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Research Article

Creative activity as a coping mechanism for the COVID-19 Pandemic

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Abstract

This study explored the use of creative activities as a coping mechanism for the COVID-19 pandemic. Students, as well as social media participants, were asked to describe some of the activities they undertook during the months of quarantine from February to August of 2020. It was expected that individuals who actively participated in creative tasks, such as painting, yoga, or writing, would exhibit greater resilience to the negative effects of social isolation. An online survey was administered to participants both at a university and in the community. Participants assessed their emotional state two weeks prior to participating in the study, described a creative activity they did, the motivation behind choosing it, how it made them feel, as well as their attitudes toward the pandemic. Participants feeling the most adverse effects of COVID-19 turned to creative activities as an outlet for their negative emotions. This finding indicates that creativity may have therapeutic effects for individuals struggling with the COVID-19 pandemic. A positive correlation was found between a positive outlook towards the pandemic and both intrinsic and extrinsic motivations for choosing the activity, resulting in greater commitment to the activity.

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Introduction

While quarantined during the Bubonic Plague in 1606, Shakespeare wrote King Lear, Macbeth, and Antony and Cleopatra (Pringle, 2020). Around the same time, in 1665, Isaac Newton was forced to leave his studies at Cambridge due to social distancing orders and began his year of discoveries. During this time, Newton formulated his theory of gravity, discovered differential and integral calculus, and studied optics (McDonald, 2020). Although the last major pandemic was the flu pandemic of 1918, there have been other pandemics such as H1N1 as recently as 2009 (CDC, 2018). However, the COVID-19 pandemic, which has affected the lives of people all over the world in 2020, is the first pandemic in the era of social media in which lockdown was enforced. With the rapid spread of COVID-19, quarantine strategies such as lockdown, self-isolation, curfews, and limited gatherings have been imposed. This new way of life has been difficult for many people to adjust to and has even elicited feelings of anxiety and loneliness (Usher, Bhullar, & Jackson, 2020).

Isolation and Mental Health

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Isolation is defined as the experience of being separated from others. Moreover, social isolation results from the absence of social relationships. This can be due to prolonged time spent alone or the lack of meaningful social and professional relationships (GoodTherapy, 2020). According to Holt-Lunstad, loneliness and perceived social isolation are more harmful to physical and mental health than obesity (Holt-Lunstad, Smith, & Baker, 2015). Situational loneliness, caused by external or environmental factors, has been linked to depressive symptoms, lower life satisfaction, and increased pessimism (Mushtaq et al. 2014). In July of 2020, CAMH reported that since the onset of the COVID-19 pandemic, 50% of Canadians experienced a decline in mental health. Studies have linked the experience of quarantine to symptoms of anxiety, depression, and PTSD (CAMH, 2020). However, a plethora of research has shown that physical activity can have a significantly positive effect on mental health (Darongkamas, Scott, & Taylor, 2011). This evidence has led to the inclusion of physical activity in mental health treatment (Crone, 2007). In fact, out of the 19 participants involved in the Mindful Exercise Project, aimed at improving physical and mental health in adults, all the participants reported improvements in their wellbeing and 56% reported feeling less depressed overall (Darongkamas, Sott, & Taylor, 2011). Simply taking a scenic walk can provide a sense of purpose, aid with difficulties sleeping, and improve wellbeing (Crone, 2007).

Creativity and Mental Health

While prolonged periods of time spent in social isolation have led to increased levels of anxiety and depression, this has also been a time for individuals to focus on their hobbies and create new things as they spend more time at home. While some have taken the time to learn to cook through *YouTube* videos, others have learned new dance moves on *Tik Tok,* and yet others have spent hours catching up on *Netflix* series. Although there is no right or wrong way to quarantine, some activities might provide a better coping mechanism for dealing with COVID-19 isolation than others. According to Reynolds, art activities may promote psychological wellbeing (Reynolds, 2000). In a study by Schall et al., (2018), merely viewing art in a museum helped improve subjective wellbeing, mood, and quality of life in people with dementia (Schall et al., 2018). Furthermore, partaking in creative activities has the potential to reduce stress and improve mental wellbeing (Leckey, 2011).

In a study conducted by Caddy, Crawford, and Page (2012), at a hospital in Perth, Australia, it was found that art therapy provided significant improvements in mental health. Patient data were analyzed over a five-year period, between 2004 and 2009, and it was discovered that 403 psychiatric inpatients who had frequented an art therapy group during this time showed a greater reduction in their symptoms post-treatment than other patients. Patients were compared on four different psychometric measures, including the *Depression and Anxiety Stress Scale (DASS -21).*

Those that had been to art therapy showed a significantly greater degree of clinical change from admission into the hospital to discharge (Caddy, Crawford, & Page, 2012).

However, for creative activity to have therapeutic outcomes, it must actually provide value and meaning to individuals and give them a sense of purpose (Griffiths, 2009). Griffiths found that creative activity can be used as a treatment medium in therapy for various mental health problems. Most notably, activities that involved higher levels of engagement and choices resulted in participants feeling more relaxed and peaceful after the therapy (Griffiths, 2009). In a study by Reynolds (2000), the experiences of 39 women who used needlecraft to cope with depression were documented. The level of concentration involved in needlecraft work was described by most of the women as providing a distraction from their worrying and depressive thoughts (Reynolds, 2000). Corry (2013) goes so far as to suggest that creativity is the ideal coping mechanism due to its transformative properties. Through creative activity, individuals have the power to adjust their perspectives, expectations, and acceptance of negative situations. This may lead to an integration of emotional, physical, cognitive, and social functioning (Corry et al., 2013).

The Present Study

While many studies have found a link between creative activity and mental wellbeing, there is still a gap in research when it comes to coping with mental health during the COVID-19 pandemic. The present study looks at the ways that

individuals used creative activities to cope with social isolation from the beginning stages of the COVID-19 lockdown and measures levels

of engagement involved in completing the tasks. It is expected that active creative activities, such as learning a new dance routine, painting, or crochet, serve as a better coping mechanism for dealing with the pandemic than more passive activities such as watching television. Furthermore, it is expected that a higher degree of intrinsic motivation in completing the creative activity will have a better outcome on mental health. Intrinsic motivation refers to a disposition or tendency to seek a challenge, explore, and participate in engaging activities (Deci & Ryan, 2009). Being intrinsically motivated to complete a task means to do so purely for the enjoyment that it provides (Seifert & Hedderson, 2010), which in turn facilitates the creative process even further (Yuan et al., 2019).

Consciously choosing a creative activity with a goal in mind to complete the activity for mental health benefits can also be referred to as self-regulation. Self-regulation is a process that involves problem solving to set goals, achieve those goals, and reduce barriers to the goals (Leventhal, Brissette, & Leventhal, 2003). Self-regulation does not only involve physical processes, but the awareness of emotions and feelings as well. Perceived threat and the social context surrounding the threat is important when deciding on an action plan for coping with the threat (Leventhal, Brissette, & Leventhal, 2003). Leventhal (2016) uses the "Common-Sense Model" to describe how behavioral and cognitive processes come together in self-regulation and coping with health threats. The CSM model looks at the specific rules that highly self-regulated people implement when coping with health threats and the factors that prevent non-self-efficacious people from committing to a specific action plan (Leventhal, Phillips, & Burns, 2016).

Creative activity may serve as a self-regulating mechanism in coping with stress and anxiety about the pandemic. Individuals who are aware of their emotions and actively seek activities that allow them to express negative feelings about the pandemic are expected to have an overall more positive outlook towards the COVID-19 pandemic.

Method

Participants

Two hundred and nineteen participants (50 male, 167 female and 2 identifying as other) voluntarily completed a writing task followed by two questionnaires. 101 participants were from social media platforms such as *Reddit* and *Facebook,* who volunteered to participate either through a survey exchange or for personal enjoyment. 118 participants were enrolled in Introductory Psychology courses at a Canadian university and took part in the study in exchange for course credit.

Research Model and Self-Report Measures

The research model involved a combination of university students and members of the Reddit online community who completed self-report quantitative and qualitative measures. The qualitative measure described a personally meaningful creative episode completed during the pandemic. The quantitative measures related to the respondent's emotional state just prior to participating in the online study, a subjective assessment of the effects of the pandemic on health and personal life, and a reflection on the role of the described creative activity in ameliorating the effects of the pandemic.

Emotions. This 12-item self-report was used to assess prevailing emotions during two weeks prior to the study (Cupchik, 2020) including, for example *anger, fear, happiness,* and *anxiety.* Participants were asked to rate how often they experienced these emotions on a 7-point Likert Scale (1= not at all, 4= more than half the days, 7= nearly every day). Items 2, 6, 8, 11, and 12 were related to positive emotions and items 1, 3, 4, 5, 7, 9, and 10 were related to negative emotions (see Appendix A for the Emotions measure).

Creative Activity Episode Recollection. Participants were asked to recall one specific creative activity that they did alone during the months of lockdown (February 2020 to August 2020). They were then required to describe one episode in which they completed this activity using a minimum of 150 words. The episode recollection needed to include the reason for choosing the activity, the feelings involved while completing the activity, and the context surrounding the

activity. The purpose of this task was to identify different types of creative activities and how they were related to self-reported emotions and feelings about the pandemic.

Activity Reflection. After describing the activity, participants completed the 10-item *Activity Rating Scale.* Participants rated the activity on different scales related to valence, stimulation, skills required, and connectedness with others on a 7-point Likert Scale (1= disagree strongly, 7= agree strongly). An example of a question from the Activity measure is "The activity helped reduce feelings of anxiety about the pandemic." Items 1, 2, 4, 5, 7, 8, and 9 were related to intrinsic values for completing the activity while items 3 and 10 were related to community outreach and connectedness with others (see Appendix A for the Activity measure).

COVID-19 experiences. A second 10-item self-report was administered to participants to assess the effects of COVID-19 on emotional, physical, social, and economic realities. For example, participants were asked to agree or disagree using a 7-point Likert Scale with phrases such as "COVID-19 has affected my work/school routine." Items 6, 7, and 8 were related to positive effects of the pandemic, such as having more time for family, while items 1, 2, 3, 5, and

9 were related to negative effects of the pandemic, such as anxiety about contracting the illness (see Appendix A for COVID-19 measure).

Procedure

The full survey was administered using Google Forms. A link to the survey was posted on *Survey Exchange Groups* and *Art and Creativity Groups* on *Facebook*, as well as *Art* and *Survey* subreddits on *Reddit*. For University students, the survey was administered through a course platform where a link was provided to the form. Anonymity of the students was preserved and the study had received prior ethical approval from the university.

Participants were presented with an introduction to the study and a Consent before continuing with the study. The first part of the study included demographic questions such as age/year of study, gender, and profession. The next part of the study was the Emotions measure. Participants were then asked to do the Episode Recollection writing task, after which they completed the Activity Rating and the COVID-19 measure. At the end of the study a debriefing section was provided. This included the purpose of the study and the expected findings. Respondents were also provided with contact information for any questions or concerns they may have regarding the study.

Results

Overview

Responses to the Emotions, Activity, and COVID-19 measures were analyzed using principal components factor analysis (PCA). Pearson correlations were then conducted to determine correlations among the different measures. Regression scores from the PCA, also known as subject weights, were used when correlating factors across measures and to select narratives based on participant experiences.

Emotions. Principal components factor analysis with varimax rotation was performed on responses to the Emotions measure representing affective state during the two weeks prior to participating in the study (N= 219). Two factors with Eigenvalues greater than 1.00 were found that accounted for 60.10% of the total variance. The factors were labeled: (1) Negative and (2) Positive emotions (see Table 1).

Factor 1, *Negative emotions,* accounted for 35.83% of the variance. The items with loadings of .50 or greater were: feelings of sadness over the last two weeks (.84), feeling depressed (.83), feeling anxious (.80), feelings of fearfulness (.75), feeling angry (.72), feelings of guilt (.70), and feelings of loneliness (.69).

Factor 2, *Positive emotions*, accounted for 24.30% of the variance. The items with loadings valued at .50 or greater were feeling: hopeful (.84), interested (.82), happy (.77), grateful (.73), and surprised (.51).

Table 1.

Factor Analysis of the Emotions Questionnaire

Factors	Eigenvalues	Items	Loadings
Factor 1. Negative emotions	4.30	Item 4. Sad	.84
		Item 7. Depressed	.83
		Item 5. Anxious	.80
		Item 3. Fearful	.75
		Item 1. Angry	.72
		Item 10 Guilty	.70
		Item 9. Lonely	.69
Factor 2. Positive emotions	2.91	Item 6. Hopeful	.84
		Item 8. Interested	.77
		Item 2. Happy	.82
		Item 12. Grateful	.73
		Item 11. Surprised	.51

COVID-19 Measure. Principal components factor analysis with varimax rotation was also performed on the combined social media and student responses to the COVID-19 questions (*N*= 219). The first analysis produced three factors with Eigenvalues of 1.00 or greater which accounted for 56.69% of the variance. Items 4 ("I have struggled to connect with my family and friends") and 10 ("I am resilient and able to cope with changes in my life") were dropped from the analysis due to cross loading on two or more factors. In the final analysis, two factors with Eigenvalues of 1.00 or greater were derived, accounting for 48.47% of the variance. The factors were: (1) Positive features of the COVID-19 pandemic, and (2) Negative features of the COVID-19 pandemic (see Table 2).

Factor 1, *positive responses to the pandemic*, accounted for 24.25% of the total variance. This factor included all the positive aspects of social distancing and quarantine. The items with

loadings of .50 or greater were: "I have been able to slow down and spend more time with the people closest to me" (.81), "I have spent more time doing things I enjoy" (.81), and "I am optimistic that the current situation will improve" (.70).

Factor 2, *negative reactions to the pandemic*, accounted for 24.22% of the variance. Factor 2 encompassed the negative aspects of quarantine and isolation. The items with loadings of .50 or greater were: "I have struggled to adjust to societal changes from COVID-19" (.72), "my personal finances have been negatively affected" (.62), "my social life has been negatively impacted by the pandemic" (.62), "my work/school routine has been affected" (.56), and "I am anxious about my health and contracting COVID-19" (.56).

Table 2.

Factor Analysis of the COVID-19 Questionnaire

Factors	Eigenvalues	Items	Loadings
Factor 1. Positive features	1.94	Item 7. Slowed down and spent time with people close to me	.81
		Item 6. Spent more time doing enjoyable things	.80
		Item 8. Optimistic that the situation will improve	.70
Factor 2. Negative features	1.94	Item 2. Struggled to adjust to societal changes	.72
		Item 3. Personal finances were negatively affected	.62
		Item 5. Social life was negatively impacted	.62
		Item 1. Work/school routine was affected	.56
		Item 9. Anxious about health and contracting COVID-19	.56

Activity Measure. A principal components factor analysis with varimax rotation was performed on the participants' responses to the activity ratings (*N*= 219). The first analysis produced two factors with Eigenvalues of 1.00

or greater, accounting for 50.25% of the variance. Item 6 ("The activity helped me reduce feelings of isolation") was dropped from the analysis due to cross loading on both factors. After removing item 6, the analysis produced two factors with Eigenvalues of 1.00 or greater, accounting for 51.63% of the variance. The factors were labeled:

(1) Intrinsic reasons for choosing the activity, and (2) Connectivity reasons for choosing the activity (see Table 3).

Factor 1, *intrinsic motivation*, accounted for 37.10% of the variance. This factor was about internal motivators for choosing the creative activity. The items in factor 1 with loadings of .50 or greater were: "the activity was helpful in coping with the pandemic" (.80), "the activity was stimulating" (.75), "helped reduce feelings of anxiety about the pandemic" (.73), "felt a sense of accomplishment when completing the activity" (.70), "provided an escape from reality" (.61), "the extent of positive versus negative feelings involved when recollecting the episode" (.60), and "the use of personal skills" (.60).

Factor 2, *outreach motivation*, accounted for 14.54% of the variance. Items in this factor related to external motivators for choosing the activity, such as the need to connect with others. The items in factor 2 with loadings of .50 or greater were: "influenced by social media in choosing the activity" (.74) and "felt more connected with friends and family" (.72).

While some creative activities were chosen purely out of boredom, others were chosen for the value that they provided. *Intrinsic reasons* for choosing an activity included improving personal skills and providing an outlet for negative emotions. Alternatively, *connectivity motivation* for choosing an activity focused on social media and family as determining factors. High scores on both *intrinsic* and *connectivity motivations* were related to Episode Recollection paragraphs focusing on themes such as motivation, goals, and completion.

Table 3.

Factor Analysis of the Activity Questionnaire

Factors	Eigenvalues	Items	Loadings
Factor 1. Intrinsic Reasons	3.34	Item 7. Helpful in coping with the Pandemic	.80
		Item 9. Extent that the activity was Stimulating	.75
		Item 2. Helped reduce feelings of anxiety about the pandemic	.73
		Item 1. Felt a sense of accomplishment when completing the activity	.70
		Item 4 Provided an escape from reality	.61
		Item 8. Positive versus negative feelings involved when recollecting the episode	.60
		Item 5. Use of personal skills	.60
Factor 2. Connectivity Reasons	1.31	Item 10. Influenced by social media in choosing the activity	.74
		Item 3. Felt connected with friends and family	.72

Qualitative Illustrations of the Activity Factors

Subject weights from the regression scores were used to select the 10 highest scores and 10 lowest scores on Factors 1 and 2 of the Episodes Recollection measure. The following are examples from the two highest and two lowest regression scores for each factor.

Factor 1 (Top). Participants scoring the highest on Activity Factor 1, *intrinsic motivation*, showed more commitment and dedication to their creative activities which centered around personal goals. Participant 122, with one of the highest regression scores (1.44) in the Activity factor 1, displayed a very intrinsic motivation for choosing the activity. This participant was motivated by personal fitness goals. Additionally, Participant 123, with a regression score of 1.37, relied on the activity to provide a cathartic experience. Both participants showed a high incentive for choosing and completing their activity.

Participant #122, male:
During the pandemic, I started working out way more for so many reasons.... I started to work out because I was motivated by the people around me and because I already started before gyms closed. .... A milestone I hit was benching 170 pounds and I weigh 165... My bench has increased from 135 to 170 in about a month so I know Im doing something right. Overall, Im just really motivated which is why I started/continued working out during the pandemic. Also, it relieves a lot of stress and energy which is good for my mental health.

Participant # 123, female:
One creative activity that I did alone during the pandemic, which greatly helped me cope with the situation was write poetry.....I had actually stopped writing poetry for a while before the pandemic, as I got busy but what promoted me was I had a whole bunch of emotions going through me. I felt angry, sad, hurtful, lost, and especially alone even with family....I did break down while writing, but it was a more healthy option for me rather than exploding. In the poem, I said everything i had to and the words just flowed like a river. I wrote pages and pages, turned out to be a long poem but it was worth it. I gained a sense of calm and peace after that poem which I hadn't had in a long time. The calm and peace is what got me through the pandemic and kept me going....

Factor 1 (Bottom). Participants scoring low on Activity Factor 1 showed low intrinsic motivation for completing their creative activity. These participants tended to choose the activity out of boredom and not having anything else to do. For example, Participants 101 and 145 had the lowest regression score (-2.86 and -2.85 respectively) in Factor 1, and this is evident in the paragraphs written, which center around losing interest and giving up on the tasks.

Participant # 101, female:
The creative activity was making a crochet animal toy. I had been feeling very down and frustrated because of the lockdown, so I made the conscious decision to do something I usually enjoyed doing to try improve my mood. I had intended to make a wolf and started with some grey thread, for some reason it wasn't working so I switched to another color....I had not spend much time on the activity before I lost interest and gave up, I think it might have been around 15 minutes (usually crocheting small characters/animals takes me half a day to complete). I didn't feel any better, perhaps worse because I couldn't find the motivation or any enjoyment in crocheting like I usually did.

Participant # 145, female
I drew flowers and leaves on my old shoes with markers. I was really bored at home during March since that's when school switched to online....I saw this guy on YouTube who painted shoes and it looked really cool so I decided to draw on the shoes. It was fun at the time while drawing on the shoes, however I never drew on a second pair and I never wore those shoes....it made me feel less bored at the time but afterwards I again became bored since it did not take that long.

Factor 2 (Top). Factor 2 represented *connectivity motivations* for engaging in activities. The 10 highest scores and the 10 lowest scores were then compared in terms of descriptions of the chosen activities. The following are examples from the two highest and two lowest Factor 2 regression scores. High regression scores reflect a greater need for connectedness with others and an external motivation for choosing the activity. The responses focused on social media as an influencer for the activity and quality time with family being of importance when completing the task. Participant 37 had the highest score (2.37) on Activity Factor 2. Participant 144 came next, with a regression score of 2.13. Both participants wrote paragraphs about an external influence that motivated them to reach a creative goal.

Participant # 144, female
I tried to learn and improve on my drawing skills. It was the videos and posts online that prompted me to do these due to all the hacks and shortcuts that I learned. I was excited and looking forwards to what I was about to create since I haven't been able to draw much in high school. I had a full day picnic with my sister where we took

our sketch pads and drew cool things using cool techs and hacks. It made me feel happy and in control as I was in charge of something while exploring something new which isn't the case usually when I learn something new.

Participant # 37, female
I decided to keep my body healthy through doing intermittent diet....I started doing home workouts which includes body weight workout, resistance band workout, indoor cycling and lifting weights. This decision was made as I got bored of baking and overeating and felt like it was time to use this 'never ending' quarantine time to do something productive. I felt more confident and healthier after making this decision and implementing it. I also had a workout buddy, my mom, to keep me accountable. On days I feel like slacking she will motivate me.

Factor 2 (Bottom). Participants scoring the lowest on Activity Factor 2 exhibited the least extrinsic motivation for choosing their creative activities. Their accounts had a pessimistic tone and focused on a desire to escape feelings of loneliness but with little motivation to do so. Participants 91 and 176 scored very low on factor 2 (-2.67 and -1.96), suggesting that external influence was not a key component in choosing the activity. Both participants displayed incoherence in their paragraphs. Themes of alienation and being stuck in a negative situation were common in both paragraphs.

Participant # 91, female
I took time between my schoolwork to write a song. I had not written music in a while and my stress and anxiety were at a peak. I had no sense of control and it was the only thing that I could do as an outlet for all of this emotion. It was rather a cathartic experience....The tears began to stream down my face and I could not stop. The song became a prayer for revival, truth, freedom, and restoration from the alienation that we were experiencing. Being cut off from the world did something that made the strongest powerless. There was nothing that we could do. So we waited until we could once again venture out and even then it was not the same.

Participant # 176, female
I have re-sparked my interests in arts but essentially only arts.... learned how to digitally compose multiple genres of music....I began to draw on paper again, learned how to use drawing tablets, and began learning how to animate as well....When I began, and honestly still up to this point, I still felt hollow, I made what would be considered quite a tremendous amount of progress in a short period of time however it is not unnatural for me to do so.... I give up and move on as quickly as I pick these things up, as a result I have a fairly surface level knowledge about many things, yet no real passion I've held on to for longer than a period of maybe two months at a time....

Correlations

Seven significant correlations were found when analyzing the data from the Emotions, Activity, and COVID-19 measures. Factor 2 of the Activity measure, *connectivity motivation*, correlated positively with the experience of positive emotions over the two weeks prior to the study, $r = .26$, $p < .01$. Participants who had chosen an activity involving feeling connected to others reported higher levels of positive emotions such as "happiness' and "gratefulness." As expected, Factor 1 of the COVID-19 measure, *positive features of the pandemic*, correlated positively with Emotions Factor 2, *positive emotions*, $r = .34$, $p < .01$, and negatively with Emotions Factor 1, *negative emotions*, $r = -.28$, $p < .01$. Viewing the pandemic as a time for doing enjoyable things was associated with experiencing positive emotions, such as "hope," and "interest" more often and negative emotions, such as "loneliness" and "anxiety," less often.

Factor 1 of the COVID-19 measure was also positively correlated with both Factor 1, *intrinsic motivation,* $r = .23$, $p.01$, and Factor 2, *connectivity motivation*, $r = .30$, $p < .01$, of the Activity measure. Participants who viewed the pandemic as a good time for doing enjoyable things were also more motivated to complete creative tasks, either intrinsically or extrinsically. They showed more commitment to the activity and, overall, more positive descriptions of their activity in the writing tasks.

Conversely, Factor 2 of the COVID-19 measure, *negative features of the pandemic*, was positively correlated with Factor 1 of the Emotions measure, *negative emotions over the last two weeks*. Participants who experienced the most adverse effects of COVID-19 also reported more negative emotions overall, $r = .27$, $p < .01$. However, the most crucial finding was that Factor 2 of the COVID-19 measure was positively correlated with Activity Factor 1, $r = .23$, $p < .01$. Participants experiencing the most adverse effects of the pandemic reported highly intrinsic reasons for choosing their creative activities. These participants were internally motivated to turn to activities such as poetry, painting, or music as ways to cope with the negative circumstances around them. They described the activity as an outlet for their emotions, a kind of catharsis, suggesting that the activity could be a mediator between negative effects of the pandemic and negative emotions overall.

These findings are in line with the Intrinsic Motivation Hypothesis of Creativity. Intrinsic motivation fuels creativity (Minney, 2016). In turn, creative art activities can promote psychological wellbeing. Consistent with Reynolds' (2000) findings, using creative tasks to cope with adversity provides an outlet for negative emotions such as depression and anxiety. Furthermore, tasks that are intrinsically meaningful and provide a sense of purpose are central to overcoming feelings of hopelessness and despair (Spandler et al., 2007).

Discussion

The purpose of this study was to examine the power that creative activities can have in coping with the COVID-19 pandemic. The pandemic has affected the lives of almost everyone worldwide to some degree. For many, the "normal" way of life has been disrupted due to imposed quarantine, social distancing, and restrictions (Bhullar & Jackson, 2020). While the virus itself poses a physical threat, the repercussions of isolation can pose an emotional threat. We are now faced with the challenges of both danger control and emotional control as we navigate through this new way of life. We must take precautionary measures to avoid contracting the virus and passing it on to others by social distancing and maintaining personal hygiene. But we must also learn to cope with the anxiety surrounding health and isolation (Cupchik, 2020). However, as mentioned by Spandler (2007), having a sense of purpose and meaning is central to mental health recovery, and participating in art offers a range of positive therapeutic benefits. Engaging in creative activities in general can reverse feelings of hopelessness, despair, and anxiety about the future (Spandler, 2007). The present study combined beliefs about creativity and mental health and tested them against attitudes towards the pandemic.

Attitudes Toward the Pandemic

One of the most significant findings of this study was that participants reported both positive and negative features of the pandemic. Negative features involved anxiety about contracting the illness and struggling to adjust to the new way of life. This was expected, as the pandemic has caused the breakdown of both physical and mental barriers that normally separate work/school from home/private life (Cupchik, 2020). However, some positive features that were reported involved having more time to do enjoyable things and being able to spend more time with family. Participants who reported these positive features were also more optimistic that the current situation would improve. Overall, participants who thought of the pandemic as a time for doing positive things reported feeling more positive emotions, and fewer negative emotions, over the past two weeks prior to the study. Similar to the Chinese logogram for the word 'crisis,' which is composed of the signs for both danger and opportunity, these participants were able to see an opportunity amidst chaos, which helped them to better cope with the negativity around them. Alternatively, participants who were not able to think of any positive aspects of the pandemic reported feeling more negative emotions leading up to the study.

Emotion Regulation

Whether participants held positive beliefs or negative beliefs about the pandemic, both groups benefited from participating in creative activities. Choosing a creative activity to do during the pandemic was either stimulated by an intrinsic motivation or by the desire for connection with others which was strongly correlated with overall positive

emotions. Having a strong motivation for choosing the activity, whether the motivation was intrinsic or extrinsic, was correlated with overall positive attitudes toward the pandemic. However, the more negative a person's attitudes towards the pandemic, the more intrinsic the reasons were for taking up a creative activity. Participants who felt the strongest negative effects of the pandemic were also compelled to regulate their own emotions through cathartic activities such as writing poetry. Understanding their own emotions was central to coping with the negative changes in their lives. This finding is in line with a study by Leventhal, Singer, and Jones (1965), which suggests that some level of fear and arousal is necessary for producing a change in behavior. However, since the present study was mainly interested in participants who had participated in a creative activity during the pandemic, there is a lack of evidence to suggest that those experiencing the most adverse effects were turning to creativity to regulate their emotions. Nevertheless, turning to creative activity may serve as a form of emotion regulation for stressful events.

Building Resilience

Using creativity as an outlet for negative emotions may help build resilience during hardship. In the COVID-19 study by Cupchik (2020), students who measured high in resilience were also more in-touch with their feelings. When speaking about their problems, they also spoke about how they dealt with the problems. They were also more critical in their approach to coping with stressful situations and actively sought ways to regulate their emotions (Cupchik, 2020). Similarly, in the present study, participants who were aware of their negative emotions and wanted to overcome these emotions used creative activities to do so. They showed an active need to self-regulate and more commitment to the task. This could possibly be related to perceived locus of control. Participants who felt the negative effects of COVID-19 but chose to change the aspects of their lives that they were able to control, such as the types of activities they did indoors, exhibited greater emotion regulation than participants that did not actively seek to make any changes. Perceived control can have a huge impact on wellbeing, and an internal locus of control has even served as a buffer for decreased immune function in patients with major depression (Reynaert et al., 1995).

Further research should look at the extent that creative activity provides a sense of control during a stressful event. It may also be important to look for differences between individuals working/studying from home versus those that are considered "essential" as each group may have a different source of anxiety. Furthermore, it would be interesting to see the differences in coping between individuals who already had creative tendencies prior to the pandemic and those who turned to creativity because of the pandemic.

Biodata of Authors

Julinda Seydini graduated from the University of Toronto, Scarborough Campus with a BSc in Psychology in 2017. Since then, she has been working as a Financial Advisor at CIBC bank in Toronto while also volunteering in psychology labs and doing independent research. In 2020, she partnered with Professor Gerald Cupchik on a research study looking at how creative activity was used as a way to cope with the COVID-19 pandemic. She is now studying for her masters degree in counselling and psychology at Yorkville University in Toronto. She hopes to become a psychotherapist and implementing creativity to cope with anxiety and depression. Her interests include creative expression, interpersonal relationships, and mental health.

Gerald Cupchik has been a professor of psychology at the University of Toronto since 1974. He was president of three international organizations, including: IAEA, the International Association for Empirical Aesthetics (1990-94), Division 10, Psychology and the Arts, of the American Psychological Association (1996-97), and IGEL, the International Society for the Empirical Study of Literature (1998-2000). He received the Rudolf Arnheim Award in 2010 from the APA and the Gustav Fechner Award in August 2018 from the International Association for Empirical Aesthetics, both for distinguished research and service. He published *The aesthetics of emotion: Up the down staircase of the mind-body* in 2016 (Cambridge University Press).

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Appendix A

Creative Activity During COVID-19 Questionnaire

Creative Activity During COVID-19 Questionnaire

Demographics

What gender do you identify with?

1. Male
2. Female
3. Other

What age group do you pertain to?

1. 18-22
2. 23-30
3. 30-40
4. 40 and over

What is your occupation? (For social media only)

1. Student
2. Working full-time
3. Working part-time
4. Unemployed

What year of study are you currently in? (For SONA only)

1. First year
2. Second year
3. Third year
4. Fourth year
5. Fifth year +

Emotions Over the Last Two Weeks

On a scale of 1 to 7, to what extend do each of the following emotions apply to you over the last two weeks? Pick one that applies.
(1= not at all, 4= more than half the days, 7= nearly every day)

1. _____Angry
2. _____Happy
3. _____Fearful
4. _____Sad

1. _____Anxious
2. _____Hopeful
3. _____ Depressed
4. _____Interested

1. _____ Lonely
2. _____ Guilty
3. _____ Surprised
4. _____Grateful

COVID-19 Questionnaire

Think about how the COVID-19 pandemic has affected you. Answer the following questions using 1= Disagree Strongly, 2= Disagree, 3 = Somewhat Disagree, 4= Neutral, 5= Somewhat Agree, 6 = Agree 7= Agree Strongly

1. COVID-19 has affected my work/school routine.
2. I have struggled to adjust to societal changes from COVID-19.

3. My personal finances have been negatively affected.
4. I have struggled to connect with my family and friends.
5. My social life has been negatively impacted by the pandemic.
6. I have spent more time doing things I enjoy.
7. I have been able to slow down and spend more time with the people closest to me.
8. I am optimistic that the current situation will improve.
9. I am anxious about my health and contracting COVID-19.
10. I am resilient and able to cope with changes in my life.

Episode Recollection

While most of the city was in lockdown during the months of February to August of 2020 due to the COVID-19 pandemic, more time was spent at home. Think back to the last 6 months and try to recollect ONE specific creative activity that you did alone that helped you cope with the pandemic.

Think of one specific episode when you did this creative activity. What was the creative activity and what prompted you to do this? What were your thoughts and feelings leading up to the activity? Describe the context in which the activity occurred. How did this make you feel?

Provide your answer below using a minimum of 150 words

Activity Rating

Please rate your activity on the following scales
1= Disagree Strongly, 2= Disagree, 3= Somewhat Disagree, 4= Neutral, 5= Somewhat Agree, 6= Agree, 7= Strongly Agree

2. I felt a sense of accomplishment when completing the activity
3. The activity helped reduce feelings of anxiety about the pandemic
4. I took part in the activity to feel more connected with my friends/family
5. The activity provided an escape from reality
6. The activity allowed me to use my skills
7. The activity helped me reduce feelings of isolation

Please note the rating scale has changed.

8. To what extent was the activity helpful in coping with the pandemic? (1= not at all helpful, 7= extremely helpful)
9. To what extent were positive or negative feelings involved when recollecting the episode? (1= extremely negative, 7= extremely positive)
10. To what extent was the activity stimulating? (1= not at all stimulating, 7= extremely stimulating)
11. To what extent were you influenced by social media in choosing this activity? (1= not at all influenced, 7= extremely influenced)