WHO BENEFITS FROM A BRIEF ONLINE COUPLES INTERVENTION? EXAMINING BASELINE MODERATORS OF THE EFFECTIVENESS OF THE LOVE TOGETHER, PARENT TOGETHER PROGRAM

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Abstract

Brief relationship interventions are needed to support the relationship quality of couples parenting young children who face a heightened risk of relationship deterioration. Accordingly, the Love Together, Parent Together (L2P2) program was created as a brief online writing program for parents. The present study addresses secondary objectives of a two-arm pilot randomized control trial (RCT) of the L2P2 program, examining whether multilevel risk factors across the family system moderate the program's effectiveness. Participants included 140 couples with children (under six years), randomized to the L2P2 intervention or control condition. They completed baseline, post-intervention, and 1- and 3-month follow-up surveys. The intervention involved three writing sessions teaching couples conflict reappraisal strategies. The current study examined couples' baseline dyadic adjustment, COVID-19 family stress, children's effortful control, and composite risk as multilevel risk factors. Piecewise latent growth curve modelling (LGCM), using data from four timepoints, was conducted in MPlus 8.5 to examine rates of weekly change in couples' relationship quality scores as a function of condition (L2P2 vs. control), baseline risk, and the interaction between the two. Results revealed that none of the moderators predicted weekly change in relationship quality, nor did the interaction between each respective moderator and condition. Findings do not support the differential effectiveness of L2P2 as a function of multilevel household risk. Results contribute to a growing literature that addresses for whom and/ or in what circumstances couples' prevention programs are most effective.

Keywords: brief couples' intervention, moderation, differential effectiveness, relationship quality

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Introduction

The transition to and early years of parenthood are characterized by profound changes in couples' relationships, including adapting to new roles, identities, and relationship dynamics (Cast, 2004; Kluwer, 2010). As a result of these changes, couples face a heightened risk of relationship deterioration (Mitnick et al., 2009). Understanding how to support parenting couples during this time is critical, as the quality of their relationship is central to family functioning (McHale & Irace, 2011) and child development (e.g., van Eldik et al., 2020). Accordingly, couples with young children may benefit from evidence-based support, specifically through accessible relationship interventions. This need remains heightened, given that couples have faced novel and amplified stressors due to the social and economic ramifications of the COVID-19 pandemic, which may have long-term effects for all family members (Andrade et al., 2022). Yet, few relationship interventions have been tailored to this population, and it is largely unknown for whom these programs are most effective. Evidence suggests that higher-risk couples benefit more from couples' interventions, though these results have primarily been limited to a narrow set of risk factors (e.g., income, relationship distress; Markman et al., 2022). Given that stressors at various levels of the family system have been associated with the quality of couples' relationships, it would be useful to consider a broader range of pre-existing risk factors at multiple levels of the family to assess whether generalist programs are suitable for couples parenting young children. Accordingly, the purpose of the current study is to examine multilevel risk factors across contextual, couple, and child domains as moderators of intervention effectiveness. In the context of the current study, 'parenting couples' will be used to refer to the dyadic relationship between parents, which has most often been studied in the context of marital

(e.g., Erel & Burman, 1995) and co-parental relationship conflict (e.g., Krishnakumar & Buehler, 2000; Ran et al., 2021; van Dijk et al., 2020).

Conceptual Framework

Bronfenbrenner's Ecological Systems Theory (1974, 1979, 1986) views an individual's development and functioning as systemically situated within interactive and overlapping relational and environmental systems. Importantly, these systems are bidirectional, wherein dysfunction in one system begets dysfunction in others. In the current study, we will consider couples' functioning, specifically, how they respond to a couple's intervention, within the context of their environmental systems. Central to this framework is the view that couples' relationships are nested within– and thus affected by– individual, couple, family, and community-level systems. In line with this conceptualization and in the context of the current study, ecological systems theory can be used to consider how pre-existing risk factors across the family system and beyond may moderate the effectiveness of an intervention for parenting couples.

The current study was initiated in April 2022, following an acute period of stress due to the COVID-19 pandemic. To address this particular context, another helpful framework is the Vulnerability-Stress-Adaptation (VSA; Karney & Bradbury, 1995) model of marriage, which has been used extensively to study the quality and stability of marital relationships. The VSA model posits that interactions between vulnerabilities, stressful life events, and adaptive processes (e.g., problem-solving) underscore variability in marital quality and stability. Following the emergence of the COVID-19 pandemic, Pietromonaco and Overall (2021) adapted the VSA model for the pandemic context to understand how couples' relationship dynamics would be impacted by the novel challenges arising from the pandemic. This adapted model outlines how the impact of the

pandemic depends on the broader context of the couple's lives, their pre-existing contextual vulnerabilities (e.g., social class), the nature of their COVID-19 stressors (e.g., finances) and their individual vulnerabilities (e.g., mental health problems)– all of which additively and interactively impact dyadic functioning. Implicit in this model is the systemic interactions between various environmental levels within the couple, family, and broader societal context. Thus, ecological systems theory and the VSA framework were adopted as guiding frameworks for the present study to consider how individual vulnerabilities, stressors, and adaptive processes interact across environmental levels to shape relationship functioning within the context of the COVID-19 pandemic.

Couples' Relationship Education (CRE) Programs

Couples' relationship education (CRE) programs constitute a type of prevention program commonly implemented and evaluated to support couples' relationships (Bradbury & Bodenmann, 2020). These programs typically apply a universal strategy and target general communication and conflict skills between partners. Though research shows they are effective, there have been calls for the development and implementation of more brief couples' interventions (BCI) with the particular goal of improving accessibility in order to reach and retain higher-risk couples (Kanter & Schramm, 2018).

A recent review by Markman et al. (2022) synthesized the literature on CRE programs evaluated over the past decade. Generally, CRE programs have demonstrated promotive effects on couples' relationships and secondary effects for other meaningful outcomes such as co-parenting (Hawkins et al., 2022). Importantly, these programs have increasingly been evaluated with more diverse and disadvantaged couples, including couples with income, racial and ethnic diversity, as well as variability in levels of relational distress, mental health histories and family

structures. Though these programs have been implemented with increasingly diverse couples, they continue to be criticized for their intensive, inaccessible, and lengthy nature, leading to participation barriers for many couples, which is a critical flaw given that these couples face additional barriers to accessing evidence-based support (Kanter & Schramm, 2018). Indeed, there have been calls for increased accessibility through the development and implementation of online programs, particularly because these programs have shown some of the largest effects for socially disadvantaged couples (Doss et al., 2020). It follows that there is a need for brief online interventions that can address accessibility and scalability issues for parenting couples (Kanter & Schramm, 2018; Markman et al., 2022).

Love Together, Parent Together Program

Marriage Hack (MH; Finkel et al., 2013) is a brief online writing intervention created to support couples' relationship quality by promoting the use of conflict reappraisal strategies. Conflict reappraisal is thought to help couples reinterpret the meaning of emotion-eliciting situations (Gross, 2002) and, in turn, reduce their conflict-related emotional distress (Finkel et al., 2013). In short, couples' relationships were tracked over the first year of the study, and then the MH program was implemented in the subsequent year. The MH program required couples to engage in three 7-minute writing exercises over the course of twelve months. Results indicated that all participants experienced a decline in relationship quality over the first year; however, only the control group continued to decline over the second year, whereas the intervention group's relationship quality was maintained. The Love Together Parent Together (L2P2) program was adapted from MH in the context of the COVID-19 pandemic to support an identified high-risk group needing support– couples parenting young children. The adapted program was shortened in its duration to reduce burden and increase accessibility (three writing

exercises over the course of three months), and included additional program components (e.g., didactics and self-evaluation exercises relevant to coparents). The L2P2 program was previously evaluated in a feasibility study that found evidence of positive change in relationship quality and other couple and individual outcomes (Prime et al., 2023). A subsequent randomized controlled trial of the L2P2 program was conducted with 140 parenting couples and demonstrated beneficial effects of the L2P2 program on couples' relationship quality compared to a control group (Prime et al., 2024). Specifically, L2P2 maintained couples' relationship quality from baseline to post-intervention, whereas the control group experienced a decline. Though L2P2 successfully supported the relationship quality of participating couples, it is unknown for whom the program was most effective. This is a critical inquiry, given that L2P2 was intended to be scaled to be delivered to a large number of couples. Accordingly, next steps include examining for whom the program is most (or least) effective by examining whether varying levels of pre-existing vulnerability moderate the effectiveness of L2P2 on couples' relationship quality.

Moderators of the Effectiveness of Relationship Interventions

To date, Markman et al. (2022) has provided the most comprehensive synthesis of participant factors shown to moderate the effectiveness of CRE programs. Generally, participants with more pre-existing disadvantages (e.g., low-income, racial/ethnic minorities) and greater relationship distress benefit more than non-distressed couples (Stanley et al., 2020; Hawkins, 2019), which is suggested to be due to increased motivation and more room for improvement. Further, the authors note that to continue advancing this field of research, there must be a diversification of moderators examined to identify for whom the programs are most effective. Indeed, in recognizing the intricacies and specificities of individuals and their families, it is essential to take a systemic approach to intervention evaluation by expanding the range of

moderators examined to consider other meaningful characteristics (Markman et al., 2022) across couple, child, and family levels.

At the child level, it is important to consider how child behaviour may impact couples' responsiveness to intervention. For instance, couples parenting a child who is unable to modulate their reactive systems (i.e., effortful control; Rothbart & Jones, 1998) may experience more relational stress outside of the couple relationship (e.g., child-related conflict), which may impact how they respond to a brief couple's intervention. Indeed, a review by Bridgett et al. (2015) demonstrated that relationship quality (including conflict), child and parent effortful control, and parenting behaviours are interactively related. Similarly, intervention research has shown that improved child behaviour and parenting have been associated with enhanced parent relationship quality (Zemp et al., 2016). These findings highlight that child effortful control likely has implications for couples' functioning; thus, it may be a meaningful factor to examine as a moderator of intervention effectiveness. Moreover, given that CRE research has shown that couples with more risk generally benefit more from interventions (Markman et al., 2022), in addition to research demonstrating that worse effortful control is related to worsened relationship quality, couples parenting a child with behavioural problems are expected to benefit more from intervention. However, this has yet to be explored within a couples' intervention.

At the couple level, it is important to consider whether relationship distress moderates the effectiveness of a brief couples' intervention. Relationship distress, a reliable predictor of couple dissolution (Sabourin et al., 2005), often leads highly distressed couples into a cycle of escalating distress and worsening relationship deterioration (Randall & Bodenmann, 2009). Notably, CRE programs have identified that highly distressed couples generally benefit more from interventions (Markman et al., 2022); however, these programs are typically lengthy and

intensive. Indeed, it is possible that the differential effectiveness of couples' interventions depends on the intensity of the program. There is some evidence that brief programs are more effective for distressed rather than non-distressed couples (e.g., Halford et al., 2015; Williamson et al., 2015); however, this remains an emergent but necessary area of research, and more evaluations are needed (Markman et al., 2022). Therefore, evaluating whether highly distressed couples benefit differentially from a brief program like L2P2 is an important inquiry.

At the family level, it is critical to consider how contextual stress may impact couples' ability to benefit from a relationship intervention. Indeed, contextual stress infiltrates families by compromising parents' well-being (e.g., Shelleby, 2018), with the potential to affect conflict and functioning between parents, which may impact whether they benefit from an intervention. One of the most ubiquitous contextual risk factors affecting families in recent years has been COVID-19-related stress across financial, relational, and pandemic-specific domains (Prime et al., 2021, 2022). During data collection for the current study (April 2022), families were navigating the aftermath of two years of upheaval due to the pandemic, which impacted all family subsystems and their interconnections (Shoychet et al., 2023). Moreover, relationship research identified that COVID-19-related stressors disrupted couples' relationships, and parents were at greater risk (e.g., Pietromonaco & Overall, 2022). Despite its wide-ranging and enduring impacts, COVID-19 stress (Prime et al., 2021) has yet to be examined as a moderator of program effectiveness, though it remains a valuable area for further inquiry.

Current Study

The current study is a secondary analysis of a two-arm pilot randomized control trial (RCT) of the L2P2 program that seeks to examine whether pre-existing risk factors moderate the effectiveness of L2P2 on couples' relationship quality. To address the above gaps, we will

examine whether the effectiveness of the L2P2 program varies as a function of baseline levels of child effortful control (child level), dyadic adjustment (couple level), and COVID-19 family stress (family level). Notably, dyadic adjustment (i.e., relationship distress) is the only moderator that has been examined in prior studies. Indeed, this is the first evaluation of a relationship intervention which examines family stress and child effortful control as moderators. However, previous studies have examined economic disadvantage, which is related to COVID-19 family stress, and found that higher economic disadvantage was related to greater gains for couples (Markman et al., 2022). Yet, it is important to note that the L2P2 program is very brief compared to conventional CRE programs, and thus, findings may not parallel results from CRE research.

Results from the primary study of L2P2 (Prime et al., 2024) demonstrated that couples in the L2P2 group showed no change in relationship quality from baseline to post-intervention, compared to the control group, which showed negative (declining) weekly change. In the current study, we expect that the effect of the L2P2 intervention will depend on baseline risk factors, with the following hypotheses:

1. Couples with higher levels of dyadic distress at baseline will benefit more from L2P2 than those with lower baseline distress.
2. Couples with higher levels of COVID-19 family stress at baseline will benefit more from the intervention relative to those with lower baseline family stress.
3. Couples parenting children with lower levels of effortful control at baseline will benefit more from L2P2 than those with higher levels of effortful control at baseline.

Methods

The current study received ethics approval from York University's Research Ethics Board (Certificate #2022-076) and the University of Toronto's Research Ethics Board. The

larger study has been pre-registered on ClinicalTrials.gov (NCT05261022), and the current study has been pre-registered on Open Science Framework (https://doi.org/10.17605/OSF.IO/V7J5M). At the time of registration, all participants provided informed consent to have their data collected, stored, and managed by the unblinded research coordinator (see Appendix A). Participants and couples were assigned a unique ID for randomization (randomize.net) and survey collection on Qualtrics. In considering the ethics of providing a waitlist option, we concluded that the risk for control group participants to complete the program at a later time was minimal. This conclusion was based on the fact that this study did not target high-risk groups, and study participation would not prevent couples from seeking services elsewhere.

Study Design

The current study design is an RCT with a treatment and control group. Data was collected from April 2022 to May 2023. Study participation occurred over five months and included baseline, 1-week post and 1- and 3-month follow-up surveys measuring couple, parent, child, and sociodemographic characteristics. The current study uses data from all four timepoints. All surveys were completed online using the Qualtrics survey platform (https://www.qualtrics.com/). Baseline surveys relevant to the current study included sociodemographic data and measures of couples' relationship quality, dyadic distress, children's effortful control, and COVID-19 family stress. After completing baseline surveys, participants were randomized at the couple level to the L2P2 or control group. One week later, couples completed their first writing session, which occurred once per month for three months. During these sessions, L2P2 couples took part in all parts of the writing sessions (described below), whereas couples in the control group only completed Part 1. A one-week post-intervention survey assessed couples' relationship quality. Participants were compensated for any surveys

they started or completed, for a potential total of $80 per person or $160 per couple. In the larger study, following the 3-month-post follow-up survey, the control participants were offered the opportunity to participate in the L2P2 program.

Participants

Couples were recruited from Ontario-based community organizations, including Moms at Work, EarlyON Child and Family Centres, YMCA Canada, the Miles Nadal Jewish Community Centre, Mommy Connections, and various daycares and recreation centres. Eligibility criteria for couples included the following: (1) being 18 years of age or older, (2) endorsing being in a relationship and residing in the same home as their partner, (3) having at least one child under the age of 6, and (4) having no history of divorce or separation. Both partners in a relationship had to consent to participate and complete baseline surveys to continue in the study.

One hundred forty couples were recruited to participate in the study. Participants' gender identities predominately were women (*n* = 138, 49.3%) and men (*n* = 136, 48.6%), and sexual orientation was primarily heterosexual (*n* = 256, 91.4%). The mean income for couples was $125,000 - $149,999, and a little over half of couples earned less than $150,000 (*n* = 72, 51.4%). Participants mainly had university (*n* = 100, 35.7%) or master's degrees (*n* = 92, 32.9%), a college education (*n* = 32, 11.4%), a professional degree (*n* = 20, 7.1%), doctorate (*n* = 14, 5.0%), and fewer had received some college or university (*n* = 12, 4.3%). A small proportion of participants had completed high school or less (*n* = 10, 3.6%). Participants were primarily White (*n* = 171, 61.1%), with others identifying as Chinese (*n* = 25, 8.9%), multi-racial/multiethnic (*n* = 24, 8.6%), South Asian (n = 23, 8.2%), Latin American (*n* = 21, 7.5%), or belonging to other racial/ethnic groups (*n* = 13, 4.6%). The majority of participants were born in Canada (*n* = 188, 67.1%), though a substantial number reported immigrating to Canada (*n* = 91, 32.5%). The

couples had been together for approximately one decade (M = 10.76 years), and their target child's mean age was 2.97 years old (SD = 1.85).

Measures

Full instrumentation can be found in Appendix B.

Demographics

Participants' sociodemographic information included their income, education, gender, sexuality, race, immigration status, relationship length, and child age. This data was used to generate sample descriptive statistics to summarize participant characteristics (see Table 1).

Perceived Relationship Quality

The primary outcome in the current study was couple relationship quality, as measured by The Perceived Relationship Quality Components (PRQC) Inventory (Fletcher et al., 2000). The PRQC includes 18 items across domains of relationship satisfaction, commitment, intimacy, trust, passion, and love, with each item rated on a 7-point Likert scale from *"Not at all"* (1) to "*Extremely"* (7). A mean score across items was taken for each parent. Partner scores were correlated at baseline (r = .65, p = <.001), post-intervention (r = .55, p = <.001), one-month (r = .59, p = <.001), and three-month follow up (r = .62, p = <.001). Partner scores were combined at each time point.

Moderators

COVID-19 Family Stressor Scale (COFASS). The COVID-19 Family Stressor Scale (COFASS; Prime et al., 2021) is a 16-item scale used to measure pandemic-related family stress across three domains: income stress (5 items), family stress (7 items), and chaos stress (4 items). Items are rated on a three-point Likert scale from "*Not True"* (1) to "*Very True"* (3). The scale

has adequate psychometric properties (Prime et al., 2021). A mean score was computed across COFASS items for each parent ($r = .50$, $p < .001$), and scores were subsequently combined to yield a COVID-19 family stress variable. Higher scores correspond to worse COVID-19 family stress.

Brief Dyadic Adjustment Scale (DAS). The Brief Dyadic Adjustment Scale (DAS-4; Sabourin et al., 2005) measured couples' relationship distress. The DAS-4 includes three items rated on a 6-point scale from "*All the time*" (0) to *"Never*" (5) and a fourth item rated on a scale from *"Extremely Unhappy"* (0) to *"Perfect"* (6). The DAS-4 has appropriate psychometric properties and is one of the most widely used scales to assess the severity of couples' problems. A mean score across DAS-4 items was calculated for each parent ($r = .66$, $p = <.001$) and subsequently combined to produce a relationship distress variable at the couple level. Higher scores represent better dyadic adjustment.

Child Effortful Control (Child EC). The Effortful Control subscale of the Infant Behaviour Questionnaire-Revised Very Short Form (IBQ-R-Very Short), the Early Childhood Behaviour Questionnaire (ECBQ-Very Short) Very Short Form, and the Children's Behaviour Questionnaire Very Short Form (CBQ-Very Short) were used to assess child effortful control. All three subscales include 12 items and were assigned based on children's reported ages. The IBQ-R-Very Short has good psychometric properties (Putnam et al., 2014), the ECBQ-Very Short has adequate internal consistency and moderate inter-rater reliability (Putnam et al., 2006), and the CBQ-Very Short has demonstrated adequate internal consistency (Rothbart et al., 2001). At the start of the study, participants selected a target child who was closest in age to six years and provided reports on this child for the duration of the study. A mean score was calculated for each parent and then scores were aggregated at the couple level: IBQ-R-Very Short ($r = .38$, $p >$

.05), the ECBQ-Very Short (r = .48., p < .01), and the CBQ-Very Short (r = .50, p < .01). A Child EC variable was then computed by standardizing each EC variable within age ranges (i.e., IBQ-R-Very Short, n = 24; ECBQ-Very Short, n = 44; CBQ-Very Short n = 62) and merging them into one variable. Higher scores correspond to better child effortful control. The analysis only included data for couples reporting on the same child (i.e., n = 129). The data for those reporting on different children were treated as missing.

Intervention

Participants in the L2P2 and control groups participated in the writing sessions; however, only the L2P2 group received the intervention activities (Parts 2 and 3). The control group only engaged in Part 1 of the writing sessions.

Writing Exercise Part 1 (L2P2 and Control)

Participants began by reading a prompt which asked them to think and subsequently write about the most significant disagreement with their partner in the last four weeks and describe it, focusing on behaviours, not thoughts or feelings. Then, participants responded to a single survey item asking them to report their conflict-related negativity. This exercise constituted the inactive writing task for the control participants. We determined that the anticipated risk for control participants to write about a disagreement without additional program components (i.e., conflict reappraisal) was low. This was based on the fact that we did not recruit a high-risk group or prompt participants to write about significantly distressing events.

Writing Exercise Parts 2 and 3 (L2P2 Only)

Participants began Part 2 by watching an animated video developed by the first author. The video presented instructions, including a description and examples of conflict reappraisal

strategies (described below). Following the video, participants completed three multiple-choice questions to self-evaluate what they had learned from the video.

For the conflict reappraisal writing task, participants began Part 3 by reading a writing prompt that instructed them to write about the disagreement they described in Part 1, but now from the perspective of a neutral third person who wants the best for everyone involved. Following this, they completed an additional writing prompt asking them to write about barriers they foresee in adopting this third-person perspective and how they intend to apply the strategy in the coming weeks. Participants were encouraged to write for nine minutes across the three questions. L2P2 participants were contacted by email between sessions to encourage using the conflict reappraisal strategy, whereas control participants were reminded of their survey schedule. At the end of the 5-month study period, following the 3-month follow-up survey, control participants were offered the opportunity to participate in L2P2.

Analytic Plan

Preliminary analyses were conducted using SPSS (Version 29) to examine sample descriptive statistics and a correlation matrix, including measures of central tendency, frequencies, and proportions to summarize participant and couple sociodemographic characteristics, perceived relationship quality, COVID-19 family stress, dyadic adjustment, and child effortful control.

Analyses were conducted with an intent-to-treat approach in MPlus 8.5 using an MLR estimator. To identify multivariate outliers, diagnostic checks were run using Cook's D parameter. The current study used a moderation analysis within a piecewise growth curve framework. All variables were aggregated at the couple level to generate one score per couple for use in analyses. If one member of a couple had a missing score, the other partner's score was

used as the couple-level score. Full-information maximum likelihood estimation was used to manage missing data (due to attrition) for the post-intervention timepoints. Perceived relationship quality was the primary outcome (assessed at baseline, 1-week, 1-month, and 3-month post-intervention), whereas baseline COVID-19 family stress, dyadic adjustment, and child effortful control were examined as moderators of intervention effectiveness. Each moderator was examined independently in a series of three models.

Aligned with analyses from the primary paper (Prime et al., 2024), a piecewise latent growth curve model (LGCM) was employed to investigate differences by group (L2P2 vs. control) in weekly change in relationship quality. The piecewise model estimated two slopes– growth from baseline to post-intervention (slope 1) and post-intervention to 3-month follow-up (slope 2). First, we examined the estimated weekly mean change in relationship quality for the control (reference) group, based on the mean of the adjusted slope. Next, group assignment was examined as a predictor of weekly change in perceived relationship quality (for slopes 1 and 2). Following this, each respective baseline moderator was analyzed as a predictor of weekly change in perceived relationship quality (on slopes 1 and 2). Lastly, the interaction between each baseline moderator and group assignment was examined to assess whether the interaction predicted weekly change in perceived relationship quality (on slopes 1 and 2). Effects were interpreted as being significant if $p < .05$ (two-tailed). Standard criteria were used to evaluate model fit (Little, 2013). This included examining the comparative fit index (CFI ≥ 0.95), root mean square error of approximation (RMSEA ≤ 0.06) (Hu & Bentler, 1999), goodness-of-fit statistic (GFI) and adjusted goodness-of-fit statistic (AGFI).

Results

Baseline descriptive characteristics of the sample are provided in Table 1. Bivariate correlations and other descriptive statistics for all study variables can be found in Table 2. Correlations were in expected directions. Couples' relationship quality was positively correlated across time points ($p < .001$), indicating rank-order stability over time. Relationship quality was negatively correlated with baseline COFASS ($p < .05$) across time points, with the exception of post-intervention ($r = –.17$, $p = .053$), aligning with expectations that contextual stress would be inversely associated with relationship functioning. Consistent with expectations, relationship quality was positively correlated with baseline DAS ($p < .001$) across time points. Baseline COFASS and DAS were negatively correlated ($r = –.34$, $p < .001$), aligning with expectations that contextual stress would be inversely associated with relationship adjustment. Child EC was not correlated with other baseline moderators (COFASS, DAS) or with relationship quality at any timepoint, which may be because it is the only measure that is not self-report but rather a proxy report for child functioning.

Intervention Effects: Weekly Change in Relationship Quality

No significant multivariate outliers were identified. The model from the primary paper (Prime et al., 2024) was replicated prior to adding the additional parameters specific to this study (i.e., moderators). Thus, a piecewise LGCM was executed with group assignment (L2P2 vs. control) as the predictor of weekly change in relationship quality (RQ) from baseline to post-intervention (slope 1) and post-intervention to 3-month follow-up (slope 2). Fit indices indicated the model had acceptable fit ($\chi2$ (7) = 9.471, p =.22, RMSEA = 0.050, CFI = 0.994, SRMR = 0.035). Aligned with findings from the primary paper, group assignment significantly and positively predicted weekly change in RQ from baseline to post-intervention (slope 1; B = 0.018,

p = .03). Specifically, whereas weekly mean levels of RQ declined from baseline to post-intervention for the control group (mean of the adjusted slope 1 = –0.019, p = .002), weekly mean levels of RQ showed no change from baseline to post for the L2P2 group. There was no significant mean level change from post-intervention to 3-month follow-up for the control group (mean of the adjusted slope 2 = –0.004, p = .44). Further, group assignment did not predict change from post-intervention to 3-month follow-up (slope 2; B = –0.010, p = .21).

Moderation Analyses

Four individual moderation analyses were conducted within a piecewise LGCM framework to examine main and interaction effects of each moderator on weekly change in relationship quality. Effects were examined for both slopes (baseline to post and post to follow-up 3). Results of the primary model and all moderation analyses can be found in Table 3.

H1: COVID-19 Family Stress

COFASS was added to the main model to explore its main and interactive effects in predicting weekly change in relationship quality. COFASS did not predict weekly change in RQ from baseline to post-intervention (slope 1; B = 0.001, p = .52) or from post-intervention to 3 months follow-up (slope 2; B = 0.000, p = .74). The interaction between group assignment and COFASS did not moderate the effect of group assignment on weekly change in RQ from baseline to post-intervention (slope 1; B = 0.000, p = .97) or from post-intervention to 3 months follow-up (slope 2; B = –0.001, p = .34).

H2: Dyadic Adjustment

DAS was added to the main model to determine whether weekly change in relationship quality varied due to baseline levels of couples' dyadic adjustment. DAS did not predict weekly

change in RQ from baseline to post-intervention (slope 1; B = –0.003, p = .23) or from post-intervention to 3 months follow-up (slope 2; B = –0.003, p = .13). The interaction between group assignment and DAS did not moderate the effect of group assignment on weekly change in RQ from baseline to post-intervention (slope 1; B = –0.001, p = .81) or from post-intervention to 3 months follow-up (slope 2; B = 0.003, p = .19).

H3: Child Effortful Control

Child EC was added to the main model to examine whether weekly change in relationship quality varied due to baseline levels of child effortful control. Child EC did not predict weekly change in RQ from baseline to post-intervention (slope 1; B = –0.003, p = .61) or from post-intervention to 3 months follow-up (slope 2; B = –0.005, p = .28). The interaction between group assignment and Child EC did not moderate the effect of group assignment on weekly change in RQ from baseline to post-intervention (slope 1; B = 0.006, p = .50) or from post-intervention to 3 months follow-up (slope 2; B = 0.005, p = .51).

Exploratory Analysis

In addition to the planned, pre-registered analyses described above, an exploratory analysis was conducted to examine whether a composite variable using the sum of total risk factors (i.e., COFASS, DAS, and Child EC) interacted with condition to predict weekly change in relationship quality. DAS and Child EC were reverse coded so that higher scores corresponded to worse outcomes. Then, using these recoded variables, DAS, COFASS, and Child EC were transformed into dichotomized variables wherein the presence or absence of risk was coded as 0 (absence) or 1 (presence) based on clinical cut-offs. Specifically, a score of >13 for DAS (Sabourin et al., 2005) and a score of >29 for COFASS (McGinn et al., 2023). There

were no clinical cut-offs available for Child EC. Thus, we standardized the distribution and used a median split as the cut-off point (>50% = presence of risk).

The composite risk variable was added to the main model to analyze its main and interaction effects in predicting weekly change in relationship quality. Results indicated that the computed risk composite did not predict weekly change in RQ from baseline to post-intervention (Slope 1; B = 0.007, p = .25) or from post-intervention to 3-month follow-up (Slope 2; B = 0.006, p = .25). The interaction between group assignment and risk did not predict weekly change in RQ from baseline to post-intervention (Slope 1; B = –0.003, p = .75) or from post-intervention to 3 months follow-up (Slope 2; B = –0.004, p = .62).

Discussion

There are an increasing number of studies examining moderators of program effectiveness to identify who may or may not benefit from programs designed to enhance couples' relationship quality. To date, factors examined have predominantly been limited to programmatic (e.g., dosage; Hawkins et al., 2012), sociodemographic and relational distress variables (Markman et al., 2022), or broader relationship risk (i.e., communication; Barton et al., 2014). However, given that couples' relationship dysfunction operates within a broader context of family functioning, it is important that evaluations expand to include a multilevel assessment of potential moderators. The current study examined whether weekly change in couples' relationship quality (i.e., the target of the intervention) depended on their baseline levels of COVID-19 family stress, dyadic adjustment, child effortful control, and composite risk (exploratory). Results revealed that none of the factors moderated weekly changes in relationship quality during the course of the intervention or in the follow-up period. Thus, we did not find support for the hypothesis that

participants' pre-existing risk would affect how much they benefitted from participating in the L2P2 program.

The results of the current study deviate from the study hypotheses and the research which informed them. CRE evaluations have generally concluded that couples with more distress and disadvantage benefit more (Markman et al., 2022). However, several evaluations have not supported the finding that more disadvantaged and distressed couples benefit more (e.g., Doss et al., 2016; Hawkins & Erickson, 2015). These mixed findings may reflect differences in the specificities of each program, the samples recruited, and/or the variability of factors analyzed, further elaborated below. Moreover, findings on moderation come primarily from research on CREs, with little known on whether individual and/or couple-level risk factors moderate intervention effects in BCIs. Indeed, there is a dearth of research on moderators of BCIs. However, a recent study of a BCI showed that the program was more effective in reducing depressive symptoms (an outcome measured along with relationship quality) for those who had more severe depressive symptoms at baseline (Mitchell et al., 2024). This highlights that understanding differential effectiveness is a notable gap in BCI research. Thus, the current study contributes to this by identifying that L2P2 was not differentially effective based on the participant risk factors studied.

There are several possible interpretations of why the current study did not identify differential effectiveness of L2P2 between couples with varying levels of pre-existing risk. First, it is possible that the L2P2 program is universally effective– an encouraging possibility given that the program was developed with the goal of being scaled to reach a wide range of couples. This may be due to the nature of L2P2 in its focus on a precise social-psychological principle (i.e., conflict reappraisal). The intervention prompts couples to select their most recent

disagreement to write about and reappraise rather than addressing pervasive and/or underlying issues. If couples were prompted to reappraise more contentious conflict (e.g., write about the biggest problem in your relationship), it is possible that this could draw out variability in how couples respond to the intervention. For instance, if the prompts were specific to more challenging underlying relational issues, such as power imbalances (Knudson-Martin, 2013), couples could vary more in how much they benefit from the use of conflict reappraisal strategies. As is, we did not find support that couples are differentially responsive to this precise social-psychological intervention.

Null findings may, alternatively, be a result of measurement and/or sampling characteristics. The sample showed adequate variability in their levels of pandemic-related stress and dyadic adjustment, capturing participants at the high and low ends. Thus, limited range is unlikely to have played a role in the null results for these two moderators. However, two of the three measures (i.e., IBQ-R-Very Short, CBQ-Very Short) used to compute the child effortful control moderator exhibited limited variability– which may have influenced the null results. Further, our sample comprised predominately high-income couples (M = \$125,000-149,999) with high educational achievement (7.9% ≤ college degree). Though reviews of CRE programs have indicated that lower-income couples benefit more (e.g., Markman et al., 2022), the literature exclusively focused on lower-income samples has been mixed as to whether low-income couples are benefitting. Indeed, a meta-analysis of CRE programs including only couples from the lowest income levels found that economic disadvantage did not moderate program effectiveness (Hawkins & Erickson, 2015), whereas a review of CRE programs including couples across the income spectrum found that lower-income couples benefit more (Markman et al., 2022). It may be that income level plays a role in the differential effectiveness of the

program– that is, if the current study sample included more income and educational variability, perhaps there would have been related changes to levels of baseline risk factors and relationship quality. Relatedly, it may be useful for future CRE or BCI programs to examine moderators combined into indices– such as the combination of income and education, as well as other family risks, rather than examining one factor alone.

Results of the current study contribute to the literature on moderators of relationship interventions by providing emergent data about the differential effectiveness of brief relationship interventions. Results from this study may be used in a future synthesis of the effectiveness of BCI programs. Kanter & Schramm (2018) previously reviewed the literature on BCIs; however, apart from one study identifying no individual or couple-level risk factor moderated outcomes (Rogge et al., 2013), BCIs have yet to examine differential effectiveness on relationship outcomes. Thus, the current study is part of a growing body of literature that will provide a more comprehensive understanding of for whom BCIs are most appropriate. Further, the current study extends the literature by examining COVID-19 family stress and child effortful control as moderators of program effectiveness. As such, results uniquely contribute to the literature on moderators of relationship interventions and provide preliminary support for implementing L2P2 across couples with varying levels of family and child-related risk. Indeed, this body of research is critical for understanding how to effectively support diverse couples on a large scale.

Limitations

The current study aggregated all variables at the couple level and thus did not account for individual variability within couples. A more comprehensive analysis could account for nested data (individuals within couples) to disentangle the variables at each level and to examine cross-level interactions. Additionally, the current study only examined four individual moderators of

program effectiveness. Yet, there is a need for a more comprehensive analysis of moderators of effectiveness within the L2P2 program and BCIs more broadly.

Future Directions

Current recommendations for future relationship interventions echo conclusions from past reviews– CRE and BCI programs should continue to diversify their samples (Kanter & Schramm, 2018) and expand the range of moderators examined (Markman et al., 2022) to better understand for whom these programs are most effective and appropriate. Indeed, programs should continue to explore how couples' sociodemographic, individual, couple, family, and societal characteristics impact the effectiveness of relationship interventions, such as examining how combined moderators (e.g., race and gender, depression and income) impact effectiveness. Further, there have been calls for the examination of moderated mediation models– to examine the mechanism of effectiveness depending on the characteristics of the sample (Wadsworth & Markman, 2012).

The current L2P2 study aimed to recruit a diverse sample, and though the sample lacked diversity in income (M = \$125,000-149,999) and education (7.9% ≤ college degree), there was adequate diversity in the proportion of racialized (37.9%) and immigrant (32.5%) couples who participated. With the inclusion of more diverse couples, it is imperative that researchers continuously assess whether programs are culturally responsive and relevant. Based on a feasibility study of 15 couples, there is preliminary support for the acceptability of L2P2 across cultural groups in terms of participant ratings of their positive attitudes towards the program, understanding of content, and alignment with their values (Prime et al., 2023). As a next step, future evaluations of the RCT of L2P2 will examine acceptability and effectiveness as a function of race, immigration, and language and will consider qualitative feedback from participants to

assess themes of cultural and contextual relevance. These are important inquiries given that a primary goal of relationship intervention research is to reach diverse couples on a large scale (Markman et al., 2022; Kanter & Schramm, 2018), which can more easily be accomplished using accessible BCIs which reduce burden on parents.

Conclusion

The early years of parenthood constitute a pivotal period marked by profound changes to parent relationships. Given that the relationship of parenting couples is central to family and child well-being, parents are likely to benefit from appropriate evidence-based support. The current study examined whether pre-existing risk factors across the family system moderated the effectiveness of the L2P2 program. Findings did not reveal significant moderation effects, and thus differential effectiveness of this BCI was not supported. Results provide preliminary support that L2P2 is suitable for general implementation, though future directions include examining effectiveness and acceptability across diverse cultures and socioeconomic gradients. Moving forward, it is critical to continue exploring the intricacies of the effectiveness of relationship interventions to ensure efficacy across diverse couples.

Tables

Table 1
Sample and Clinical Characteristics

Individual Characteristics						
	Overall Sample			Control		L2P2
	N	*f(%)*	*n*	*f(%)*	*n*	*f(%)*
Income < regional mean (i.e., $150,000 CAD)	136	72 (51.4)	67	35 (50.7)	71	37 (52.1)
Below college education	280	22 (7.9)	136	13 (9.0)	144	9 (6.8)
LGBTQIA2S+	277	22 (7.9)	133	10 (7.5)	144	12 (8.2)
Racially minoritized	277	106 (37.9)	133	54 (39.6)	144	52 (36.3)
Born Outside Canada	279	91 (32.5)	135	53 (39.6)	144	38 (26.0)

Couple-Level Characteristics (Aggregated Mean)							
	N	*Mean (SD)*	*Range*	*n*	*Mean (SD)*	*n*	*Mean (SD)*
Relationship length (years)	140	10.76 (4.33)	0.67-21.42	68	10.58 (4.46)	72	10.92 (4.22)
Child age (years)	134	2.97 (1.85)	0.08-9.21	64	2.59 (1.86)	70	3.33 (1.78)
COVID-19 Family Stress	140	28.51 (5.43)	19.00-43.50	68	27.76 (5.01)	72	29.22 (5.74)
Dyadic Adjustment	140	15.36 (3.04)	5.50-20.50	68	15.43 (2.94)	72	15.28 (3.15)
Child Effortful Control	129	0.00 (1.02)	–3.28-3.50	62	-0.12 (1.05)	67	0.11 (0.99)

Perceived Relationship Quality							
Baseline	140	5.43 (0.91)	2.64-7.00	68	5.50 (0.80)	72	5.36 (1.00)
Post-Intervention	134	5.31 (0.93)	2.83-6.94	66	5.29 (0.88)	68	5.34 (0.99)
Follow-up (1 month)	128	5.31 (0.98)	2.31-6.97	64	5.33 (0.85)	64	5.30 (1.10)
Follow-up (3 months)	124	5.23 (0.97)	2.47-7.00	60	5.27 (0.88)	64	5.20 (1.05)

Table 2
Correlations Among Primary Variables

	1	2	3	4	5	6	7
1. COFASS	–	–	–	–	–	–	–
2. DAS	–0.335***	–	–	–	–	–	–
3. Child EC	–.005	.062	_	–	–	_	_
4. PRQC B	–0.242**	0.864***	0.141	–	–	–	–
5. PRQC PI	–0.167	0.747***	0.146	0.859***	–	–	–
6. PRQC FU1	–0.213*	0.697***	0.122	0.837***	0.913***	–	–
7. PRQC FU3	–0.224*	0.686***	0.097	0.813***	0.842***	0.866***	–

Note. COFASS = COVID-19 Family Stressor Scale; DAS = Dyadic Adjustment Scale; Child EC = Child Effortful Control; PRQC B = Perceived Relationship Quality Components Inventory (at baseline); PRQC PI = Perceived Relationship Quality Components Inventory (at post-intervention); PRQC FU1 = Perceived Relationship Quality Components Inventory (at 1 month follow up); PRQC FU3 = Perceived Relationship Quality Components Inventory (at 3 month follow up).
***$p < .001$. **$p < .01$. *$p < .05$

Table 3

Piecewise Growth-Curve Models of Risk Factors Predicting Slopes in Relationship Quality

Predictor/Moderator	Slope 1 *B*	95% CI	Slope 1 β_{std}	*p*-value	Slope 2 *B*	95% CI	Slope 2 β_{std}	*p*-value
Dyadic Adjustment								
Main Effect of Dyadic Adjustment	–0.003	[–0.008, 0.002]	–0.213	.23	–0.003	[–0.007, 0.001]	–0.294	.13
Interaction Dyadic Adjustment x Group	–0.001	[–0.006, 0.005]	–0.035	.81	0.003	[–0.002, 0.009]	0.259	.19
COVID-19 Family Stress								
Main Effect of COVID-19 Family Stress	0.001	[–0.001, 0.003]	0.088	.52	0.000	[–0.002, 0.002]	0.063	.74
Interaction COVID-19 Family Stress x Group	0.000	[–0.004, 0.004]	0.006	.97	–0.001	[–0.004, 0.002]	–0.199	.34
Child Effortful Control								
Main Effect of Child Effortful Control	–0.003	[–0.016, 0.009]	–0.083	.61	–0.005	[–0.014, 0.004]	–0.168	.28
Interaction Child Effortful Control x Group	0.006	[–0.011, 0.024]	0.111	.50	0.005	[–0.009, 0.019]	0.115	.51
Composite Risk								
Main Effect of Risk	0.007	[–0.005, 0.020]	0.140	.25	0.006	[–0.004, 0.015]	0.155	.25
Interaction Risk x Group	–0.003	[–0.020, 0.014]	–0.036	.75	–0.004	[–0.022, 0.013]	–0.084	.62

$*p < .05$

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Appendix A

Participant Consent Form

Letter of Information

Study Name: Love Together, Parent Together (L2P2): A pilot RCT of a brief writing intervention for interparental couples with young children amid the COVID-19 pandemic

Principal Investigator: Dr. Heather Prime Assistant Professor, Department of Psychology, York University; mailing address: Behavioral Sciences Building, 4700 Keele Street Toronto, ON M3J 1P3; email: hprime@yorku.ca

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Purpose of the Research: Love Together, Parent Together (L2P2) is an online self-directed writing program meant to support relationship quality and family wellbeing for couples with young children, during and after the COVID-19 pandemic.

This study will help us to determine how effective the program is and how we can further support families in the future.

To be eligible for the study, you must:
1. Be 18+ years old
2. Be living with your partner
3. Be in a relationship with your partner
4. Have one or more children under 6 years old (< 73 months) residing in the home
5. NOT have a history of or current plans to separate/divorce from your current partner
6. Both you and your partner want to take part in the study

What You Will Be Asked to Do in the Research:

The study will last for **FIVE** months, total. The entire study is completed **ONLINE**, on your own time. A visual timeline of the study can be seen at the end of this section.

Part 1: Initial Survey
If you decide to participate, you and your partner will each complete initial surveys, which will ask you about your basic demographic information, your couple relationship, other family relationships (e.g., family well-being and parent-child relations), your own mental health, and your child (e.g., emotions, behaviours, and thinking). This survey should take 20 - 25 minutes to complete.

CHANCE DRAW: After you complete your initial survey, you and your partner, together, will be assigned by chance (like a flip of a coin) to one of two groups:

1. The Love Together Parent Together group: Couples in this group will receive the L2P2 writing program. You will complete three brief surveys with writing exercises (about your couple relationship). During these sessions, you will learn new ways of thinking about disagreements with your partner.

2. Waitlist Control Group: Couples in this group will not immediately receive the L2P2 writing program. Instead, your participation in the study will involve completing three brief surveys with writing exercises (about your couple relationship). However, this group will not learn new ways of thinking about disagreements with your partner.

You cannot choose which group you are in. You will be informed of your group assignment by email. You will be compensated for your participation in both groups (the chance draw will not impact compensation).

Part 2: Writing Sessions

L2P2 Group: If you are assigned to the L2P2 program, you will engage in a writing program over a 12-week period with three brief writing sessions (once every 4 weeks). At the beginning of each session, you will complete a brief survey about your couples' relationship. You will then write about one disagreement that you recently had. Then you will engage in the L2P2 program, which will teach you a strategy to manage disagreements in your relationship in a different way, using videos and writing exercises. In total, each writing session will take approximately 20 minutes to complete. In between sessions, we will send you an email with a reminder to use the strategies you have learned.

Wait-List Control Group: If you are assigned to the wait-list control group, you will take part in writing sessions over a 12-week period with three brief writing sessions (once every 4 weeks). At the beginning of each session, you will complete a brief survey about your couples' relationship. You will then write about one disagreement that you recently had. In total, each writing session will take 5 - 10 minutes to complete. In between sessions, we will send you an email with reminders of your upcoming sessions.

Part 3: Post-Writing Sessions Survey

One week following the final writing session (L2P2 or wait-list control), you will complete a post-writing survey asking you about your couple relationship, other family relationships (e.g., family well-being and parent-child relations), your own mental health, and your child (e.g., emotions, behaviours, and thinking). We will also ask you questions about your opinion of the study. This survey should take approximately 20 - 25 minutes to complete.

Part 4: 1-Month Follow-Up

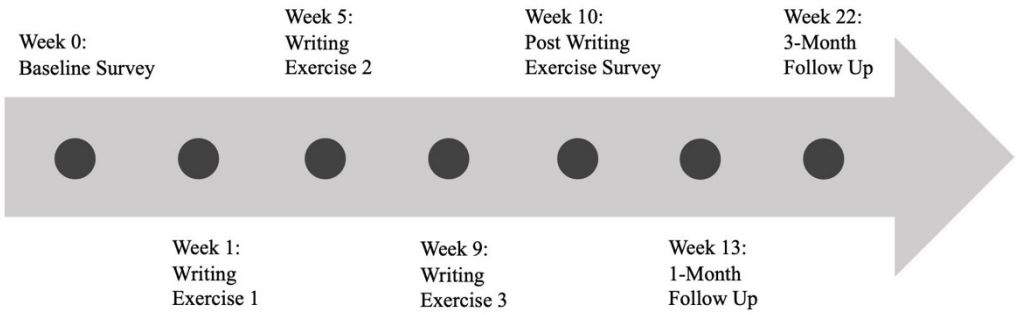
One month following the final writing session (L2P2 or waitlist control), you will complete a follow-up survey asking you about your couple relationship, other family relationships (e.g., family well-being and parent-child relations), your own mental health, and your child (e.g.,

emotions, behaviours, and thinking). This survey should take approximately 20 - 25 minutes to complete.

Part 5: 3-Month Follow-Up
Three months following the final writing session (L2P2 or waitlist control), you will complete another follow-up survey asking you about your couple relationship, other family relationships (e.g., family well-being and parent-child relations), your own mental health, and your child (e.g., emotions, behaviours, and thinking). This survey should take approximately 20 - 25 minutes to complete.

Part 6 (Wait-List Only)
Following the 3-month follow-up survey, those in the wait-list control group will have the opportunity to complete the L2P2 program. Should you choose to take part in the writing program, this is not considered part of the study; thus, you will not be compensated for your time, nor will you complete surveys. However, we would like to offer this opportunity to all participants, given our hope that you may find it helpful.

Here is a visual timeline of the study:



Compensation: In both the L2P2 and wait-list control groups, each partner will have the opportunity to receive up to $80 CAD (or $160 per couple) in gift cards from Amazon or Starbucks for completing the study (sent by email). Specifically, you will receive $10 for the initial survey (Part 1; compensation sent during week 1), $10 for each writing session for a total of $30 (Part 2; compensation sent during week one, five and nine), $10 for the post-writing session survey (Part 3; compensation sent during week 10), $15 for the 1-month follow-up survey (Part 4; compensation sent during week 13), and $15 for the 3-month follow-up survey

(Part 5; compensation sent during week 22). Participants will be compensated for any portion of the surveys they start or complete.

Risks and Discomforts: It is not uncommon for couples to experience distress and family challenges, particularly during times of stress (such as the COVID-19 pandemic). There is a small, short-term risk that you may experience discomfort or distress due to the personal nature of some of the questions included in the questionnaires. Some questions are of a sensitive nature, including questions on abuse and traumatic experiences, which may cause distress to some participants. If you feel uncomfortable answering any of the questions at any point in the study, you may skip them. As a participant, you have the right to refuse to answer any question. Additionally, participation in writing sessions may bring greater awareness to your couples' conflict dynamics. We estimate that the likelihood of the risks associated with this study is low.

Benefits of the Research and Benefits to You: You may enjoy participating in this type of study as it is an opportunity to reflect on your family dynamics. You may also benefit by learning more about the research process. Additionally, for those assigned to the L2P2 writing program, it may improve your relationship dynamics. It is possible, however, that participation in this study will be of no direct benefit to you. Your participation in this research will contribute to the literature on supporting relationship functioning and family well-being during and after the COVID-19 pandemic.

Voluntary Participation and Withdrawal: Participation in this study is completely voluntary and you may choose to stop participating at any time. Your decision not to volunteer, to stop participating, or to refuse to answer questions will not influence the nature of the ongoing relationship you may have with the research team and York University either now, or in the future. If you stop participating, you will still be eligible to receive the compensation for started or completed procedures. Should you wish to withdraw after the study, you will have the option to also withdraw your data up until the end of the study (at which point removing your data will not be possible). If you choose to discontinue study participation at any point, please contact the Prime Family Lab (primefamilylab@yorku.ca), which is only accessible by the project coordinator.

Confidentiality: Confidentiality will be provided to the fullest extent possible by law. All data will be coded by participant number rather than by name. Your name/personal information will not appear in any report or publication of the research. All study data will be temporarily stored on Qualtrics (an online survey platform protected by high-end firewall systems and encryption for all transmitted data) before being sent to a secure server at York University. In the situation that data must be downloaded directly to a device, the device will be password protected. Only research staff/research team members, which includes the investigators listed at the top of this form and their students/research assistants (present and future), will have access to data. We will destroy any personally-identifiable data (participant names, telephone numbers, and email addresses) at the end of the study. We will keep non-identifiable data to allow for future analysis of data.

Future Research: The data collected in this research project may be used – in an anonymized form - by members of the research team and their students in subsequent research investigations

exploring similar lines of inquiry. Such projects will still undergo ethics review by the HPRC, our institutional Research Ethics Board. Any secondary use of anonymized data by the research team will be treated with the same degree of confidentiality and anonymity as in the original research project.

Online Surveys: The researcher(s) acknowledge that the host of the online survey (Qualtrics) may automatically collect participant data without your knowledge (i.e., IP addresses.) Although this information may be provided or made accessible to the researchers, it will not be used or saved on the researchers' system without your consent. Further, because this project employs e-based collection techniques, data may be subject to access by third parties as a result of various security legislation now in place in many countries and thus the confidentiality and privacy of data cannot be guaranteed during web-based transmission.

Questions About the Research? If you have questions about the research in general or about your role in the study, please contact the project coordinator (primefamilylab@yorku.ca). This research has received ethics review and approval by the Human Participants Review Sub-Committee, York University's Ethics Review Board and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines.
If you have any questions about this process, or about your rights as a participant in the study, please contact the Sr. Manager & Policy Advisor for the Office of Research Ethics, 5th Floor, Kaneff Tower, York University (telephone 416-736-5914 or e-mail ore@yorku.ca).

Support Resources:
If you or a family member experience a crisis or require mental health support, we encourage you to access one of these resources.

Crisis Services Canada: 1-833-456-4566 Support for adults experiencing a mental health crisis

Hope for Wellness Help Line: 1-855-242-3310 Counselling support for First Nations and Inuit.

Ementalhealth.ca Resources for mental health and social support.

Kidshelpphone.ca Counselling, information and referrals, and text-based support to young people.

Consent:
Providing consent means you have understood the nature of this project and wish to participate. It also means you understand that you can stop participation at any time without consequence. It also means that you are aware you may be assigned to the L2P2 program OR the wait-list control, by chance, and you cannot choose which group you are in.

_ I have read the letter of information and **consent** to participate in this study.
_ I have read the letter of information and **do not consent** to participate in this study.

Appendix B

Study Instruments

Relationship Quality

The Perceived Relationship Quality Scale (PRQ) (Fletcher et al., 2000)

Scale: 7-point scale (1=Not at all, 7=Extremely)

Please rate the following statements on the extent to which it reflects your current relationship with your partner.

1. How satisfied are you with your relationship?
2. How committed are you to your relationship?
3. How intimate is your relationship?
4. How much do you trust your partner?
5. How passionate is your relationship?
6. How much do you love your partner?
7. How content are you with your relationship?
8. How dedicated are you to your relationship?
9. How close is your relationship?
10. How much can you count on your partner?
11. How lustful is your relationship?
12. How much do you adore your partner?
13. How happy are you with your relationship?
14. How devoted are you to your relationship?
15. How connected are you to your partner?
16. How dependable is your partner?
17. How sexually intense is your relationship?
18. How much do you cherish your partner?

Dyadic Adjustment
Brief Dyadic Adjustment Scale (DAS-4) (Sabourin, Valois, & Lussier, 2005)

Scale: 6-point scale (0=All the time, 1=Most of the time, 2=More often than not, 3=Occasionally, 4=Rarely, 5=Never)

Most persons have disagreements in their relationships. Please indicate below the extent of agreement or disagreement between you and your partner for each item on the following list.

1. How often do you discuss or have you considered divorce, separation, or terminating your relationship?
2. In general, how often do you think that things between you and your partner are going well?
3. Do you confide in your mate?
4. The dots on the following line represent different degrees of happiness in your relationship. The middle point, "happy" represents the degree of happiness of most relationships. Please circle the dot which best describes the degree of happiness, all things considered, of your relationship.

Scale: 7-point scale (0=Extremely unhappy, 1=Fairly unhappy, 2=A little unhappy, 3=Happy, 4=Very happy, 5=Extremely happy, 6=Perfect)

COVID-19 Family Stress
COVID-19 Family Stressor Scale (COFASS) (Prime et al., 2021)

Scale: 3-point scale (1=not true, 2=somewhat true, 3= very true)

Since the COVID-19 pandemic started, have any of the following changes occurred in your household?

1. Significant decrease (over 10%) in household income
2. Gone into financial debt
3. Job disruption or loss (myself or my partner)
4. Could not access essential supplies (e.g., sanitizer, soap, toilet paper, etc.)
5. Overwhelmed by the amount of COVID-19 news coverage
6. Applied for employment insurance or government assistance
7. Become concerned about providing for family
8. Became stressed by crowded grocery stores and shopping centers
9. Experienced increased alterations with family members
10. Experienced increased emotional withdrawal from family members
11. Children have become harder to manage
12. Inability to access educational materials for children
13. More relationship conflicts with my partner (if I am in a relationship)
14. Difficulty developing a new family and/or personal routine
15. Felt crowded in my living space
16. Significant anxiety/panic about danger to myself or loved ones

Child Effortful Control
Infant Behavior Questionnaire-Revised Very Short Form (Putnam et al., 2014)

Scale: 8-point scale (1=Never, 2=Very rarely, 3=Less than half the time, 4=About half the time, 5=More than half the time, 6=Almost always, 7=Always, 8=Does not apply)

As you read each description of your baby's behaviour below, please indicate how often the baby did this **during the last week** (the past seven days) by selecting one of the labels in the table (e.g., Never). These labels indicate how often you observed the behaviour described during the last week.

The "Does Not Apply" label is used when you did not see the baby in the situation described **during the last week**. For example, if the situation mentions the baby having to wait for food or liquids and there was no time during the last week when the baby had to wait, select the "Does Not Apply" label. "Does Not Apply" is different from "Never". "Never" is used when you saw the baby in the situation but the baby never engaged in the behaviour listed **during the last week**. For example, if the baby did have to wait for food or liquids at least once but never cried loudly while waiting, select the "Never" label. Please be sure to select a label for every item.

1. How often during the last week did the baby enjoy being read to?
2. How often during the last week did the baby play with one toy or object for 5-10 minutes?
3. In the last week, while being fed in your lap, how often did the baby seem eager to get away as soon as the feeding was over?
4. When singing or talking to your baby, how often did s/he soothe immediately?
5. How often during the last week did the baby enjoy hearing the sound of words, as in nursery rhymes?
6. How often during the last week did the baby look at pictures in books and/or magazines for 5 minutes or longer at a time?
7. When being held, in the last week, did your baby seem to enjoy him/herself?
8. When showing the baby something to look at, how often did s/he soothe immediately?
9. How often during the last week did the baby enjoy gentle rhythmic activities, such as rocking or swaying?
10. How often during the last week did the baby stare at a mobile, crib bumper or picture for 5 minutes or longer?
11. When rocked or hugged, in the last week, did your baby seem to enjoy him/herself?
12. When patting or gently rubbing some part of the baby's body, how often did s/he soothe immediately?

Early Childhood Behavior Questionnaire (ECBQ) Very Short Form (Putnam et al., 2010)

Scale: 8-point scale (1=Never, 2=Very rarely, 3=Less than half the time, 4=About half the time, 5=More than half the time, 6=Almost always, 7=Always, 8=Does not apply)

As you read each description of the child's behaviour below, please indicate how often the child did this **during the last two weeks** by selecting a label in the table (e.g., Never). These labels indicate how often you observed the behaviour described during the last two weeks.

The "Does Not Apply" label is used when you did not see the child in the situation described **during the last two weeks**. For example, if the situation mentions the child going to the doctor and there was no time during the last two weeks when the child went to the doctor, select the "Does Not Apply" label. "Does Not Apply" is different from "Never". "Never" is used when you saw the child in the situation but the child never engaged in the behaviour **mentioned in the last two weeks**. Please be sure to select a label for every item.

1. When told "no", how often did your child…stop the forbidden activity?
2. When asked to wait for a desirable item (such as ice cream), how often did your child…wait patiently?
3. When asked to do so, how often was your child able to…be careful with something breakable?
4. When engaged in play with his/her favorite toy, how often did your child…continue to play while at the same time responding to your remarks or questions?
5. During everyday activities, how often did your child…pay attention to you right away when you called to him/her?
6. When you were busy, how often did your child…find another activity to do when asked?
7. When engaged in play with his/her favorite toy, how often did your child…play for more than 10 minutes?
8. When engaged in an activity requiring attention, such as building with blocks, how often did your child…tire of the activity relatively quickly?
9. When being gently rocked or hugged, how often did your child…seem eager to get away?
10. While being held on your lap, how often did your child…mold to your body?
11. During daily or evening quiet time with you and your child, how often did your child…enjoy just being quietly sung to?
12. When being gently rocked, how often did your child…smile?

Children's Behavior Questionnaire (ECBQ) Very Short Form (Putnam et al., 2006)

Scale: 8-point scale (1=Never, 2=Very rarely, 3=Less than half the time, 4=About half the time, 5=More than half the time, 6=Almost always, 7=Always, 8=Does not apply)

Below you will see a set of statements that describe children's reactions to a number of situations. We would like you to tell us what your child's reaction is likely to be in those situations. There are of course no "correct" ways of reacting; children differ widely in their reactions, and it is these differences we are trying to learn about. Please read each statement and decide whether it is a "true" or "untrue" description of your child's reaction **within the past six months**. Use the scale found in the table (e.g., Never, Very Rarely) to indicate how well a statement describes your child.

If you cannot answer one of the items because you have never seen the child in that situation, for example, if the statement is about the child's reaction to your singing and you have never sung to your child, then select "Does Not Apply". Please be sure to select a label for every item.

1. When drawing or coloring in a book, shows strong concentration.
2. Prepares for trips and outings by planning things s/he will need.
3. Likes being sung to.
4. Notices it when parents are wearing new clothing.
5. When building or putting something together, becomes very involved in what s/he is doing, and works for long periods.
6. Is good at following instructions.
7. Likes the sound of words, as in nursery rhymes.
8. Is quickly aware of some new item in the living room.
9. Sometimes becomes absorbed in a picture book and looks at it for a long time.
10. Approaches places s/he has been told are dangerous slowly and cautiously.
11. Enjoys gentle rhythmic activities, such as rocking or swaying.
12. Comments when a parent has changed his/her appearance.