovery planning and implementation [15,36–38]. To support an equity lens in pandemic recovery, research priority 5.1 of the UN [4] Roadmap emphasizes the importance of identifying mechanisms that ensure marginalized populations are included in decision-making, to improve social cohesion and community resilience. Opportunities for high-risk youth (e.g. youth living in poverty) to participate and contribute to DRR are essential to ensure diverse youth voices are included; it will increase the likelihood of successful implementation of recovery solutions [39]. Safe and meaningful youth-adult partnerships are integral for effective intergenerational collaboration [40].

Youth engagement in DRR is a relatively new field of study, and an upstream, asset-based approach to including all-of-society in DRR. Benefits of youth engagement include a sense of empowerment and agency [7,37,38,41]. With the pandemic, we felt an acute sense of lack of agency and control, lack of self-determination and bleak prospects for the future. Opportunities such as coordinating with informal volunteer activities [42], engaging in DRR and pandemic research [15], creating opportunities for youth-led initiatives and organizations, and having a seat at policy and decision-making tables [43] are examples of how adults can partner with youth to collaborate on DRR.

The youth engagement lens requires stakeholders to challenge their current understanding of who qualifies as an ‘expert’ —and to include those with lived experiences [2,13,14]. Youth have the power to create social change either by partnering with adults, or starting their own initiatives; they also have the desire to be included in matters that affect them [7,37,38,41].

4.5. Call to action #5: improve mental health services

In addition to teaching mental health literacy in schools, there should be greater action from government (at all levels) to raise awareness about mental health literacy and how to access mental health resources. We call on the provincial government to improve the accessibility of mental health services by increasing access to in-person services, reducing wait times, providing access to more therapy sessions per person, and offering alternatives to online services for those who might have barriers (e.g. lack of technology or technological expertise). In preparation for the next pandemic or disaster, governments must prioritize the wellbeing of essential workers —increase accessibility to mental health services, increase pay, mandate fair paid sick leave, and improve occupational safety measures.

Our results are consistent with literature on pandemic fatigue [44], compassion fatigue [45–47], and news media fatigue [48,49]. Future studies should explore these experiences through youth engagement, to help improve public compliance with public health measures and protect the mental health of citizens; youth have unique social networks adults often do not have access to, as well as a strong social media presence.

Mental health during the COVID-19 pandemic was an important topic, not only for our team, but for society in general. Feelings of loneliness, fear, uncertainty, and less social connectedness, contributed to negative mental health during the pandemic [10,50–52]. For youth making big life decisions (e.g. post-secondary education, moving out, building independent and romantic relationships, competing for entry-level jobs, etc.) the pandemic exacerbated an already stressful transitional life stage. Future studies should explore the feelings of uncertainty for youth during the pandemic given the unique challenges faced in this delicate stage of development. Strategies to address the mental health impacts of the pandemic should include marginalized populations, including youth, and essential workers [4].
4.6. Call to action #6: apply an all-of-society approach

We emphasized the need for supports for youth, essential workers, and other high-risk populations. We reflected on our privileges, experiences as women, and for some team members experiences as women of colour, and how to create social change for the wider community. The Sendai Framework highlights the need for all-of-society engagement and partnership to reduce risks and improve community resilience to disasters [1]. This requires empowerment through inclusive, accessible, and non-discriminatory participation and community engagement [1,2]. Sustainable strategies are dependent on partnership, participation and ownership by local communities [3].

An all-of-society approach to DRR and COVID-19 would have individuals and communities collaborate with organizations, government and experts to reduce risks [1]; recommendations for this type of approach are well-established in the literature from previous disasters. Throughout the pandemic, examples of local community engagement in DRR shone through, such as “Cooking for a Cause Ottawa” organized by the Parkdale Food Center in which the community helped respond to the food insecurity exacerbated by the pandemic [53]. Given the global interdependence amongst people, systems, and generations, and the need for transformative change for an equitable, resilient, and sustainable future [4], an all-of-society approach to DRR and COVID-19 recovery is an inclusive and human rights centered strategy to address and harness our shared risks and responsibilities.

4.7. Limitations

Our study has several limitations which are important to consider. Our group is small, and we live in the same city. While we have racial diversity in our group, we all do well academically, and we all identify as female. Because of our involvement in the EnRiCH YRT, all members of our group were familiar with the university researchers prior to starting the Photovoice project. While our prior experiences with the team limited broader recruitment for participation in this study, it provided a strong foundation for rapport and engagement. We recommend future studies recruit a diverse array of youth voices to expand on the findings from this study.

5. Conclusion

Our community-based participatory approach to data collection provided an opportunity for high school students and university students to collaborate and add our voices to research on the COVID-19 pandemic. Youth are important stakeholders in DRR and building back better during pandemic recovery. An upstream, asset-based approach is needed to complement and promote an all-of-society approach to DRR, and post-pandemic recovery. Inclusive engagement of diverse youth will support public health and DRR practitioners in reducing disaster risks and improve community resilience. The tapestry of disasters is changing – so too should the faces of those working to reduce risk and improve community resilience.

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Declaration of competing interest

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Data availability

The data that has been used is confidential.

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