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Parenting Through a Pandemic: Mental Health and Substance Use Consequences of Mandated Homeschooling

S. Hélène Deacon¹, Lindsey M. Rodriguez², Mariam Elgendi¹, Fiona E. King¹,
Raquel Nogueira-Arjona¹, Simon B. Sherry¹, and Sherry H. Stewart^{1, 3}

¹ Department of Psychology and Neuroscience, Dalhousie University

² Department of Psychology, University of South Florida St. Petersburg

³ Department of Psychiatry, Dalhousie University

The declaration of coronavirus disease 2019 (COVID-19) as a pandemic led to the closures of schools worldwide to contain disease spread. In the present study, we examine the effects of this mandated homeschooling on parents' mental health and substance use. In a study of 758 couples, 211 of whom were homeschooling, we contrasted homeschooling effects on general mental health (anxiety and depression) and on COVID-specific mental health (socioeconomic and traumatic stress), and on optimism. We also examined effects on coping-related use of alcohol and cannabis. Actor-partner interdependence model results demonstrated negative impacts of mandatory homeschooling; there were significantly lower levels of optimism and greater use of cannabis to cope and marginally higher use of alcohol to cope in couples who were versus were not homeschooling. These levels were higher than prepandemic norms. We then explored the parenting dynamic through actor and partner effects. Among homeschooling families, more time spent homeschooling was associated with increased anxiety, depression, and COVID-19-specific socioeconomic and traumatic stress in the homeschooling parent; for the homeschooler's partner, there was significantly increased alcohol use to cope and marginally increased traumatic stress. These findings highlight the need for the design and delivery of educational and mental health supports for parents during mandatory homeschooling required for COVID-19 and other pandemics—so that parents can best support their families through these uncertain times.

Keywords: COVID-19, parenting, mental health, substance use, homeschooling

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Mariam Elgendi  <https://orcid.org/0000-0002-9827-8873>

Fiona E. King  <https://orcid.org/0000-0003-1128-1998>

Raquel Nogueira-Arjona  <https://orcid.org/0000-0002-5998-701X>

Sherry H. Stewart  <https://orcid.org/0000-0003-3350-2712>

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Correspondence concerning this article should be addressed to S. Hélène Deacon, Department of Psychology and Neuroscience, Dalhousie University, P.O. Box 15000, Halifax, NS B3H 4R2, Canada. Email: Helene.Deacon@dal.ca

In the spring of 2020, schools, along with businesses and workplaces, were closed in response to coronavirus disease 2019 (COVID-19) being declared a global pandemic (World Health Organization [WHO], 2020), leaving more than 90% of the world's young people out of school (UNESCO, 2020). Internationally, public health measures such as school closures were recommended to keep viral spread under control (Cowling & Aiello, 2020). Indeed, in September of 2020, children the world over returned to school after what has been described as the “largest disruption of education ever” (Guterres, 2020). And yet, the movement out of lockdown has not been smooth; countries around the world continue to grapple with the relative costs and benefits of different containment measures and reopening

plans. For education, the relative value of closing schools for the physical health of individuals has been contrasted against the potential benefits of keeping schools open for children's social development and education and to enable full economic recovery. Another key factor to consider lies in the consequences of school closures on parents' mental health and substance use. Data on these outcomes are essential to informing policy decisions, both for the continuing COVID-19 pandemic and other large-scale health emergencies on the horizon.

There have been widespread predictions that the psychological footprint of the COVID-19 pandemic and associated containment responses will far exceed the medical footprint (e.g., Brooks et al., 2020). Indeed, a "COVID stress syndrome" has been suggested that includes economic concerns about the pandemic and traumatic stress reactions (Taylor et al., 2020a). Others have warned that increased substance use may be another inadvertent consequence of the COVID-19 lockdown (Clay & Parker, 2020). Indeed, 20%–25% of Canadians have reported experiencing moderate or severe COVID-19-related anxiety and depression (Taylor et al., 2020a). Moreover, Canadians have reported drinking more alcohol and consuming more cannabis during lockdown (Garner, 2020). Yet research has shown that there is wide variability in the adverse impacts of lockdown on mental health and substance use (Brooks et al., 2020). In this study, we examined whether being required to homeschool children during a lockdown may explain some of the variability in its emotional and behavioral impacts.

Two theories make opposing predictions about homeschooling effects on couples' mental health and addictive behaviors during the pandemic. On the one hand, Classical Role Theory (see Kuntsche et al., 2009) would argue that homeschooling should have protective effects on couples' mental health and addictive behaviors. In viewing homeschooling as a meaningful role, this perspective contends that the more roles a person has, the more the person's life is structured by meaningful activities. This increases opportunities for social engagement and reduces opportunities to misuse substances. On the other hand, the Transactional Model of Stress and Coping (Lazarus & Folkman, 1987) would argue that mandatory homeschooling should serve as a risk for parents' mental health and addictive behaviors where the additional burden of homeschooling is experienced as exceeding parents' coping resources.

A body of evidence supports the first viewpoint. Adults with children have higher levels of overall well-being and lower levels of depression and substance use than adults without children (e.g., Helbig et al., 2006). Strong protective effects of being a parent have been shown for excessive substance use. In nonpandemic times, parents display lower rates of excessive substance use than similar-aged non-parents (e.g., Simon & Caputo, 2019). These findings fit with Classical Role Theory, with increased structure through meaningful role-related activities reducing the likelihood of emotional distress or substance use. However, the data supporting Classical Role Theory were collected prepandemic, and do not directly address the context in which parents have to take on the new role of teacher while simultaneously working.

Since the pandemic, there has been more support for the second position (Lazarus & Folkman, 1987). During lockdown, parents faced mandatory homeschooling often with little support from the educational system, while many also struggled to adjust to working from home. All this occurred in tandem with heightened uncertainty and stress about their children's education, household finances, and family health—a situation parents described as "impossible" (Lyons, 2020). Indeed, the mental health and substance use consequences of the pandemic have been predicted to be especially severe for adults with children at home (Brooks et al., 2020).

An online Canadian survey in May 2020 showed that parents reported worse mental health than non-parents since the onset of the pandemic (Gadermann et al., 2021). Another study revealed that parents, compared to nonparents, report feeling much more stressed due to the COVID-19 pandemic, with 71% of parents attributing this to mandated homeschooling (American Psychological Association [APA], 2020). Since the onset of the pandemic, 27% of parents also reported worsening mental health for themselves, 48% loss of regular childcare, 16% change in insurance status, and 11% worsening food security (Patrick et al., 2020). Already research is clearly showing that parents with school-aged children at home experience more anxiety and depression as compared to parents of college students (Wu et al., 2020).

For substance use, the largest increases in alcohol use during lockdown in Canada were in 35–54-year olds (Canadian Centre on Substance Use and Addiction [CCSA] 2020), an age group likely to have children at home

(Provencher et al., 2018); 44% attributed this increase to stress (CCSA, 2020). Having children at home during the lockdown has been associated with increased alcohol use (Rodriguez et al., 2020). Consistent with drinking to cope, increased psychological distress in response to COVID-19 was related to greater alcohol use during lockdown (Rodriguez et al., 2020). Moreover, a recent 4-month longitudinal study showed that greater self-reported cannabis use to cope with depressed mood during the pandemic was associated with higher self-reported cannabis use levels (quantity \times frequency) during the pandemic, after controlling pre-pandemic cannabis use levels (Bartel et al., 2020). Such findings are consistent with the Transactional Model of Stress and Coping (Lazarus & Folkman, 1987), which posits *increases* in parents' substance use as a coping strategy if demands exceed parents' resources during lockdown, and also with a recent review suggesting parenting stress may increase risk for substance misuse (Rutherford & Mayes, 2019).

If homeschooling does have an impact on increasing psychological distress and coping-motivated drinking in parents during the pandemic, optimism may play a role. Positive expectancies regarding the future (i.e., optimism) offer protection against emotional distress during crises. Among victims of a natural disaster, those who held little hope for the future were more at risk for anxiety and depression, social functioning impairments, and reduced quality of life (Van der Velden et al., 2007). While optimism is often considered a stable dispositional factor (Conversano et al., 2010), it is malleable through intervention (e.g., Başoğlu et al., 2005).

In the present study, we examined whether homeschooling during the COVID-19 lockdown was associated with couples' mental health and substance use outcomes. We did so across a comprehensive set of outcomes, including mental health (i.e., general anxiety and depression, as well as COVID-specific socioeconomic and traumatic stress), coping-related use of alcohol and cannabis, and the process of optimism. We further explored whether homeschooling was associated with these outcomes differently for men and women.

In our first aim, we contrasted couples without children against couples with children in Grades 1–12, whom they were also homeschooling. Contrasting couples keeps relationship status constant, a confound in some earlier research (Rimehaug & Wallander, 2010). Consistent with predictions emerging from the transactional

model of stress and coping (Lazarus & Folkman, 1987), we expected higher anxiety, depression, COVID-specific socioeconomic and traumatic stress, and coping-related substance use, as well as lower optimism, in couples who were homeschooling than in those who were not, after controlling for age differences.

In our second aim, we examined relations between hours spent homeschooling and our outcomes. We supplemented these with analyses that control for the number of children being homeschooled, given that the sheer quantity of children might increase hours homeschooling. We conducted actor–partner interdependence models (APIMs; Cook & Kenny, 2005) with our dyadic data to get to the heart of parenting dynamics. These expose how each person's and their partner's time spent homeschooling were related to each outcome of interest for each person. APIMs allow us to examine whether homeschooling by one parent is associated with not only their own mental health, optimism, and coping-related substance use (actor effects), but also their partner's functioning on these same outcomes (partner effects). Examining effects of homeschooling within a couples' context is consistent with a general shift from studying stress and coping from an individual perspective (Lazarus & Folkman, 1987) to a more nuanced view considering them as a dyadic phenomenon (Bodenmann, 2005). This view places coping with external stressors (like homeschooling during the pandemic) within a relational context where partners cope both their own stress reactions and their partner's. Consistent with the transactional model of stress and coping (Lazarus & Folkman, 1987), we hypothesized that one parent's homeschooling would be negatively associated with their own functioning on each outcome (actor effects). We also predicted partner effects on our outcomes, consistent with Bodenmann's (2005) interpersonal view of stress and coping.

Method

Participants and Procedure

Participants were 758 romantic couples (1,516 individuals; $M_{\text{age}} = 54.7$ years, $SD = 13.9$) living in Canada. Sociodemographic and relationship characteristics are shown in Supplementary Table 1. Of the total sample, 211 couples

reported homeschooling during April, 2020, with most (86%, $n = 173$) doing so due to COVID-19. These couples reported, on average, homeschooling 2.0 children ($SD = 0.96$), with the average age being 9.84 years ($SD = 4.86$).

By April 2020, most Canadian provinces had declared a state of emergency, essentially closing its borders to non-Canadians, and requiring those entering Canada to quarantine (Canadian Press, 2020a). Although Canadian provinces differed in their public health response to COVID-19, most ordered all nonessential businesses (including physiotherapy and dental clinics, gyms, museums, child-care facilities, libraries, restaurants, and bars) to close, and most placed restrictions on social gatherings (ranging 10–50 people across provinces); those who failed to abide by public health guidelines were subject to hefty fines (Turnbull, 2020).

COVID-19 mandated homeschooling also differed across Canadian provinces since education is a provincial responsibility. Some provincial governments (e.g., Alberta, Ontario) provided expectations for the amount or type of schoolwork students were to complete each week, with differing expectations for elementary, middle, and high school students (Canadian Press, 2020b; White, 2020). Others (e.g., British Columbia, Quebec) offered access to websites (e.g., Keep learning BC, Open School) and other resources (e.g., take-home learning packages) but left each school district responsible for developing localized learning plans (Li, 2020; Mignacca, 2020). In addition to this provincial variability, other differences came from schools and individual teachers. Our wide cross-Canada recruitment captured this diversity.

Qualtrics Panels is a survey management service that recruits from a large pool of potential participants based on researcher-specified criteria. Participants were screened for eligibility: (a) living in Canada in April 2020; (b) at least 19 years old; (c) involved in a romantic relationship with a partner 19+ years old; (d) cohabiting with that same romantic partner in April 2020; (e) the panel respondent and their partner were following COVID-19-related stay-at-home advisories in their jurisdiction during April 2020; and (f) their romantic partner was also willing and available to participate. The online survey was completed in July 2020.

Panelists who began the survey ($N = 3,292$) were asked eligibility questions and completed informed consent. They then completed

demographic questions and reported on general and COVID-specific distress, coping-related alcohol and cannabis use, optimism, and experience with mandatory homeschooling. Their partner completed the same questions. Timeframe queried about April 2020.¹ Couples with a member who failed the attention or speeder checks, did not provide consent, or did not meet eligibility were screened out.² Results are presented for the remaining 758 couples. Participants were compensated according to Qualtrics guidelines. The study was approved by a university research ethics board (# 2020-5166).

Measure

Homeschooling Assessment

We obtained information on the number and ages of children in Grades 1–12 that participants were homeschooling during the stay-at-home advisory. Those who were homeschooling were asked about the time they had spent homeschooling in hours per week (Guterman & Neuman, 2020).

Demographics

We assessed several demographic and relationship variables (e.g., gender, age, race, employment status, educational achievement, relationship status, and length of relationship) as well as whether participants were following stay-at-home advisories, whether they were an

¹ Canada had national school closures from March 18, 2020 to at least May 11, 2020 (CBC Kids News, 2020). The only exception was in British Columbia where schools opened specifically and only for children of essential workers (Sterritt, 2020). However, our study excluded essential workers.

² One filter question asked respondents to commit to providing thoughtful and honest answers by having them select “I will provide my best answers,” while a second asked them to select a specific answer (e.g., “Please select disagree”) as an attention check (Oppenheimer et al., 2009). Qualtrics performed a speeder check to ensure adequate time was spent completing the survey. The breakdown of excluded participants ($n = 2,534$) was as follows: partner unwilling to complete survey ($n = 1,910$); failed attention/speeder check ($n = 183$); couple not living together ($n = 119$); at least one member of couple was an essential worker during April 2020 and thus not staying at home ($n = 117$); only partial completion of measures by at least one member of couple (i.e., dropouts; $n = 86$); at least one member did not meet the age inclusion ($n = 69$); and panelist not in romantic relationship ($n = 50$).

essential worker in April 2020, and whether they had been diagnosed with COVID-19.

Emotional Responses

We used the 7-item Generalized Anxiety Disorder scale (GAD-7; Spitzer et al., 2006) to assess anxiety symptoms (e.g., “Feeling nervous, anxious, or on edge”) and the 9-item Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001) to assess depression symptoms (e.g., “Feeling down, depressed, or hopeless”). Items were rated from 0 = *Not at all* to 3 = *Nearly Every Day*. For each scale, items were summed for a total score. These measures have good reliability and criterion-related validity (e.g., Kroenke et al., 2001; Löwe et al., 2008). Both scales showed excellent internal consistency ($\alpha = .94$ [GAD-7]; $\alpha = .91$ [PHQ-9]) in the present sample.

We assessed COVID-specific distress using short versions of two COVID Stress Scales (Taylor et al., 2020b)³: The Socioeconomic (SE; e.g., “I was worried about grocery stores running out of food”) and Traumatic Stress (TS; e.g., “I had trouble concentrating because I kept thinking about the virus”) scales. Items were rated from 0 = *not at all* to 4 = *extremely*. The original scales have excellent reliability ($\alpha_s > .90$) and convergent/discriminant validity (e.g., stronger correlations with anxiety than with depression). While the two scales were intercorrelated ($r = .55-.57$), they were factorially distinct (Taylor et al., 2020b). The short versions showed good-to-excellent internal consistencies ($\alpha = .87$ [SE fears]; $\alpha = .91$ [TS]) in the present sample.

Behavioral Responses

Coping-related cannabis use and coping-related alcohol use were measured with two relevant items (coping-with-anxiety; coping-with-depression) from the Brief Alcohol Motives Measure and the Brief Cannabis Motives Measure (Bartel et al., 2021), respectively. Each item consisted of a statement representing the general concept of the motive, followed by two examples in parentheses, for example, “I used alcohol because it helped me cope when I was feeling nervous, anxious, or tense (e.g., to reduce my anxiety or to relax)”. Each item is rated on a visual analog scale ranging from 0 = *never* to 100 = *always*. These scales possess satisfactory stability, strong convergent validity with the

established long-form measures (i.e., Grant et al., 2007; Simons et al., 1998), and concurrent and predictive validity in relation to alcohol and cannabis use levels and related problems (Bartel et al., 2021). We summed the two coping items for each substance given high correlations between items in both cases ($r_s \geq .78$).

Optimism

Optimism was assessed with the psychometrically sound 10-item Life Orientation Test-Revised (LOT-R; Chiesi et al., 2013). Items (e.g., “In uncertain times, I usually expect the best”) were rated from 0 = *Idisagree a lot* to 4 = *I agree a lot*. After reverse-scoring several items, the six scorable items were summed to produce total scores. The LOT-R showed good internal consistency ($\alpha = .85$) in the present sample.

Analytic Plan

To test Aim 1, the first set of models used the entire sample ($n = 758$ couples) to evaluate how couple-level homeschooling status was related to individuals’ mental health, COVID-19 stress, optimism, and alcohol and cannabis use to cope with negative emotions. In the models using alcohol or cannabis to cope as the outcome, couples were included in analyses if both partners reported using alcohol ($n = 466$ couples) or cannabis ($n = 91$ couples) in the past month, respectively. To test Aim 2, the second set of models only included couples who were homeschooling children in Grades 1–12 ($n = 211$ couples). APIMs (Cook & Kenny, 2005) evaluated how each person’s and their partner’s time spent homeschooling (i.e., number of hours/week) was related to the same outcomes.⁴ We did not analyze models predicting cannabis coping motives among the homeschooling couples because

³ Using Taylor et al.’s (2020b) factor analysis of their original full-length 36-item measure, we drew the top loading items from each of the 6-item factors to derive the two 3-item scales of interest.

⁴ We did not analyze the type of homeschooling (mandatory vs. voluntary) separately or as a moderator since only 38 couples were homeschooling voluntarily, making such analyses likely to be underpowered. We combined the mandatory and voluntary homeschooling subsamples because even voluntary homeschooling may be more stressful during a pandemic (e.g., decreased access to usual supports such as libraries, public gyms, other like-minded homeschooling families).

Table 1
Homeschooling Status Effects on Mental Health, COVID Stress, Optimism, and Coping Substance Use

Outcome	Predictor	<i>B</i>	<i>SE(b)</i>	<i>t</i>	<i>p</i>	95% LLCI	95% ULCI
Depression	Actor age	-.095	.018	-5.34	<.001	-.130	-.060
	Partner age	.013	.018	.73	.466	-.022	.048
	Homeschooling	-.203	.373	-.55	.586	-.935	.529
Anxiety	Actor age	-.112	.0175	-6.37	<.001	-.146	-.077
	Partner age	.035	.018	1.98	.048	.001	.069
	Homeschooling	-.181	.363	-.50	.617	-.293	.530
COVID-19 SE stress	Actor age	-.069	.010	-6.65	<.001	-.089	-.048
	Partner age	.008	.010	.75	.453	-.012	.028
	Homeschooling	.245	.265	.93	.355	-.275	.766
COVID-19 TS	Actor age	-.064	.010	-6.45	<.001	-.084	-.045
	Partner age	.005	.010	.50	.616	-.015	.025
	Homeschooling	-.118	.222	-.53	.595	-.555	.318
Optimism	Actor age	.003	.030	.11	.910	-.056	.063
	Partner age	-.001	.030	-.04	.969	-.061	.059
	Homeschooling	-.787	.262	-3.01	.003	-1.301	-.273
Drinking to cope	Actor age	-.148	.108	-1.37	.172	-.361	.065
	Partner age	-.377	.108	-3.47	<.001	-.590	-.164
	Homeschooling	4.672	2.656	1.76	.079	-.545	9.889
Cannabis use to cope	Actor age	-.729	.606	-1.20	.233	-1.933	.476
	Partner age	-1.102	.604	-1.82	.071	-2.301	.098
	Homeschooling	24.042	10.386	2.31	.022	3.482	44.602

Note. *SE* = socioeconomic; *TS* = traumatic stress; *LLCI* = lower limit confidence interval; *ULCI* = upper limit confidence interval; COVID-19 = coronavirus disease 2019. Homeschooling status coded 0 (*not homeschooling*) and 1 (*homeschooling*).

there were only 32 homeschooling couples with at least one cannabis user, making such analyses underpowered. In both sets of models, the age of both partners was included as a covariate and all predictors were grand mean centered (Cook & Kenny, 2005). To be inclusive of all participants regardless of their sexual orientation, we ran our primary models as indistinguishable by gender.

Results

Descriptive Statistics and Preliminary Associations

Descriptive statistics and bivariate correlations are presented in Supplementary Table 2. The mean scores on the alcohol and cannabis coping motives scales for the whole sample were not significantly different from pre-pandemic norms on these measures (Bartel et al., 2021; for alcohol, $t(1,688) = 1.57$, $p = .117$, nor for cannabis, $t(1,690) = 1.59$, $p = .112$). However, in the homeschooling sample, alcohol coping motives scores were significantly elevated relative to pre-pandemic norms, $t(594) = 4.55$, $p < .0001$.⁵

Correlations for the entire sample (for Aim 1) are presented below the diagonal and those for the

homeschooling sample above the diagonal (for Aim 2). In the whole sample, homeschooling status was correlated with all outcomes. Most outcomes were correlated with each other, except optimism which was only marginally negatively correlated with drinking to cope in the full sample. In the homeschooling sample, time spent homeschooling was positively correlated with depression, anxiety, and both COVID-19 stress scales (Supplementary Table 2).

Aim 1: Couple-Level Homeschool Status Effects

Consistent with the Transactional Model of Stress and Coping (Lazarus & Folkman, 1987), couples who were homeschooling reported significantly lower optimism, significantly higher use of cannabis to cope, and marginally higher use of alcohol to cope (see Table 1).

⁵ We did not compare cannabis coping motives scores in the homeschooling sample to pre-pandemic norms given, as noted earlier, too few homeschooling couples were using cannabis to make this comparison reliable.

Aim 2: Time Spent Homeschooling Effects

Results from the APIM models are presented in Figure 1. Consistent with the Transactional Model of Stress and Coping (Lazarus & Folkman, 1987), there were significant actor effects of hours homeschooling on depression, anxiety, and COVID-19 SE and TS, such that more time spent homeschooling was linked with more severe mental health symptoms and greater COVID-19 stress in the person providing the homeschooling (see Figure 1). Consistent with an interpersonal view of stress and coping, partner effects of hours spent homeschooling were seen for COVID-19 TS (marginal) and drinking to cope (significant; Figure 1). More time spent homeschooling by the partner was related to higher levels of one's own COVID-19 TS symptoms and one's own drinking to cope, controlling for own time spent homeschooling.

Supplementary analyses were run to test: (a) whether effects were different for men and women; (b) effects with additional covariates; (c) effects with only participants indicating they were mandatorily homeschooling; and (d) whether effects remained when measuring anxiety and depression dichotomously (i.e., meeting threshold for clinically significant anxiety and depression). Results are presented in the Supplementary Materials.

Discussion

We examined associations of homeschooling during the COVID-19 lockdown with couples' mental health (general and COVID-specific), optimism, and coping-related use of alcohol and cannabis. We contrasted predictions from Classical Role Theory (Kuntsche et al., 2009) versus the Transactional Model of Stress and Coping (Lazarus & Folkman, 1987) as to whether homeschooling would have protective or risk associations with these outcomes.

Homeschooling during the pandemic was linked with both general and COVID-specific measures of distress. Greater time spent homeschooling was associated with increased anxiety, depression, and COVID-related SE and TS in the individual doing the homeschooling. Thus, more time spent homeschooling was linked with greater general as well as COVID-specific emotional distress. Building on recent data showing that adults with versus without children reported poorer mental health (Gadernann et al., 2021),

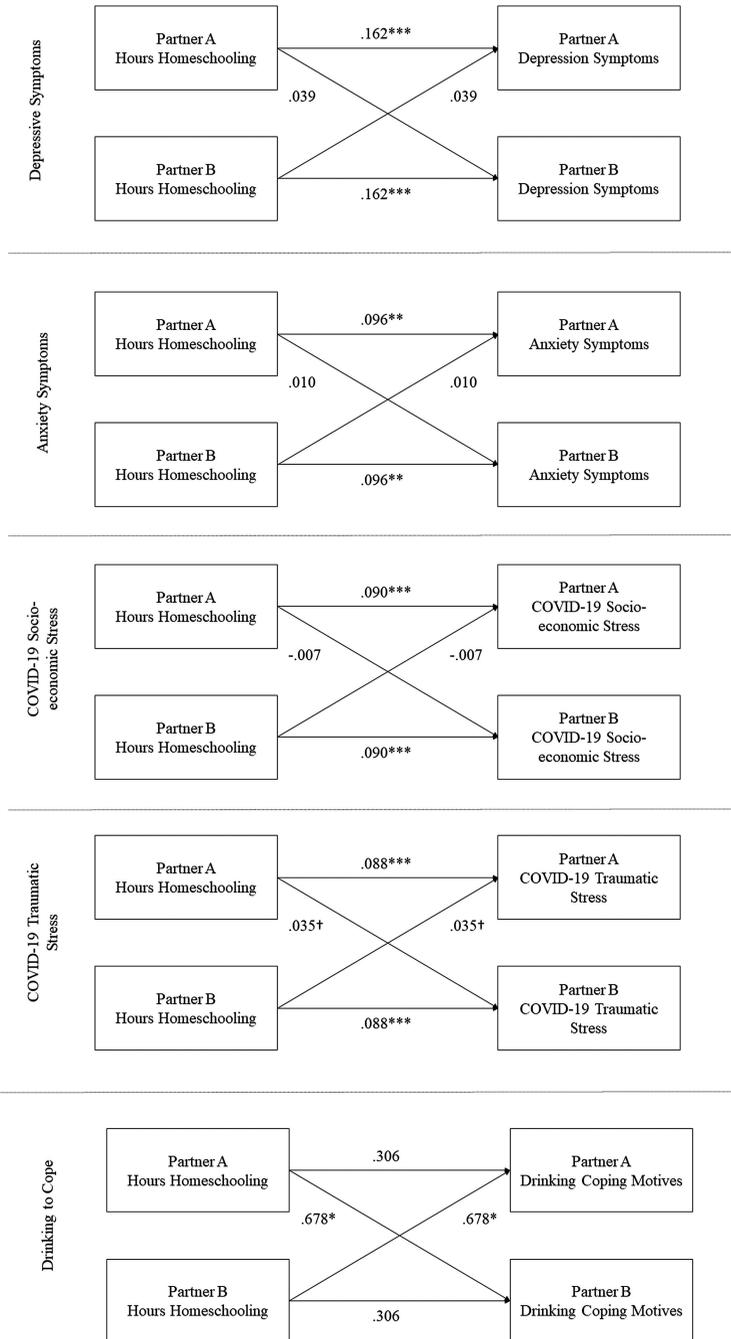
our results suggest that this may be at least partly due to the context of mandatory homeschooling, given clear increases with greater time that parents put into this "impossible" task (Lyons, 2020). Our findings also extend these prior results to COVID-specific measures of distress. It is possible that couples may experience more distress due to the massively reduced support for parenting during the pandemic lockdown, given a cross-national meta-analysis showing protective effects of child-rearing supports on parental mental health (Glass et al., 2016).

Couples who were homeschooling due to the COVID-19 lockdown also reported lower optimism than those without children. Given exposure to chronic and uncontrollable stress can lead to erosion of positive expectations for the future (Segerstrom, 2006), our findings are consistent with the possibility that homeschooling during the pandemic may serve as a stressor that may erode couples' optimism. Given its malleability (Conversano et al., 2010), optimism might be an important intervention target for supporting parents through the pandemic.

Couples who were homeschooling due to the COVID-19 lockdown reported higher use of cannabis to cope than did couples without children. Moreover, homeschooling parents, but not the full sample, scored significantly higher than prepandemic norms on the coping drinking motives measure (Bartel et al., 2021). These findings extend recent research pointing to greater alcohol use by adults with children at home during the pandemic (Rodriguez et al., 2020). Our findings suggest that parents may be using these substances to cope with the elevated emotional distress (i.e., relatively higher anxiety and depression symptoms) associated with mandatory homeschooling. However, our measures asked about using these substances to cope with anxiety and depression symptoms generally, rather with COVID-19-related homeschooling stress, limiting our ability to firmly attribute these elevations to homeschooling.

For alcohol, we had a sufficient sample size to explore the parenting dynamic associated with these homeschooling effects. Consistent with an interpersonal view of stress and coping (Bodenmann, 2005), the time that an individual's partner spent homeschooling was associated with higher levels of the individuals' own coping drinking motives, even after controlling for the individual's own time spent homeschooling. Increased demands on the parent putting more

Figure 1
Actor–Partner Interdependence Model (APIM) Examining Actor and Partner Effects of Time Spent Homeschooling on Depression, Anxiety, COVID-19 Socioeconomic and Traumatic Stress, and Coping-Related Drinking



Note. Covariances between Partner A and Partner B predictors and outcomes are included in the statistical models but are not shown for the sake of simplicity.

† $p < .10$. ** $p < .01$. *** $p < .001$.

time into homeschooling might increase tension and conflict between couple members, potentially increasing the partner's drinking to cope with this conflict. Alternatively, the distress experienced by the parent putting more time into mandatory homeschooling may be contagious to the partner, and the partner may attempt to manage this distress through coping-related drinking. In fact, hours of homeschooling in one parent were associated with marginally greater COVID-19 traumatic stress in the individual (partner effect). The individual may have attempted to manage their traumatic stress via increased drinking to cope, given previously established links of traumatic stress with alcohol misuse (Stewart, 1996). Future studies should investigate mechanisms underlying why people drink more in response to their partner's time spent homeschooling, to learn how to best support families through challenging times.

Overall, our findings resonate with prior evidence of lower levels of mental health and increased substance misuse in parents compared to those without children (e.g., Rodriguez et al., 2020). Yet, critically, our findings demonstrate that many of these effects are not simply due to the presence of children in the home during lockdown per se. Specifically, there were actor effects of number of hours homeschooling on depression, anxiety, and COVID-19 socioeconomic and traumatic stress, and partner effects of number of hours homeschooling on COVID-19 traumatic stress and coping-related drinking. This raises the possibility that mandatory homeschooling (vs. the simple presence of children) may be responsible for many of the adverse psychological effects of having children at home during the pandemic. That said, we need to remain open to the possibility of reverse causality (e.g., parents might increase homeschooling efforts to manage their anxiety around their children's education). This seems possible given the established associations between parental anxiety and overparenting (e.g., Segrin et al., 2013). Overall, though, our results are consistent with the possibility that removing public support for childrearing has negative effects on parents' mental health (Glass et al., 2016).

In our supplementary analyses, most of our effects of homeschooling status and hours homeschooling persisted after controlling employment status suggesting the observed homeschooling effects are largely not confounded with the stress of full-time work. However, homeschooling effects on drinking to cope were no longer

significant in supplementary analyses controlling for employment status. Perhaps the stress of homeschooling combined with the stress of working from home may have motivated drinking to cope. This is consistent with the known contribution of role strain to problem drinking (Kuntsche et al., 2009) and suggests the need to study the effects of mandatory homeschooling on work-life balance in the future.

We were surprised to observe no differential associations of homeschooling with outcomes for men and women in supplementary analyses. This contrasts with reports of far greater time spent homeschooling by mothers than fathers during the pandemic (Miller, 2020), with increased household workload largely falling to women (Waddell et al., 2020). These analyses may have been underpowered as we could only use the subset of mixed-sex couples. Alternatively, effects may be more closely tied to the primary homeschooler role than to gender. Analyses of a broader set of variables in future may unpack such gender or role differences.

Limitations and Future Directions

Our sample size of voluntary homeschooling parents was too small for separate analyses, so an important next step lies in exploring homeschooling in mandated versus voluntary contexts. The literature to date has studied almost exclusively voluntary homeschooling (Guterman & Neuman, 2020); yet there are likely to be important similarities and differences. Further, we relied on retrospective reporting; capturing these moments in history even some time later is vital and yet this delay inevitably introduces greater error. While we do not know whether participants met criteria for disordered drinking/cannabis use or whether their current coping use was impairing their functioning, it is nonetheless well established that elevations in coping motives, like those seen in our homeschooling parents, are predictive of future substance-related problems (Cooper et al., 2016). Since our sample was entirely Canadian, with most university-educated and identifying as White, there may be limitations to generalizability. Since COVID-19 is exacerbating preexisting educational inequalities, for example, across income levels (Dooley et al., 2020) and ethnic backgrounds (Winter, 2020), research needs to explore these effects across families from different backgrounds.

Implications and Applications

We contrasted two frameworks with markedly different predictions. Classical Role Theory (Kuntsche et al., 2009) suggested that the structure imposed by the meaningful role of homeschooling would have protective effects on our outcomes during the COVID-19 crisis whereas the Transactional Model of Stress and Coping (Lazarus & Folkman, 1987) posited that the uncertain nature of mandatory homeschooling would result in adverse impacts for parents. Our results very much favor the Transactional Model of Stress and Coping in suggesting that, for most parents, the context of mandatory homeschooling during the pandemic was perceived to exceed their personal resources with ensuing adverse impacts on their mental health and/or coping-related substance use. Our observed partner effects of homeschooling on several outcomes (i.e., COVID traumatic stress and coping-related alcohol use) are consistent with interpersonal adaptations of this theory (Bodenmann, 2005). The stress experienced by the individual providing the mandatory homeschooling had cross-over effects on the coping of their romantic partner, suggesting the need for couples-based approaches to intervention.

Our evidence of the substantive negative correlates of removing parenting supports during the pandemic has practical implications for serving families more effectively through such large-scale crises in future. Decisions regarding additional school closures need to carefully weigh mental health consequences against potential risks to physical health, particularly given that school closures have limited effectiveness for disease containment compared to other measures such as mask wearing (e.g., UNICEF, 2020). And when these closures are deemed necessary, our evidence reinforces recent suggestions (McGrath et al., 2020) that educational authorities and clinicians work to prepare to support families through the mental health consequences of school closures. Parents' mental health and substance use can either support or impede the development of strong mental health in their children (e.g., Kuppens et al., 2020; Zhang et al., 2020). And so supporting parents will likely have consequences for children's mental health which is also at risk due to the pandemic (Brooks et al., 2020). Overall, our findings highlight the need to increase educational and mental

health supports to parents in the event of another period of mandatory homeschooling (Ferguson et al., 2020) during future predicted waves of COVID-19 or other pandemics (Scher, 2020), such that couples can best support one another and their families through such crises.

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