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Finding the power within and without: How can we strengthen resilience against symptoms of stress, anxiety, and depression in Australian parents during the COVID-19 pandemic?

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ABSTRACT

Objective: The present study investigated the association between resilience and indicators of mental health in a large sample of Australian parents at the time of the COVID-19 pandemic.

Methods: Data were from a large longitudinal cohort study of Australian parents of a child aged 0–18 years collected during the COVID-19 pandemic. The Brief Resilience Scale (BRS) was used to measure resilience, the Depression Anxiety and Stress Scale (DASS) measured distress (i.e., composite of stress, anxiety and depression scales). Other factors assessed included: age, gender, being born overseas, number of children, self-assessed introversion, social, educational and economic variables, family resources, positive affect and emotional regulation, external social support, and partner social support. Hierarchical regression models and a moderation analysis were used to assess the aims.

Results: Of 2110 parents, 1701 (80.6%) were female. The mean age was 38 years old (SD = 7, range = 19–69). High loneliness was a key contributor to distress. The level of social support received did add significantly to distress, with greater assistance associated with lower stress and anxiety (both $p < .01$). Partner support significantly moderated the relationship between resilience and depression; however, this relationship is of unlikely clinical significance due to its small statistical effect.

Conclusion: Interventions targeting resilience against distress and mental health of parents at the time of pandemics should focus on reducing loneliness while working with the constraints of imposed social isolation and might include partners. Qualitative studies are needed to understand the various useful and not useful aspects of partner's support.

1. Introduction

1.1. COVID-19 pandemic and mental health

The World Health Organization (WHO) has declared novel coronavirus (2019-nCoV) a public health emergency of international concern, with >2.2 million deaths to date [1]. While in Australia the response to the pandemic has been more successful than in many other countries, with the total number of cases over 28,800 and > 900 deaths [2], Australians have been and will continue to be affected by the pandemic.

Nearly 30% of the workforce have experienced unemployment or under-employment [3], with associated socio-economic stressors, such as housing and economic uncertainty, and threats to family wellbeing [4,5].

Between March and May 2020, the federal and state governments introduced a range of measures to slow the rate of infection by isolating members of the community [6]. While effective in mitigating the spread of the virus, these measures may present risks for adult mental health, family relationships and conflict, and child health and development. In early reports from China ($n = 1210$) on mental health during the

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pandemic, over 50% of general public respondents reported moderate to severe symptoms of stress (8.1%), anxiety (28.8%) and depression (16.5%) [7]. Higher distress in comparison to pre-COVID-19 rates was also noted in the New Zealand population ($n = 1003$) [8]. Worry about loved ones, prolonged isolation, increase in the rates of domestic violence, rising unemployment, and home schooling combined with occupational demands are common contributors to the mental health burden of the COVID-19 pandemic [9].

However, centuries of learnings and research from disasters and crisis events have shown that there are individual differences in how people adapt in response to adversity, such as the COVID-19 pandemic [10–14]. The success of adaption has often been associated with an individual's resilience, which is influenced by internal and external resources [15]. Given that resilience is responsive to psychological interventions, understanding the factors that strengthen adult resilience in the face of major disasters, such as the current COVID-19 pandemic, will assist in designing treatments to reduce the long-term impact of the current pandemic, as well as the impacts of future crises.

1.2. What is resilience?

Resilience (sometimes referred to as 'psychological resilience' or 'psychological hardiness') has traditionally been defined as the ability to cope effectively with adversity [16]. The more current definitions conceptualise resilience as a process of adaptation to function and be well in times of significant stress [17,18]. All humans have a capacity for resilience, however, individuals' levels of resilience are determined by an interplay between individual and intraindividual factors, with a number of identified protective factors (e.g., skills, abilities) strengthening resilience [19]. The socioecological model provides a useful framework to conceptualise the complex interplay between these factors and to understand the personal and intrapersonal characteristics that protect individuals in the face of adversity [20], with the social and physical ecologies highlighted as particularly important modifiers of outcomes when one faces major stresses [21]. Indeed, the socioecological model posits that behaviours are shaped by the environment, and therefore, a supportive environment enables people to adopt healthy behaviours, consequently expanding their resilience capital.

Within a socioecological framework, at the individual level, resilience involves cognitive, behavioural, emotional, and physiological processes. However, at the same time, resilience is very much a developmental process shaped by the environment, including factors such as social support and family dynamics [22]. When considering environmental influences as key determinants of one's resilience, prior studies have proposed the important role of informal and formal social capital in promoting resilience [23]. Such social capital has focused on personal and social competence, family coherence, social support, and personal structure [24], or combined social support with public policy influences [25]. In an attempt to counteract the historically overemphasized role of individual characteristics in understanding resilience in favour of the broader context, it seems useful to frame resilience in socio-ecological terms; for example, by considering the combination of social inclusion, family attachment and support, as well as cultural identity, spirituality, and individual competencies [26].

1.3. Resilience against stress, anxiety and depression at the time of disasters

Resilience has been observed in a variety of contexts, frequently in relation to unexpected events, including natural disasters, such as fires, floods, and volcanic eruptions, as well as human-orchestrated disasters, such as terrorism [15]. Resilience is changeable over time and influenced by protective factors [19]. In adult samples, resilience has been shown to be higher in those with minimal exposure to the disaster, male sex, older age, higher income and education, not being a member of ethnic minorities, free from secondary stressors, good prior mental

health, and the personality trait of 'harm avoidance', among other factors [15,27]. Other protective factors have also been identified in disaster research, including use of multiple coping strategies (as opposed to only problem- or emotion-based coping), higher perceived social support, self-efficacy, mastery or self-esteem, perceived control, hopefulness, acceptance, and sense of coherence [15,28].

However, individual personal and intrapersonal strengths have largely not been explored to date in the context of the COVID-19 pandemic, which we conceptualise as a traumatic, disaster-like, event. Further, resilience in parents, specifically, has not yet been examined. COVID-19 has been exceptionally stressful for parents. Australia's state and federal restrictions at the time of this study included working from home, home schooling children, and the closure of playgrounds, and community sport. This meant that children were prevented from engaging in their usual activities and outlets, with parents required to take unprecedented responsibility for children's schooling, activity and social needs, and general welfare while working from home. Two thirds of parents have reported that they are unable to meet the dual needs of work and their child's wellbeing during the pandemic [29].

Drawing on the socioecological model [20] and based on previous research on personal [15,27] and intrapersonal [15,30] correlates of resilience in the context of mental health and disasters, the current study examined the relationship between resilience and mental health in a large sample of Australian parents in context of the COVID-19 pandemic. Specifically, through exploratory analyses, we sought to identify potential protective factors across individual (e.g., positive affect) and interpersonal levels (e.g., social support) of the socioecological model that may elucidate the relationship between resilience and indicators of parental mental health. We conceptualise that resilience happens in a dynamic interplay between a stressor (COVID-19 pandemic), protective and promotive processes and factors (e.g. individual and interpersonal factors), and outcomes (stress, anxiety, depression). Since the long-term mental health of parents and children living through the COVID-19 pandemic is likely to be strengthened by promoting parent resilience [31], it is timely to examine parental personal and intrapersonal traits associated with resilience.

Specifically, the study aims to:

- 1) Explore the unique associations between individual and interpersonal strengths and distress (stress, anxiety and depression), while accounting for resilience;
- 2) Explore whether the association between resilience and distress (stress, anxiety and depression) is moderated by individual and interpersonal factors.

2. Materials and methods

2.1. Design

This cross-sectional study was nested within a large longitudinal cohort study of Australian parents of a child aged 0–18 years (see study protocol, [32]).

2.2. Selection criteria

Participants were currently residing in Australia and speaking English, were 18 years or over, and a current parent of a child aged 0–18 years. Participants were under no obligation to participate and free to withdraw from the study at any time without consequences.

2.3. Recruitment

Families were recruited during the COVID-19 pandemic (April, 2020) via social media advertisements and paid online recruitment platforms, e.g., Facebook, Twitter, Instagram. A range of methods were used to target specific groups to increase the representativeness of the

sample (e.g., targeting postcodes and demographic factors in Facebook's advertising manager software). We targeted based on parent gender, languages spoken, geographic location, child age, and being a current parent.

2.4. Measures

1. Primary outcome measure

Symptoms of stress, anxiety and depression were measured on the Depression and Anxiety Scale (DASS) 21-item version [33]. The DASS includes three subscales: Depression ($\alpha = 0.89$), Stress ($\alpha = 0.82$), Anxiety ($\alpha = 0.87$), 7 items each. The DASS is rated on a 4-point scale from 'did not apply to me at all' to 'applied to me very much, or most of the time'. Example item: "I found it hard to wind down."

2. Covariates / factors

2a. Individual factors

Resilience was measured on the Brief Resilience Scale (BRS) [34]. The BRS has 6 items and is rated on a 5-point scale from 'strongly disagree' to 'strongly agree' ($\alpha = 0.88$). Example item: "I tend to bounce back quickly after hard times."

Positive affect was measured on the Positive Affect Subscale (PANAS) derived from the Positive and Negative Affect Schedule Short Form [35]. The PANAS is a 5-item scale rated on a 5-point scale from 'very slightly or not at all' to 'extremely' ($\alpha = 0.80$). Example item: "Thinking about yourself in the past four weeks, about how often did you feel... alert?"

Emotion regulation was measured on the Difficulties in Emotion Regulation Scale-16 (DERS) Item Version [36]. This is a 16-item scale rated on a 5-point scale from 'almost never' to 'almost always' ($\alpha = 0.95$). Example item: "I have difficulty making sense out of my feelings." *We interpreted the data using the strengths-based approach with a low score on difficulties regulation considered a strength.*

Introversion/Extraversion was measured on the investigator's developed scale. This is a 1-item measure: "Do you consider yourself an introvert?" rated on a 7-point scale from 'introvert' to 'extrovert'.

Attachment-related anxiety and avoidance were measured with the Experiences in close relationships scale-relationship structures (ECR-RS) [37]. ECR-RS is a 9-item scale Rated on a 7-point scale from 'strongly disagree' to 'strongly agree.' Example item: "It helps to turn to people in times of need." *We interpreted the data using the strengths-based approach with a low score on the subscales considered a strength.*

2b. Interpersonal factors

Couple relationship quality measured on the Perceived Relationships Quality Component (PRQC) Questionnaire [38]. The PRQC is a 6-item measure rated on a 7-point scale from 'not at all' to 'extremely' ($\alpha = 0.89$). Example item: "How satisfied are you with your relationship?"

External social support (1 item) from the Longitudinal Study of Australian Children (LSAC) [39]. It is rated on a 4-point scale from 'I get enough help' to 'I don't get any help at all'; and 'I don't need any help'. Item: "Overall how do you feel about the amount of support or help you get from family or friends living elsewhere?"

Partner social support was from the Social Provisions Scale [40] (1 item selected). It is rated on a 7-point scale from 'strongly disagree' to 'strongly agree'. Item: "When I am feeling stressed about a new or unknown situation, I can rely on my partner to comfort me." This variable is further measured on the Secure Base Characteristics Scale [41] (1 item selected). It is rated on a 7-point scale from 'strongly disagree' to 'strongly agree'. Item: "My partner encourages me to draw on my skills and abilities to deal with challenges".

Loneliness was measured using the UCLA Loneliness Scale [42] (6

items). It is rated on a 4-point scale from 'never' to 'always' ($\alpha = 0.83$). Item: "Indicate how often each of the statements below is descriptive of you. I lack companionship."

Positive family expressiveness was measured on the Adapted short-form of the Self-Expressiveness in the Family Questionnaire (SEFQ) [43] (11 items were selected according to a consensus of three independent expert ratings evaluating item relevance in relation to the COVID-19 pandemic) ($\alpha = 0.87$). It is rated on a 9-point scale from 'not at all frequently in my family' to 'very frequently in my family', with two subscales: Positive and negative expressiveness. Example item: "Showing contempt for another's actions."

Mindful parenting was measured on the Interpersonal Mindfulness in Parenting (IEM-P) [44]. It is a 3-item scale rated on a 5-point scale from 'almost never' to 'almost always'. Example item: "When I'm upset with my child, I notice how I am feeling before I take action."

Other variables: age, gender, education, marital status, place of birth, number of children.

2.5. Analysis and data preparation

We tested Aims 1 and 2 via hierarchical regression models, with indicators of mental health (depression, anxiety, stress) entered as dependent outcome variables. In the first step, we entered personal variables (age, gender, born overseas, number of children, extraversion). In the second step, social and educational variables (relationship status, loneliness, completion of high school) were added to the model to test whether these variables were associated with distress while adjusting for the effects of age, gender, being born overseas, number of children, and extraversion. In the third step, personal resources: positive affect and emotional regulation were added to the model to test whether these variables were associated with distress while adjusting for the effects of age, gender, being born overseas, number of children, extraversion and social and educational variables. In the fourth step, family resources (couple relationship quality, positive and negative aspects of self-expressiveness in the family) were added to the model to test whether these variables were associated with distress while adjusting for the effects of age, gender, being born overseas, number of children, extraversion, social and educational variables, and positive affect and emotional regulation. In the fifth step, resilience, external social support and partner social support were added to the model to test whether these variables were associated with distress while adjusting for the effects of all other variables. In the sixth step, the interactions between resilience and external social support and partner social support, after centring these effects to remove covariance with their constituent variables, were tested. Partner and external social support were identified as key moderators following the examination of factor structure and correlations in the data, with the variable choice dictated by the socio-ecological model.

2.6. Inclusion criteria and approach to missing data

Data analyses were conducted using Stata 16 [45] and SPSS 26 [46]. The data consisted initially of 2365 cases. Little's MCAR test was undertaken on variables of interest for the analysis, and was found to be significant, indicating that the data were not missing completely at random, and needed replacement ($\chi^2_{(29)} = 150.30, p < .001$). Variables ranged from no missing data to 16.1%. All missing data were replaced using multiple imputation with Markov Chained Monte Carlo procedures, with 500 case draws, 500 parameter draws, and up to 7000 model parameters across 100 imputed data sets. All reported results are from the multiply imputed data sets.

2.7. Ethical approval

The current study was approved by the Deakin University Human Ethics Advisory Group (Project number: HEAG-H 52_2020). Participants

indicated their consent to participate in the study at the start of the online questionnaire. Participants of the longitudinal cohort study in which the present sub-study is nested (see study protocol, [32]) have been entered into a prize draw for 1 of 10 AU \$50 online gift vouchers if they have completed at least one survey for every month of the survey.

3. Results

3.1. Demographic characteristics

Of 2110 respondents included, 1701 (80.6%) were female. The mean age was 38 years old (SD = 7), ranging from 19 to 69. Overall, 380 (18%) were born outside Australia and 4% spoke language other than English at home, 40 (2%) were Aboriginal or Torres Strait Islander Peoples. Ninety-one per cent (n = 1918) completed high school, with 68% reporting a university degree. In terms of family structure, 1901 (91%) reported having a partner. The majority had more than one child, with 46% reporting having two, 18% having three, and 7% having more than three living in the household. On average the children were 8.6 (SD = 5.1) years old (Table 1).

3.2. Aim 1 and 2

Social and educational variables (loneliness, completion of high school) accounted for 12.1% of anxiety, 24.6% of depression, and 13.1% of stress while personal variables (age, gender, born overseas, number of children, extraversion) had only a minor contribution to mental health variables (Table 2).

Level of education and loneliness were both important to anxiety and

Table 1
Demographic details of sample and mean responses to items included in the analyses.

Variable	Male	Female			
Parent gender	409	1701			
Age	Mean	SD	Min	Max	
	38.25	7.07	19	69	
Born overseas	Yes	No			
	380 (18%)	1726 (82%)			
Did not complete high school	192 (9%)	1918 (91%)			
Having a partner	1901 (91%)	192 (9%)			
Number of children in household	0	1	2	3	4+
	0	608	974	379	148
		Mean	SD	Min	Max
	DASS total	15.5	10.5	0	63
	DASS anxiety	2.9	3.4	0	21
DASS depression	4.9	4.2	0	21	
DASS stress	7.7	4.4	0	21	
Extraversion	3.6	1.6	1	7	
Positive affect	14.7	3.7	5	25	
Emotion regulation	31	12.2	8	80	
Resilience	3.5	0.8	1	5	
Attachment anxiety	3.3	1.8	1	7	
Attachment avoidance	3.4	1.3	1	7	
Couple relationship quality	33.9	6.5	6	42	
Loneliness	1.8	0.9	1	4	
Partner support: when stressed about a new or unknown situation, my partner will comfort me	5.2	1.7	1	7	
Partner support: my partner encourages me to use my skills and abilities to deal with challenges	5.2	1.7	1	7	
External social support	0.7	0.4	0	1	
Positive expressiveness	7.05	1.614	1	9	
Mindful parenting	10.3	2.234	3	15	

depression (see Table 3), but only loneliness was significantly associated with stress. Personal resources (positive affect, and difficulties in emotional regulation) added considerably to the explanation of anxiety ($\Delta R^2 = 20.7\%$), depression ($\Delta R^2 = 29.6\%$), and stress ($\Delta R^2 = 24.9\%$), with both positive affect and difficulties in emotional regulation significantly contributing to the model (see Table 3). The level of external social support received did add significantly to distress, with greater assistance associated with lower anxiety and stress (Table 2).

In terms of the moderation analysis conducted in Step 6, partner support significantly moderated the relationship between resilience and depression (Tables 2 and 3). However, Fig. 1 demonstrates that while the moderation was statistically significant, the magnitude of the effect was small.

4. Discussion

This baseline survey from a large longitudinal cohort of Australian families explored the relationship between resilience and mental health at the time of the COVID-19 pandemic. The study made several original and important observations on mental health in the context of post-disaster trauma.

Importantly, we demonstrated that loneliness was a key contributor to distress, over and above the influence of resilience. There has been a growing body of evidence linking loneliness with poor health, such as increased rates of coronary heart disease and stroke [47], increased all-cause mortality, and poor mental health [48]. People who are lonely tend to report more symptoms of depression [49]. However, the studies on loneliness and health are largely conducted with older cohorts, with very few studies focused on young adults or families with young children; our study is original in describing that parents can feel lonely even in the presence of others (family members and children). Further, in the context of disasters, loneliness has been found to be associated with resilience in one small study (n = 216) [50]. However, the COVID-19 pandemic has been unique in terms of enforced isolation, with people living in Melbourne, Victoria, currently entering their sixth month of isolation. Documenting the relationship between loneliness, mental health and resilience is particularly important for future pandemics. Interventions targeting mental health at this time should focus on reducing the sense of loneliness while working with the constraints of imposed social isolation. This could be achieved by drawing on the services which remain open throughout isolation such as sports clubs, social clubs, mothers' groups but also workplaces which have the capacity to hold social gatherings online. In clinical practice, it is important to watch clients expressing sense of loneliness and those with little social support particularly carefully for worsening psychological well-being during future disasters and to offer preventive as well as remedial approaches including scheduling regular social activities (online or via social bubbles if permitted).

The level of social support received did add significantly to distress, with greater assistance associated with lower stress and anxiety. Further, while the presence of a partner in a respondent's life had a significant effect on the relationship between resilience and depression in our moderation analysis, its size was small and unlikely to be clinically meaningful. This may be counterintuitive as one would assume social support would strengthen resilience and reduce depression, however, in the context of wide-spread loneliness we observed (even when surrounded by the family), perhaps the constant presence of the partner nearby (i.e., over months of working from home) is more stressful than helpful, or perhaps its usual beneficial effect is diluted. In addition, other family and parenting variables were not significant factors in our analysis. This could be because other parenting variables are more applicable to the children's mental health rather than that of the parents, however, we could not verify that as part of the present study. Nevertheless, partner support has been previously found to promote resilience in pregnant and postpartum women at the time of hurricane Katrina (n = 514) [51]. Therefore, it may be important to include

Table 2

Model summary output from imputed data for the analysis of distress together with 95% confidence intervals at each model step.

Model	R ²	95% CI	Adj'd R ²	95% CI	ΔR ²	95% CI	ΔF	df1	df2	p
Anxiety										
1	0.037	0.037–0.037	0.035	0.034–0.035	0.037	0.037–0.037	16.045	5	2099	<0.001
2	0.157	0.156–0.159	0.155	0.153–0.156	0.121	0.119–0.122	150.256	2	2097	<0.001
3	0.365	0.363–0.366	0.362	0.360–0.363	0.207	0.205–0.209	341.485	2	2095	<0.001
4	0.369	0.368–0.370	0.365	0.364–0.366	0.004	0.004–0.005	3.606	4	2091	<0.01
5	0.373	0.372–0.374	0.368	0.367–0.369	0.004	0.004–0.005	2.907	5	2086	0.01
6	0.375	0.373–0.376	0.368	0.367–0.370	0.001	0.001–0.001	2.050	2	2084	0.13
Depression										
1	0.023	0.023–0.024	0.021	0.021–0.021	0.023	0.023–0.024	10.023	5	2099	<0.001
2	0.269	0.267–0.271	0.267	0.265–0.269	0.246	0.244–0.248	353.112	2	2097	<0.001
3	0.565	0.563–0.567	0.563	0.561–0.565	0.296	0.293–0.298	712.513	2	2095	<0.001
4	0.568	0.566–0.569	0.565	0.563–0.566	0.003	0.002–0.003	3.219	4	2091	0.01
5	0.570	0.568–0.571	0.566	0.564–0.567	0.002	0.002–0.002	1.969	5	2086	0.08
6	0.574	0.572–0.575	0.569	0.568–0.571	0.004	0.004–0.004	9.563	2	2084	<0.001
Stress										
1	0.045	0.044–0.045	0.042	0.042–0.043	0.045	0.044–0.045	19.576	5	2099	<0.001
2	0.175	0.174–0.177	0.173	0.171–0.174	0.131	0.130–0.132	166.322	2	2097	<0.001
3	0.424	0.422–0.426	0.422	0.420–0.424	0.249	0.247–0.251	453.106	2	2095	<0.001
4	0.437	0.435–0.440	0.434	0.432–0.436	0.013	0.013–0.014	12.294	4	2091	<0.001
5	0.442	0.440–0.444	0.437	0.435–0.439	0.005	0.004–0.005	3.593	5	2086	<0.01
6	0.443	0.440–0.445	0.437	0.435–0.439	<0.001	<0.001 - <0.001	0.648	2	2084	0.52

Step 1: personal variables (age, gender, born overseas, number of children, extraversion), Step 2: social and educational variables (relationship status, loneliness, completion of high school), Step 3: personal resources: positive affect and emotional regulation, Step 4: family resources (couple relationship quality, positive and negative aspects of self-expressiveness in the family, and mindful parenting), Step 5: resilience, external social support, and partner social support, Step 6: interactions between resilience and external social support and partner social support.

Table 3

Coefficients, correlations, and semi-partial correlations at the sixth level of the model for distress.

Entry	Variable	Anxiety			Depression			Stress		
		b	SE	sr	b	SE	sr	b	SE	sr
1	Constant	-2.371*	1.049		-1.402	1.152		4.001**	1.433	
1	Age	-0.017	0.009	-0.032	0.013	0.010	0.021	-0.039**	0.011	-0.058
1	Gender (0: F, 1: M)	-0.410*	0.160	-0.045	0.286	0.168	0.025	-0.329	0.203	-0.028
1	Born overseas (0: N, 1: Y)	-0.194	0.159	-0.022	0.137	0.164	0.012	-0.458*	0.195	-0.039
1	Number of children living in the household	0.084	0.069	0.022	0.048	0.071	0.010	0.091	0.085	0.018
1	Extraversion (1: I, 7: E)	-0.023	0.041	-0.010	0.020	0.045	0.007	0.073	0.054	0.025
2	Highest level of schooling (0: Completed high school, 1: Did not complete)	0.845***	0.215	0.070	0.633**	0.220	0.042	-0.124	0.263	-0.008
2	Loneliness (High = high loneliness)	0.075**	0.025	0.063	0.200***	0.028	0.135	0.092*	0.036	0.060
3	Positive Affect (High = High Positive Affect)	-0.068**	0.020	-0.066	-0.297***	0.022	-0.231	-0.163***	0.029	-0.121
3	Emotion Regulation (High = High Difficulties)	0.125***	0.007	0.343	0.160***	0.009	0.356	0.163***	0.011	0.348
4	Couple relationship quality (High = High Quality)	0.010	0.015	0.014	0.017	0.015	0.020	0.014	0.019	0.015
4	Family expressiveness Negative (High = High Negative Express)	0.072	0.042	0.034	0.035	0.045	0.013	0.246**	0.054	0.089
4	Family expressiveness Positive (High = High Positive Express)	0.072	0.050	0.029	-0.021	0.054	-0.007	0.209**	0.069	0.065
4	Mindfulness (high = high mindful)	0.064	0.035	0.043	0.063	0.045	0.035	-0.011	0.058	-0.005
5	Resilience (high = low resilience)	-0.231*	0.094	-0.046	-0.027	0.103	-0.004	-0.160	0.130	-0.025
5	Partner Support (High = High Support)	0.009	0.061	0.003	-0.042	0.060	-0.012	-0.049	0.076	-0.013
5	External Social Support (0 = none, 1 = get help)	-0.278	0.158	-0.034	-0.117	0.168	-0.011	-0.476*	0.208	-0.044
5	Attachment-Related Avoidance (high = high avoidance)	-0.025	0.060	-0.009	-0.032	0.081	-0.009	-0.019	0.121	-0.005
5	Attachment-Related Anxiety (high = high anxiety)	0.019	0.049	0.008	0.083	0.054	0.028	0.042	0.071	0.014
6	Interaction Resilience with External Social Support	0.040	0.048	0.016	0.012	0.050	0.004	-0.016	0.064	-0.005
6	Interaction Resilience with Partner Support	0.233	0.167	0.026	0.664***	0.180	0.060	0.124	0.219	0.011

* $p < .05$.
 ** $p < .01$.
 *** $p < .001$.

partners in any future resilience-strengthening interventions, particularly in the context of parenting and caring for young children during a crisis. Such interventions should ideally be co-designed with consumers to understand which aspects of partner support might be useful and which unhelpful. Qualitative studies might shed further light on this controversy.

4.1. Strengths and limitations

This large study was nested within an existing prospective cohort

which utilised multiple sampling strategies to increase representativeness. However, while documenting a large cohort, the present data are cross-sectional and thus it was not possible to determine the directionality of the assessed associations. In addition, the variables we have studied could be bidirectionally linked. For example, greater depression could also lead to greater loneliness, withdrawal, and lower partner satisfaction. Likely, depression and loneliness are associated with one another in a bidirectional manner over time. However, assessing causal relationships was beyond the scope of the present paper. Further, most of the sample identified as female. While this is a common occurrence in

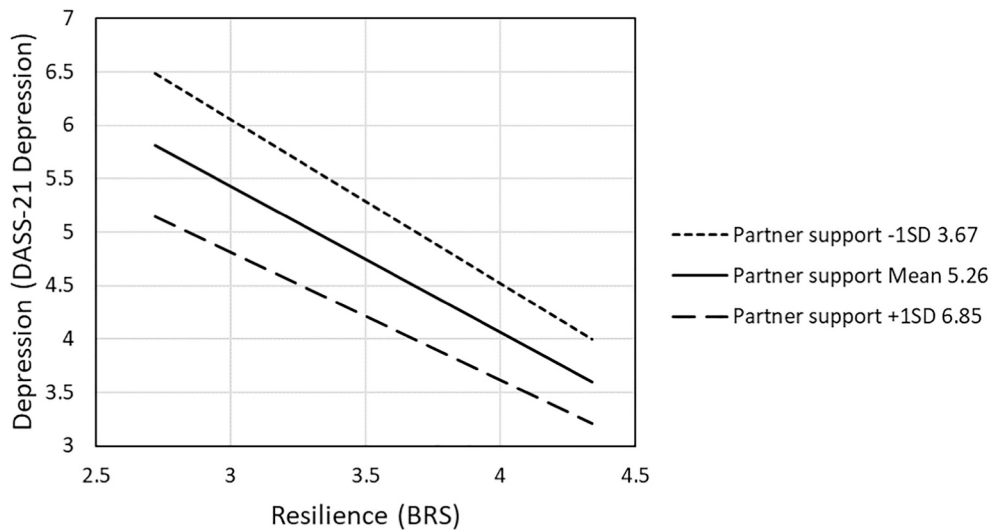


Fig. 1. Plot of the interaction between resilience (BRS) and partner support for depression.

online surveys, it may create a gender bias. However, since the present study was focused on families with children, it is perhaps unsurprising that women, who tend to be main carers of children, participated in greater numbers. Nevertheless, this poorer representation of male views may limit the generalisability of our findings. In order to reduce the study burden, we had to limit the number of questions in our survey. While many scales have been previously used and validated, some constructs (e.g. personality, social support) were measured using 1-item questionnaires developed by our team or derived from other scales. Further, all the scales we used in the study were based on self-report and thus prone to reporting bias. Nevertheless, psychological studies usually rely on subjective measures as objective measures in this context are very limited. In addition, mental health was measured using a screening measure rather than a psychological interview. This was done for practical reasons, to avoid delays in capturing mental health of our population of interest during the COVID-19 pandemic but means that we can only comment about symptoms of mental illness rather than refer to specific diagnoses. Finally, resilience was measured once only during the present study and since resilience is increasingly conceptualised as a process of adaptation it would be useful for the future studies to include multiple time points to measure the construct prospectively.

5. Conclusion

Loneliness was a key contributor to mental health outcomes, over and above resilience. Interventions targeting resilience to distress and mental health of parents at the time of pandemics should focus on reducing loneliness, while working with the constraints of imposed social isolation. The level of social support was associated with distress. However, the presence of a partner in a respondent's life had only a small statistical effect on the relationship between resilience and depression, likely with little clinical meaning. It may be important to include partners in any future resilience-strengthening interventions, particularly in the context of parenting during a crisis, however, such interventions should be co-developed with consumers to ensure only the useful aspects of partner support are included.

Data availability statement

The data that support the findings of this study are available on request from the senior author, EW. The data are not publicly available due to restrictions.

Declaration of Competing Interest

We have no interests to report. There is no funding to report.

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