

Article

Exploring Environmental Factors Associated with Child Wellbeing during COVID-19 in Australia and Germany

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Abstract: The COVID-19 pandemic has had a significant impact on the wellbeing of children and families globally. With extended lockdown periods, early childhood education and school closures, and remote learning, families experienced increased stress and anxiety, financial hardship, and disrupted routines. This paper aims to explore associations between children's social-emotional wellbeing and environmental factors (including the burden of COVID-19 on the family, early learning experiences in the home and early childhood education, and parent wellbeing and mental health) during COVID-19 in Australia and Germany, two countries that experienced significant lockdown periods. Using a longitudinal online survey design, parents of young children (aged 1–6 years) in Australia (N = 66) and Germany (N = 53) completed surveys on their own wellbeing; their child's wellbeing; the home learning environment, and their satisfaction with early childhood education and care at two time points in 2020 and 2021. The burden of COVID-19 mitigation measures on families' everyday lives correlated with child wellbeing outcomes in both the Australian and German cohorts. Findings also provide evidence of potential protective factors of children's social-emotional wellbeing during stressful events, such as the lockdowns experienced by families in Germany and Australia during the pandemic.

Keywords: child wellbeing; parent wellbeing; COVID-19; home learning environment; early childhood education



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1. Introduction

The COVID-19 pandemic brought with it a set of unprecedented challenges. In many countries, efforts to contain transmission of the COVID-19 virus included quarantine measures, social and movement restrictions, as well as temporary closures of services and workplaces [1]. This included the closure of services normally used by families and children such as early childhood education and care (ECEC) services, schools, playgrounds, restaurants and recreational centres [2]. These measures created a previously unexplored phenomenon for families [3] where challenges encountered were unique to each family in the face of a common global pandemic. At the same time, public health strategies and efforts to mitigate the transmission of COVID-19 differed across countries and state governments, raising questions and concerns about possible negative short- and long-term effects on the wellbeing and development of young children.

Along with the immediate threat of disease, isolation resulting from the pandemic elevated family stressors, impacting on family and child wellbeing, mental health, and relationships within families, with potential long term detrimental effects [4]. For some

families, sources of stress included closures of ECEC services, representing the loss of access to educational and childcare support for families and increased experiences of social isolation [4,5]. For many families, this added to the challenge of simultaneously caring for and educating their children while working from home [3–5]. Mitigation measures imposed during the pandemic also impacted the economy, resulting in increased unemployment rates, a strain on businesses, and additional financial pressure for many families [3,4].

Across different countries, challenges brought on by the pandemic created a range of experiences for children and families. A cross-cultural comparison between Italy and Spain found similarities in the significant increase of maternal stress and child externalizing behaviours in both countries due to home confinement [6]. However, families differed in the types and degree of challenges encountered [7]. In particular, families experiencing vulnerabilities (e.g., families with children with special educational needs or disabilities) were more likely to be adversely affected by lockdown measures. Families experienced difficulties accessing social support and children with mental health difficulties were reported to struggle more behaviourally and emotionally than their peers during lockdown, and parents of these children experienced higher than usual levels of stress [8,9].

High levels of stress can add strain to parent-child relationships [10], increasing the risk of harsher parenting strategies [11] or child maltreatment [12,13]. Since parent wellbeing is intrinsically linked to child development [14,15] mental health problems in parents can have adverse effects on children's wellbeing and development in the long term [16–19]. Consequently, increased levels of COVID-19 related parental stress compounded by restricted access to ECEC and other family support services likely had negative effects on the social-emotional wellbeing of young children [14], see also [20].

In this paper, the social-emotional wellbeing of children and their families during the pandemic, as well as the relationship between young children's social-emotional wellbeing and early learning environments (home and early childhood education) is examined in two countries, Australia and Germany, where significant lockdown periods and restrictions were imposed.

1.1. The Importance of ECEC for Children and Families

Children's wellbeing and development can be influenced by experiences within and outside the home (e.g., ECEC settings). The important adults in the lives of young children such as parents, caregivers, and educators, play a pivotal role in supporting children's wellbeing through engaging them in frequent, warm, and responsive interactions. These kinds of adult-child interactions are vital for children's health, wellbeing and learning, laying strong foundations for their development and future relationships [15,21–23]. Thus, high-quality ECEC services (and the professionals who work with them) provide warm and responsive interactions and behavioural and learning support across different developmental domains (e.g., [24]). This builds an essential base for children's development and wellbeing. Indeed, the potential benefits of access to high-quality ECEC for supporting children's wellbeing and development is well established in the literature [25–27].

Quality ECEC programs provide stimulating and caring environments that give children plenty of ways to play, communicate, and learn, supporting them to develop important skills that they will use in all areas of their lives [28,29]. Access to high-quality early learning programs is particularly important for children and families experiencing multiple risk factors or living in high levels of disadvantage [25,30–34]. For these children and families, participation in high-quality ECEC services can significantly benefit children's learning and development, while building a sense of social connectedness that supports their wellbeing and helps to ameliorate the effects of social disadvantage or stressful home environments [35–37].

Strong educator-family partnerships that foster trust and collaboration can also support children's learning and development through enhancing the continuity of children's learning and the facilitation of stimulating home learning environments [38–41]. In addition, family engagement with ECEC services has potential social and economic benefits

through the promotion of parental workforce participation [42], increased parental access to information and supports about parenting practices and community events [43,44], and parent engagement with other non-education services such as maternal and child health services and family support services [45]. As such, the value of access to ECEC lies not only in child participation and the ensuing benefits for children's outcomes, but also in the ways services can provide a bridge to other essential supports for families and communities.

1.2. ECEC in Australia and Germany

In Australia, ECEC is defined as arrangements for providing non-compulsory education and care for children under formal school age (compulsory school attendance in Australia is from age 6). Australia has a mixed market model, with the federal government overseeing funding for centre-based day care, and state governments responsible for preschool kindergarten programs taught by registered early childhood teachers. There are three main types of ECEC services: long day care (or centre-based day care); family day care; and kindergarten. At long day care services, for-profit or not-for-profit organisations provide full-day care and education throughout the year to children below school age. Family day care is provided in the educators' homes and is organized by licensing schemes. In Australia, kindergarten is non-compulsory and provides early childhood education for children in the year or two before they commence full-time schooling (when a child is three or four years old).

All ECEC services are required to practice according to principles and learning outcomes established by a national learning framework; Belonging, being and becoming: The Early Years Learning Framework for Australia (EYLF), version 2 [46] and National Quality Standard [47]. The EYLF has an emphasis on play-based learning and recognises the importance of supporting children's communication and language development, as well as their social and emotional development. In the EYLF v2.0 [46] wellbeing is defined as incorporating physical and psychological aspects, including physical health, positive mental health, feelings of happiness and satisfaction, and successful social functioning.

In Germany, the ECEC system is characterized by a strong socio-pedagogical tradition and is part of the social welfare system, and not part of the education system itself [48]. Compulsory schooling starts when children are six-to-seven years old and thus a year older than children in Australia. Children are usually cared for in centre-based, non-profit organisations, with mixed-age classes comprising the age span of 0 to 6 years. Some federal states are splitting the age groups (e.g., 0 to 3 (German "Krippe" [crèche], and 3 to 6 German "Kindergarten" (preschool)), while some federal states organise children in age homogenous groups (in 2018, 57% of children under three years were placed in daycare centres) [49]. In addition, for children under the age of 3, childcare is provided in which around 16% of the children are cared for [50].

Although kindergarten is voluntary, 90% or more of children in Germany attend kindergartens when they are three to five years old, whereas enrolment rates in Australia are much lower, also due to the higher costs for ECEC [51]. For instance, in Germany, the final year of kindergarten is subsidised by the state and almost free for five-year-old children.

As research shows that preschool education programs support children's cognitive and emotional development (e.g., [52]), kindergartens in Germany now have a strong emphasis on children's education rather than focusing primarily on childcare. Similar to ECEC in Australia, German kindergartens follow care and education plans, which are a form of state-level educational guidelines [53].

1.3. The Home Learning Environment and Child Development

Although formal ECEC plays an important role in early child development, the primary socialisation and learning happens in the family context. Consequently, it is not surprising, that the home learning environment (HLE) is a very important predictor for children's cognitive (e.g., [54,55]) and social-emotional outcomes (e.g., [56,57]). Here,

children who have high-quality everyday interactions with their parents, who are read to more often, and who play games with literacy or numeracy content are supported well in their learning [58]. However, the impact of the HLE on children's socio-emotional learning seems to be rather indirect via children's linguistic competencies [57]. During the COVID-19 pandemic lockdown phases, the HLE became even more crucial for children's learning and development. As children were restricted in their social interactions with peers and were not able to attend formal ECEC and kindergartens, their main caregivers and siblings, and thus the home environment, was their main context for cognitive and social learning. On the one hand, during the lockdown phases, there was more time and opportunities for parent-child interactions at home which may have increased the frequency of such interactions. On the other hand, the greater stress associated with COVID-19 [14,20], may also have led to lower frequency of parent-child-interactions that support children's wellbeing and development.

1.4. COVID-19 in Australia

National data shows that in Australia, the social and economic impacts of the COVID-19 pandemic served to widen the gap between children from low- and middle-class families [59,60]. ECEC services and families initially had to adapt to lockdown and remote learning requirements with limited preparation time [61,62]. Sustaining the engagement of families living in disadvantaged circumstances or families with different language or cultural backgrounds was particularly challenging for ECEC services due to restricted in-person communication, language and cultural barriers, financial stressors, scarce access to technology, or lower levels of digital literacy [63,64]. Families living in the state of Victoria were particularly impacted, with lockdown restrictions extended from 9 July 2020 to 27 October 2020, lasting for four months (first data collection point of the current study). One study investigating the stratified experiences of the COVID-19 pandemic in Australia found substantially worse trajectories of parent and child mental health symptoms during the second-wave lockdown (July–October 2020) compared to non-lockdown states in Australia [65]. Although the impacts of the pandemic varied according to family circumstances, concerns about the negative impacts of the pandemic on the learning and wellbeing of children (as reported by Australian parents) were apparent from different studies, with many showing that the impacts were more severe for children in the more COVID-affected states [59,65–68].

A study reporting on the experiences of families in Australia during the early stages of the COVID-19 pandemic reported families experiencing emotions that ranged from feeling bored, trapped, frustrated, loss (of events and activities essential for family wellbeing and hope), isolation (from important social connections), to high levels of stress, anxiety, and even depression for some families [3]. The study also reported on variations in the types of experiences encountered by families, such as: heightened challenges for children and families with pre-existing health conditions or disabilities; families experiencing financial difficulties; families living in smaller spaces; or families who experienced prejudice. Families also experienced differences in the impact of restrictions on family relationships (which ranged from negative to positive effects), as well as differences in the ways families coped with adversity, with some families reporting on maintaining a positive outlook and even finding positive changes in their lives. Notably, Evans and colleagues' [3] study provided evidence on how parent's mental health impacted on children's functioning, demonstrating emotional contagion, where negative emotions experienced by one family member affects other family members. Thus, evidence suggests that the complex challenges of the pandemic not only impacted the emotional and financial wellbeing of many families, but crucially, some parents' capacity to support the health and wellbeing of young children, with potential long-term ramifications [5,60,68,69].

1.5. COVID-19 in Germany

The first nationwide lockdown was initiated in Germany in March 2020, with some restrictions easing a month later, lasting until the end of May. From June to November there was a phase of reopening with contact restrictions and hygiene sanctions. In early November 2020, as infection rates increased again, German states entered a partial lockdown, limiting social contacts to two households, whereas schools and ECEC remained open. As the infection rates increased dramatically in winter, states went into a hard lockdown from December 2020 to March 2021, closing schools, daycares, and stores again.

A study conducted in Germany found that parents experienced higher than normal levels of parental stress during COVID-19, with parents of toddlers experiencing greater stress than parents of infants [14]. This study also found poorer age-appropriate behaviour in toddlers, compared to infants, suggesting a greater impact of the COVID-19 pandemic on the social-emotional development of toddlers than infants. Another study examining the wellbeing of parents in Germany found that having children at home and other worries during the pandemic impacted negatively on their wellbeing, and resulted in a greater reduction in working mothers' wellbeing than fathers [70].

1.6. The Current Study

This paper provides a descriptive comparison of the extent to which environmental factors were associated with child wellbeing during COVID-19 lockdowns and restrictions in Australia and Germany. In particular, descriptions of parent and child social-emotional wellbeing, home learning environments, and satisfaction with ECEC support during lockdowns were compared across the two countries and at different time points during the pandemic. Through such an exploration, we hoped to better understand how young children's social-emotional wellbeing was affected by COVID-19 restrictions and to identify possible protective and risk factors across the two countries. In addition, comparing the impact of COVID-19 within these two countries can provide insights on how background characteristics on the macro-level may help to moderate impacts of the pandemic, and the state strategies to deal with it on children's development. The research questions examined were:

1. What was the relationship between environmental factors (burden of COVID-19, home learning environment, satisfaction with ECEC, parental mental health) and child social-emotional wellbeing in Australian and German contexts during COVID-19?
2. To what extent did environmental factors predict child wellbeing concurrently and 6–8 months later in the Australian and German samples?

1.7. Definitions and Theoretical Framework

There are numerous and overlapping definitions of wellbeing described in the literature, with the construct of wellbeing in the early years differing across domains of health, psychology, mental health and education [71,72]. However, there is some consensus that wellbeing is multi-dimensional, and that it should encompass an individual's holistic wellbeing [46,73,74]. Some of the key characteristics of wellbeing identified in the literature include a sense of agency, autonomy, competence, self-esteem, belonging, connectedness/relatedness, social responsibility and feeling valued [73]. The current paper focuses on children's social-emotional wellbeing, aligning with the definition provided by the Australian Institute of Health and Welfare [75]: 'The emphasis is on behavioural and emotional strengths and ability to adapt and deal with daily challenges (resilience and coping skills) and respond positively to adversity while leading a fulfilling life' (p. 122). This ecological definition of wellbeing is consistent with Bronfenbrenner's [76] multileveled ecological systems theory of human development, which acknowledges that individuals are influenced by a complex and interactive system of relationships in their immediate and wider environment. This theoretical approach recognises that an individual's wellbeing is significantly influenced by their relationships and interactions with others, including in their home, education and community settings, to within broader socio-cultural and economic environments. This provides a theoretical framework which is suited to explor-

ing the complex environmental factors impacting child and family wellbeing during the pandemic. As such, the methods used in this study are informed by socioecological theory.

2. Materials and Methods

2.1. Australian Sample and Procedures

An online survey designed study was conducted with parents in Victoria, Australia who experienced amongst the lengthiest and most severe lockdown internationally. ECEC services were closed to all families except essential workers and vulnerable children for 2.5 months during the extended 2020 lockdown. Parents were recruited primarily via Facebook and the research team's early childhood networks. Primary caregivers of young children (aged 1–6 years) living in Victoria, Australia who were enrolled in ECEC services at the time of recruitment were invited to take part.

The first online survey was completed by parents during Victoria's first strict lockdown (September–October 2020), while the second survey was completed during eased restrictions (May 2021).

2.2. German Sample and Procedures

An online survey designed study was conducted with parents in Germany with a focus on Bavaria, and Berlin. Parents were recruited via social media and the research team's early childhood networks. In addition, ECEC centres were asked to provide the study link to interested parents. Eligibility criteria included families with young children (aged 1–6 years) who were enrolled in ECEC services at the time of recruitment.

The first online survey was completed by parents during Germany's second strict lockdown (December 2020–March 2021) where ECEC services were closed to all families except essential workers and vulnerable children for 2.5 months, while the second survey was during eased restrictions (October 2021).

2.3. Ethics Statement

Ethical approval for the Australian study was obtained from the University of Melbourne Human Research Ethics Committee (#2057564). Ethical approval for the German study was obtained from the University of Bamberg Research Ethics Committee (dossier number 2020-06/21). All participants were provided with a participant information statement and provided informed consent.

2.4. Child Wellbeing Outcome Measures

Child wellbeing was measured in the Australian sample using four scales from the PROMIS Early Childhood Parent Report wellbeing measures [77]. The four scales used were Irritability, Anxiety, Depression and Positive Affect, with items on a 1 to 5 scale (1 = never and 5 = always); lower scores on Irritability, Anxiety, Depression indicate little or no parent-reported problem, while higher scores on Positive Affect indicate little or no parent-reported problem. Sample items are "My child became frustrated easily" (Irritability), Sample items are "My child became frustrated easily" (Irritability), "My child seemed worried" (Anxiety), "My child seemed sad" (Depression), and "My child smiled a lot" (Positive Affect). Reliability for each scale ranged from 0.82 to 0.93 at time 1 (baseline) and time 2 (follow up). Raw scores of PROMIS measures can be converted into T-scores, which are standard scores with a mean of 50 and a standard deviation of 10 based on a large US representative sample [78].

The German survey included parent-reported measures of children's socio-emotional competence and wellbeing. Social emotional competence was measured with an adapted version of the California-Child-Q-Sort [79]. Three scales were formed for emotional self-regulation, aggressiveness, and prosocial behaviour at both measurement points, each scale consisting of three items. Sample items are "The child calms down quickly when he/she does not get what he/she wants" (emotional self-regulation), "The child often starts arguing and fighting with others" (aggressiveness), and "The child is helpful and

cooperative with other children" (prosocial behaviour). Responses were rated on a 4-point scale ranging from 'do not agree' (0) to 'do entirely agree' (3). Reliability for each of the scales were 0.78 (time 1) and 0.79 (time 2) for aggressiveness, 0.61 (time 1) and 0.50 (time 2) for emotional self-regulation, and 0.66 (time 1) and 0.62 (time 2) for prosocial behaviour.

Child wellbeing in the German sample was measured via the KIDSCREEN-10-Index [80]. Sample items are: "Has your child felt sad"; "Has your child had fun?"; "Has your child had enough time for him/herself". Responses were rated on a 4-point scale ranging from 'never' (1) to 'always' (5). Internal consistency was 0.67 (time 1) and 0.84 (time 2).

2.5. Environmental Factors

2.5.1. Parent Wellbeing

Parent mental wellbeing was measured in the Australian sample using the Depression, Anxiety and Stress Scales, short form (DASS-21). The DASS-21 is a self-report measure that yields three scales consisting of 7 items each: stress, anxiety and depression. Sample items include, "I found it hard to wind down" and "I felt that I had nothing to look forward to". Individual items are scored on a 4-point scale ranging from 'never' (0) to 'almost always' (3). The maximum obtainable scores on each subscale are 21. A lower score indicates fewer self-reported symptoms on each scale.

In the German sample mental wellbeing was measured using the German version of the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS) [81]. It comprises seven positively phrased Likert-style items. Participants were instructed to consider their situation over the previous two weeks and indicate to what degree they agree with the statements. The scale represents a score for each item from 1 to 5, where 1 = none of the time, and 5 = all of the time. Higher scores indicate a higher level of mental wellbeing. Sample items include, "I've been feeling optimistic about the future", "I've been feeling close to other people", and "I've been able to make up my own mind about things". Internal consistency was good ($\alpha = 0.85$).

2.5.2. Burden of COVID-19

The burden of COVID-19 was measured in both the German and Australian samples using the same scale. Perceived burdens of the pandemic were measured using 7 items on a study-developed scale [82] where parents were advised to indicate the extent to which they agree on a 5-point scale (1 = strongly disagree to 5 = strongly agree) with statements that represent burdens associated with the pandemic, e.g., "I was often at the end of my tether"; "Achieving a good work-life balance was a huge challenge for our family"; "I felt stressed by the many burdens". Internal consistency was good for the Australian sample and acceptable for the German sample (Australian sample = 0.83; German sample = 0.70).

2.5.3. Support from ECEC during COVID-19 and Satisfaction with ECEC Services

The extent to which parents felt supported by ECEC services during COVID-19 (specifically during a lockdown period) was measured in both the Australian and German samples using similar scales. In the Australian sample, parent-reported level of support from ECEC was captured by 6 items, using a 5-point-scale (1 = strongly disagree to 5 = strongly agree). Parents were asked to think about the time during the lockdown (over the past week at the time of survey completion), and to indicate the extent to which they agreed with the six statement items regarding their child's ECEC service. An example item is: "I am satisfied with my ECEC service's communication during the lockdown". The scale showed good reliability ($\alpha = 0.83$).

In the German sample support by ECEC was captured by 4 items, also using a 5-point-scale (1 = strongly disagree to 5 = strongly agree). The 4 items included were also used in the corresponding Australian scale. Precisely as in the Australian sample, the scale showed good internal consistency ($\alpha = 0.83$).

In both the Australian and German samples, satisfaction with their child's ECEC service prior to the lockdown was measured using 6 items scored on a 5-point-scale

(1 = extremely dissatisfied to 5 = extremely satisfied). An example item is: “The educators gave me the impression that they were available to listen when I wanted to speak with them”. Internal consistency was good for the German ($\alpha = 0.89$) and Australian samples ($\alpha = 0.85$).

2.5.4. Home Learning Environment

The home learning environment (HLE) was measured in the Australian and German samples using different scales but including similar items. In the Australian survey, HLE was measured using seven items to capture the frequency of language, literacy and numeracy supporting activities in the home. The seven items were adapted from the scale used by Melhuish and colleagues [54], which have been shown to provide clear learning opportunities and are shown to predict children’s later academic achievements. The items include how often an adult member of the household: reads to their child; sings songs/rhymes/poems to their child; plays with numbers with their child; paints or draws with their child; teaches their child numbers; teaches their child letters; does household activities with their child (e.g., cooking or caring for pets). Items were measured on a 7-point-scale (ranging from 1 = never to 7 = several times a day). The 7-item measure of HLE showed good reliability ($\alpha = 0.86$).

HLE was measured in the German sample using items covering the promotion of language literacy and mathematics at home in terms of educational activities. The measure consisted of parental reports of frequency of educational activities (i.e., stimulation to learn the alphabet, stimulation to learn to read, stimulation to learn shapes, stimulation to learn colors, stimulation to learn spatial relationships, stimulation to learn digits, and stimulation to learn counting) on a 7-point-scale (1 = never to 7 = more than daily).. The scale consists of 10 items and showed acceptable reliability ($\alpha = 0.77$).

2.5.5. Covariates

Child factors, including child age, child gender and the language usually spoken with the child at home were included as covariates. Child age was measured in months in both samples. In the Australian sample, to measure non-English speaking background of children, the following item was included in the survey: “What is the main language spoken with your child in your home?”. In the German sample the following item was included in the survey to measure the language background of children: “Which language is spoken at your home when all the family members of your household are together?”. Parental education level was a self-reported, study-generated variable.

2.6. Analysis

To describe child wellbeing at baseline (time 1) and follow up (time 2) in the Australian and German samples, descriptive analyses were used. Mean values and standard deviations, as well as paired t-tests were generated from time 1 to time 2 for the child wellbeing outcome variables.

To examine the relationship between environmental factors (burden of COVID-19, home learning environment, satisfaction with ECEC, parent wellbeing), child confounding factors, and child social-emotional wellbeing in Australian and German contexts during COVID-19, a correlation analysis was conducted (research question 1). Multiple regression analyses were used to determine the extent to which environmental factors predicted child wellbeing concurrently and 6–8 months later in the Australian and German samples (research question 2). First, environmental factors and child confounding variables (age, gender and non-English/German speaking background) were included in separate models with child well-being and each socio-emotional competence as outcome variables. Next, models were run separately for each child wellbeing outcome variable at time 2, with environmental factors, child confounding variables and the child wellbeing outcome at time 1 included as predictor variables. This analysis was to determine the extent to which the exposure variables at time 1, predicted child wellbeing outcomes at time 2, over and above child wellbeing vari-

ables at time 1. All analyses of Australian data were conducted using Stata version 16.0 [83]. Analyses of German data were conducted using SPSS version 29.0 [84].

3. Results

3.1. Sample Characteristics

Table 1 details the Australian and German sample characteristics. In both samples, just under half of the children reported on were female. On average, children reported on in the Australian sample were 15 months younger than children in the German sample. Just over 80% of parent respondents in the Australian sample had a degree or postgraduate qualification, compared to 66% of the German sample. The minimum education level achieved by parents completing the surveys was completion of secondary school (4.55% of the Australian sample). Parents and children in the Australian sample were from slightly less socioeconomically disadvantaged areas (mean = 1038.41; SD = 50.91) compared to the Australian population (census-based Socio-Economic Index for Areas (SEIFA): mean = 1000; SD = 100) [85]. Parents in the Australian sample reported higher average stress and depression symptoms compared to a normative sample of the general Australian adult population (mean = 3.99, SD = 4.24 and mean = 2.57, SD = 3.86 respectively) [86], while parent-reported anxiety scores were similar to the normative sample (mean = 1.74; SD = 2.78). Concerning the German sample, economic resources are comparable to the average monthly gross household income of private households in Germany (EUR 4979 in 2021) [87]. Parental well-being was slightly lower in the German sample compared to the norming population (mean = 3.61; SD = 0.58 and mean = 3.93; SD = 0.74 respectively) [81].

3.2. Child Wellbeing Outcomes

Table 2 illustrates the child wellbeing variables in the Australian and German samples at baseline and follow up. In the Australian sample, the average scores for child wellbeing domains were similar from time 1 to time 2. There was a slight reduction in mean parent-reported scores on irritability and depression from time 1 to time 2, and a slight increase in average positive affect score from time 1 to time 2. It is worth noting that these scores were within the average range based on the norming population (mean = 50; SD = 10).

In the German sample, the average child wellbeing score increased slightly, but significantly, while there was also a significant increase in parent-reported child self-regulation from time 1 to time 2 (mean difference = 0.3; $p < 0.001$). In both samples, there was a slight improvement in average child wellbeing scores from time 1 (during lockdown) to time 2 (easing restrictions).

3.3. Relationship between Environmental Factors and Child Wellbeing Outcomes at Time 1 and Time 2 in the Australian and German Samples

To address the first research question and examine the relationship between home environment factors (parent wellbeing, the home learning environment, parental satisfaction with ECEC during COVID-19 and burden on families during COVID-19), as well as child factors (child gender, child age and language spoken with child in the home) and parent-reported child wellbeing outcomes at baseline and follow up in the Australian and German samples, Pearson correlations were calculated and are presented in Table 3. We interpret correlation coefficients according to the conventions by Cohen [88].

In the Australian sample, child anxiety was concurrently positively correlated with parent anxiety at baseline ($r = 0.31$). Parent stress at baseline was related to child irritability and child positive affect concurrently, but only correlated with child positive affect at follow up. Parent depression at baseline was related to all child wellbeing outcomes concurrently and at follow, except for child anxiety at baseline. HLE was positively correlated with child positive affect at time 1 ($r = 0.29$), and negatively correlated with child irritability at time 2 ($r = -0.42$). The burden of COVID-19 on the family was moderately to strongly correlated with child irritability and child depression at time 1 ($r = 0.46$ and 0.33 respectively), and all

child wellbeing outcomes at time 2 (anxiety: $r = 0.35$; irritability: $r = 0.45$; depression $r = 0.43$; positive affect: $r = -0.54$).

Table 1. Participant characteristics at baseline.

Variables	Australian Sample (N = 66) ¹	German Sample (N = 53) ²
Child gender, female, <i>n</i> (%)	32 (48.48)	26 (49.06)
Child age (months), mean (SD)	43.23 (12.43)	58.46 (11.93)
Parent respondent gender, female, <i>n</i> (%)	62 (93.94)	48 (90.57)
Parent respondent education level, <i>n</i> (%)		
Did not complete secondary school	0 (0)	0 (0)
Completed secondary school	3 (4.55)	0 (0)
Technical/trade certificate or diploma	7 (10.61)	14 (34.15)
Degree or postgraduate qualification	54 (81.82)	27 (65.85)
Socioeconomic Status (SEIFA Index of Relative Socio-Economic Disadvantage), mean (SD)	1038.41 (50.91)	N/A
Parent income, median	N/A	$\bar{x} = 7$ (4000 to less than 5000 Euro)
Parental mental health (DASS-21), mean (SD)		
Stress	7.67 (4.29)	N/A
Anxiety	1.93 (2.50)	N/A
Depression	4.85 (3.97)	N/A
Parental emotional exhaustion	N/A	2.67 (0.86)
Parental wellbeing	N/A	3.61 (0.58)
Burden of COVID-19 on the family, mean (SD)	3.64 (0.50)	3.47 (0.69)
Support from ECEC during lockdown, mean (SD)	3.54 (0.87)	2.78 (1.05)
Satisfaction with ECEC support before lockdown, mean (SD)	4.64 (0.45)	4.44 (0.57)

¹ Sample size ranges from 49–66. ² Sample size ranges from 32–53.

Table 2. Child wellbeing descriptives at baseline and follow up in Australian and German samples.

Child Wellbeing Variables	Baseline (T1) ¹		Follow up (T2) ²					
	Mean (SD)	Min; Max	Mean (SD)	Min; Max	t	df	p	ES
Australian sample								
Anxiety	51.85 (8.65)	39.60; 75.30	51.29 (8.61)	39.60; 65.30	0.41	40	0.69	0.07
Irritability	53.67 (10.65)	32.70; 81.70	50.95 (9.91)	32.70; 73.90	1.91	39	0.06	0.26
Depression	52.34 (9.02)	42.40; 70.90	49.83 (7.60)	42.40; 64.80	1.96	39	0.06	0.30
Positive affect	41.82 (8.58)	14.50; 60.50	44.24 (7.92)	31.80; 60.50	−1.79	40	0.08	0.29
German sample								
Aggression	1.67 (0.60)	1.00; 3.33	1.59 (0.59)	1.00; 4.00	1.16	38	0.25	0.18
Concentration	2.87 (0.57)	1.00; 3.67	2.82 (0.53)	1.67; 3.67	−0.21	39	0.83	0.03
Prosocial behaviour	3.57 (0.43)	2.00; 4.00	3.46 (0.44)	2.33; 4.00	0.92	38	0.36	0.15
Shyness	1.92 (0.69)	1.00; 4.00	1.95 (0.59)	1.00; 3.33	0.09	40	0.93	0.01
Self-regulation	2.46 (0.62)	1.33; 3.67	2.76 (0.56)	1.00; 4.00	−3.08	39	<0.00	0.44
Wellbeing	3.62 (0.39)	3.10; 4.40	3.76 (0.45)	2.70; 4.70	−2.41	36	0.02	0.37

¹ T1 (Time 1): Baseline survey completed during lockdown. ² T2 (Time 2): Follow up survey completed around 6–8 months later during eased restrictions.

Table 3. Correlations between environmental and child factors, and child wellbeing outcomes at time 1 and time 2 in the Australian and German samples.

	Australian Sample—Child Wellbeing Variables										
	anx T1	irr T1	depr T1	aff T1	anx T2	irr T2	depr T2	aff T2			
DASS—Stress T1	0.16	0.27 *	0.22	−0.34 *	0.22	0.21	0.18	−0.40 **			
DASS—Anxiety T1	0.17	0.08	0.11	−0.16	0.19	−0.04	0.21	−0.07			
DASS—Depression T1	0.23	0.31 *	0.31 *	−0.34 *	0.36 *	0.35 *	0.35 *	−0.46 **			
DASS—Stress T2	0.26	0.31 *	0.36 *	−0.10	0.36 *	0.27	0.47 *	−0.38 *			
DASS—Anxiety T2	0.31 *	0.07	0.34 *	−0.05	0.27	0.09	0.30 *	−0.09			
DASS—Depression T2	0.22	0.14	0.15	−0.12	0.31 *	0.28	0.26	−0.39 **			
COVID burden T1	0.22	0.46 **	0.33 *	−0.17	0.35 *	0.45 **	0.43 **	−0.54 **			
HLE T1	<0.0	−0.17	−0.07	0.29 *	−0.11	−0.42 **	−0.09	0.29			
ECEC support T1	−0.18	−0.13	−0.15	0.12	−0.19	−0.14	−0.27	0.12			
ECEC satisfaction T1	−0.26	−0.22	−0.15	0.04	−0.32	−0.27	−0.27	0.07			
child age	0.03	0.09	0.08	0.01	0.01	−0.09	−0.04	0.26			
non-English speaking at home	0.05	0.03	0.07	0.02	0.08	−0.03	−0.01	0.02			
gender (female)	−0.04	−0.09	−0.22	0.41 **	−0.06	0.07	−0.15	0.10			
German sample—child wellbeing variables											
	aggr T1	conc T1	prosoc T1	shy T1	wellb T1	aggr T2	conc T2	prosoc T2	shy T2	selfreg T2	wellb T2
WEMWBS T1	−0.06	0.18	0.31	−0.23	0.57 **	0.09	0.08	−0.12	−0.09	−0.05	−0.04
WEMWBS T2	0.12	−0.13	−0.12	−0.01	0.30	−0.25	0.35 *	0.16	−0.10	0.23	0.26
COVID burden T1	−0.08	−0.54 **	−0.25	0.30	−0.51 **	0.34 *	−0.34 *	−0.19	0.13	−0.17	−0.29
HLE T1	0.17	−0.09	−0.23	−0.10	0.16	−0.04	−0.09	0.05	0.03	<0.00	0.02
ECEC support T1	−0.29	0.01	0.25	−0.43 *	0.31	0.13	0.13	0.28	−0.27	0.21	0.48 **
ECEC satisfaction T1	−0.21	0.25	0.61 **	−0.41 *	0.28	−0.07	0.41 *	0.24	−0.33	0.23	0.35
child age	−0.06	−0.01	−0.04	0	−0.02	0.08	−0.10	−0.17	<0.00	−0.14	−0.18
foreign language	0.21	−0.07	0.15	0.01	−0.27	0.01	−0.01	−0.09	−0.13	−0.10	0.06
gender female	0.02	0.16	0.04	−0.01	−0.10	0.02	0.07	−0.09	0.03	−0.17	−0.21

Note. * $p < 0.05$, ** $p < 0.01$.

Parent wellbeing at time 1 was strongly correlated with child wellbeing at time 2 ($r = 0.57$) in the German sample. Parent wellbeing at time 2 was moderately correlated with child concentration at time 2 ($r = 0.35$). There was a strong negative correlation between burden of COVID-19 at time 1 and child concentration at time 1 ($r = -0.54$). The burden of COVID-19 at time 1 was correlated with child wellbeing ($r = -0.51$), aggression ($r = 0.34$) and concentration ($r = -0.34$) at time 2. There was a moderate relationship between parents' level of satisfaction with ECEC support strategies during the COVID-19 lockdown and child shyness at time 1 ($r = -0.43$) and child wellbeing at time 2 ($r = 0.48$). Parent-reported satisfaction with their child's ECEC service prior to the COVID-19 lockdown was strongly correlated with child prosocial skills at time 1 ($r = 0.61$), and moderately correlated with shyness at time 1 ($r = -0.41$), and concentration at time 2 ($r = 0.41$).

Concurrent associations between environmental factors and child wellbeing variables at baseline are shown in Table 4a,b for the Australian and German samples respectively.

Table 4. (a) Associations between parental wellbeing, ECEC satisfaction and children’s social-emotional outcomes at T1 (multiple linear regression) in Australian sample. (b) Associations between parental wellbeing, ECEC satisfaction and children’s social-emotional outcomes at T1 (multiple linear regression) in the German sample.

(a)												
Predictors	Anxiety		Irritability		Depression		Positive Affect					
	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE
age	0.10	0.11	0.05	0.13	0.04	0.13			−0.12	0.09		
gender	0.89	2.62	0.27	3.17	−1.62	2.93			5.93 *	2.18		
main language	1.80	6.45	3.08	7.69	2.66	7.19			4.77	5.39		
parent stress	−0.48	0.61	0.13	0.73	−0.68	0.69			−1.00	0.51		
parent anxiety	1.34	0.85	0.07	1.02	0.47	0.95			−0.01	0.71		
parent depression	0.50	0.71	−0.23	0.85	0.73	0.79			−0.02	0.59		
burden			0.48									
COVID-19	0.08	0.22	+	0.26	0.34	0.28			0.23	0.19		
HLE	0.33	0.29	−0.14	0.35	0.18	0.32			0.15	0.24		
ECEC support	−0.13	0.30	−0.08	0.36	−0.32	0.34			−0.21	0.25		
ECEC satisfaction	−0.92	0.59	−0.36	0.71	−0.29	0.65			0.25	0.49		
F		1.06		0.98		0.80				2.04		
R ²		0.23		0.22		0.19				0.37		

(b)												
Predictors	Child Wellbeing		Aggression		Concentration		Prosocial		Shyness		Self-Regulation	
	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE
Age	−0.01	0.01	<0.00	0.01	<0.00	0.01	<0.00	0.01	0.00	0.01	0.01	0.01
gender	0.09	0.13	−0.28	0.31	0.21	0.31	0.03	0.16	−0.17	0.29	0.12	0.23
native language background	−0.11	0.25	0.18	0.57	−0.17	0.58	−0.26	0.30	−0.14	0.53	−0.66	0.43
HLE	0.05	0.08	0.20	0.18	0.01	0.19	−0.08	0.10	−0.22	0.17	0.01	0.14
parent wellbeing	0.40 **	0.11	0.05	0.26	0.16	0.26	0.15	0.13	0.13	0.24	0.10	0.19
ECEC satisfaction	0.09	0.16	0.01	0.36	0.04	0.37	0.24	0.19	−0.33	0.33	−0.02	0.27
ECEC support	0.13 +	0.07	−0.21	0.15	−0.04	0.15	0.05	0.08	−0.14	0.14	0.14	0.11
F		4.13 **		0.31		0.19		1.37		1.09		0.91
R ²		0.62		0.02		0.07		0.35		0.30		0.26

Note. Gender was coded as 0 = female, 1 = male; Main language spoken with child in the home was coded as 0 = English, 1 = language other than English. + $p < 0.1$ * $p < 0.05$, ** $p < 0.01$. Gender was coded as 0 = male, 1 = female; Children’s native language background was coded as 0 = only German is spoken in the family, 1 = at least one language other than German is spoken in the family. + $p < 0.1$ * $p < 0.05$, ** $p < 0.01$.

In the Australian sample, there was limited evidence of a concurrent association between parent-reported burden of COVID-19 on the family and child irritability score ($\beta = 0.48$; $p = 0.08$). There was evidence of an association between parent stress scores and lower concurrent child positive affect scores, but the effect size was small (i.e., a one unit increase on the parent stress scale predicted a decrease of one tenth of a standard deviation in a child’s positive affect score) ($\beta = -1.00$; $p = 0.06$). Child gender was associated with higher concurrent positive affect scores ($\beta = 5.93$; $p = 0.01$), whereby on average, a male child’s positive affect score was half a standard deviation higher than a female child’s positive affect score.

In the German sample, parent wellbeing at time 1 predicted concurrent child wellbeing ($\beta = 0.40$; $p < 0.01$) (see Table 4b). There was evidence of an association between ECEC support during the lockdown and child wellbeing at time 1, although the size of the

association was small ($\beta = 0.13$; $p < 0.1$). There was no evidence of associations between the other predictors and child social-emotional outcomes.

Table 5a,b illustrate the results from multiple regression analyses to examine the associations between environmental and child factors at time 1 and child wellbeing outcomes at time 2 in the Australian and German samples respectively. In the Australian sample, child irritability scores at time 1 predicted child irritability scores at time 2 ($\beta = 0.40$; $p = 0.04$). The findings indicate that more frequent HLE activities reported by parents at Time 1 predicted slightly lower child irritability scores at Time 2 ($\beta = -0.64$; $p = 0.08$), after controlling for earlier irritability scores. Child depression scores at time 1 predicted child depression score at time 2 ($\beta = 0.26$; $p = 0.06$). Child positive affect at time 1 predicted child positive affect at time 2 ($\beta = 0.41$; $p = 0.03$). Older children showed higher positive affect scores at time 2 ($\beta = 0.25$; $p = 0.04$). Higher burden of COVID-19 on the family at time 1 predicted lower positive affect scores at time 2, after controlling for positive affect at time 1 ($\beta = -0.65$; $p = 0.004$). There was a weak association between satisfaction with their child's ECEC service prior to lockdown at baseline and lower child depression scores at follow up ($\beta = -1.18$; $p = 0.09$).

Table 5. (a). Associations between parental wellbeing, ECEC satisfaction and children's social-emotional development from T1 to T2 in the Australian sample. (b). Associations between parental wellbeing, ECEC satisfaction and children's social-emotional development from T1 to T2 in the German sample.

(a)								
	Anxiety T2		Irritability T2		Depression T2		Positive Affect T2	
Predictors	β	SE	β	SE	β	SE	β	SE
child anxiety T1	0.18	0.19	-	-	-	-	-	-
child irritability T1	-	-	0.40 *	0.18	-	-	-	-
child depression T1	-	-	-	-	0.26 +	0.13	-	-
child positive affect T1	-	-	-	-	-	-	0.41 *	0.18
age	0.08	0.15	-0.19	0.16	-0.05	0.13	0.25 *	0.12
gender	-1.08	2.98	1.72	3.22	-3.42	2.38	-2.64	2.40
main language	0.47	6.24	0.69	6.60	-4.28	4.89	-0.84	4.77
parent stress	-0.52	0.78	-0.48	0.79	-0.56	0.63	-0.64	0.55
parent anxiety	1.17	1.35	0.70	1.30	1.12	0.99	0.58	0.90
parent depression	1.20	0.97	0.23	1.01	0.73	0.79	0.89	0.76
burden COVID-19	0.09	0.24	0.15	0.27	0.32	0.24	-0.65 **	0.21
HLE	0.22	0.33	-0.64 +	0.35	0.28	0.26	0.22	0.25
ECEC satisfaction	0.13	0.42	-0.003	0.44	0.11	0.33	0.04	0.31
ECEC support	-1.16	0.91	-0.11	0.93	-1.18 +	0.67	-0.06	0.61
F		1.33		1.88		2.44		2.66
R ²		0.38		0.47		0.54		0.55

Table 5. Cont.

Predictors	(b)											
	Child Wellbeing T2		Aggression T2		Concentration T2		Prosocial Behaviour T2		Shyness T2		Self-Regulation T2	
	β	SE	β	SE	β	SE	β	SE	β	SE	β	SE
child wellbeing T1	0.49	0.33	—	—	—	—	—	—	—	—	—	—
aggression T1	—	—	−0.04	0.21	—	—	—	—	—	—	—	—
concentration T1	—	—	—	—	0.40 *	0.17	—	—	—	—	—	—
prosocial behaviour T1	—	—	—	—	—	—	0.80 **	0.25	—	—	—	—
shyness T1	—	—	—	—	—	—	—	—	0.50 *	0.19	—	—
self-regulation T1	—	—	—	—	—	—	—	—	—	—	0.34	0.22
age	<0.00	0.01	0.01	0.01	<0.00	0.01	−0.01 *	0.01	<0.00	0.01	−0.01	0.01
gender	−0.32	0.19	0.21	0.25	0.12	0.22	0.21	0.15	−0.15	0.23	−0.51 *	0.21
native language background	0.32	0.37	−0.40	0.75	0.38	0.41	1.69 **	0.48	−0.12	0.43	0.40	0.43
HLE	0.03	0.11	0.02	0.15	−0.08	0.13	−0.01	0.09	−0.07	0.14	−0.06	0.12
parent wellbeing	−0.27	0.21	0.31	0.21	−0.02	0.19	−0.41 **	0.13	0.02	0.20	−0.27	0.18
ECEC satisfaction	0.30	0.24	−0.26	0.31	0.09	0.27	0.03	0.19	−0.18	0.30	0.15	0.26
ECEC support	0.10	0.10	0.11	0.13	0.06	0.11	0.05	0.08	0.04	0.12	0.04	0.11
F		1.98		0.62		1.18		3.09 *		1.71		1.61
R ²		0.48		0.27		0.36		0.61		0.46		0.43

Note. Gender was coded as 0 = male, 1 = female; Children's native language background was coded as 0 = only German is spoken in the family 1 = at least one other language than German is spoken in the family. * $p < 0.1$ * $p < 0.05$, ** $p < 0.01$. Gender was coded as 0 = female, 1 = male; Main language spoken with child in the home was coded as 0 = English, 1 = language other than English. + $p < 0.1$ * $p < 0.05$, ** $p < 0.01$.

Child concentration, prosocial behaviour and shyness at time 1, predicted concentration, prosocial behaviour and shyness at time 2 respectively, in the German sample. Child native language background positively predicted child prosocial behaviour at time 2 ($\beta = 1.69$, $p < 0.01$), while child age and parent wellbeing negatively predicted child prosocial behaviour at time 2 ($\beta = -0.01$, $p < 0.05$ and $\beta = -0.41$, $p < 0.01$, respectively). Child gender was negatively associated with self-regulation.

4. Discussion

The current study used online survey methods to explore associations between children's social-emotional wellbeing, parent wellbeing and environmental factors during the COVID-19 pandemic in Australia and Germany. Viewed from a socio-ecological perspective [76], the study sought to explore how changes to the interconnected spheres of influence in children's worlds (in two countries where families experienced lengthy lockdown periods) were associated with children's social-emotional wellbeing. Given the strength of evidence linking parent and child wellbeing [65,89], we hypothesised that the social-emotional wellbeing of children in the current study would be associated with the wellbeing of their parents (and their capacity to respond to the stressors of the pandemic), and further, that child wellbeing would be associated with the dramatic changes to social networks, support structures, and home learning environments during the COVID-19 pandemic.

4.1. Environmental Factors and Child Wellbeing during COVID-19 in the Australian Sample

Findings from the online survey conducted with Australian families in the state of Victoria highlight that for this particular group of young children, on average, they were in the typical range on parent-reported child wellbeing measures (irritability, anxiety, depression and positive affect) during the extended lockdown period and 6–8 months later. However, it should be noted that the majority of parent respondents in the Australian sample lived in relatively socio-economically advantaged areas and parents had attained high levels of education. Research emerging from the pandemic suggests that children and families who were more socio-economically advantaged prior to the pandemic were at lower risk of being negatively impacted by the stressors of the pandemic (and vice versa) [3,7,60]. In addition, average scores for child irritability and depression slightly decreased from Time 1 (strict lockdown) to Time 2 (eased restrictions), and children's positive affect scores slightly increased from Time 1 to Time 2. This suggests that while wellbeing remained in the normal range for these children, the conditions of strict lockdown nevertheless had a small negative impact, with children faring slightly better under eased restrictions.

When examining the relationship between environmental factors (parent wellbeing, the HLE, parental satisfaction with ECEC and burden on families during COVID-19) and child wellbeing outcomes at baseline and follow up, parent depression scores were correlated with all child wellbeing outcomes concurrently and at follow up, except for child anxiety at baseline. In addition, parents' perceptions of a larger COVID-19 burden on the family at baseline correlated with higher scores on child irritability, anxiety and depression, and lower positive affect scores 6–8 months later. This finding aligns with prior research conducted during the pandemic [90,91], and demonstrates that even relatively advantaged families experienced burden of the pandemic. Although child wellbeing was in the normal range, the burden was borne by both, parents and their children, with parent depression negatively associated with a range of child wellbeing indicators, both during strict lockdown and 6–8 months later when restrictions had eased.

Promisingly, more frequent HLE activities (frequency of language, literacy and numeracy supporting activities in the home) during the extended Victorian lockdown period predicted lower child irritability 6–8 months later, highlighting the potential protective influence of HLE. This provides further evidence underlining the importance of the home learning environment and strong family relationships in promoting child resilience and buffering against risks to child wellbeing [56,57]. Positive parent-child interactions have potential positive impacts both in promoting children's social-emotional wellbeing [15], and their learning and development [7,92,93]. Indeed, from a socio-ecological perspective [76], parent-child relationships and a positive home learning environment assumed a particularly significant role during the pandemic, as the spheres of influence in children's worlds diminished significantly, with parents and siblings becoming the sole sources of in-person interactions for many children.

4.2. Environmental Factors and Child Wellbeing during COVID-19 in the German Sample

In the German sample, of the child social competence domains measured, self-regulation significantly improved from baseline (during lockdown) to follow up and parent wellbeing was concurrently associated with child wellbeing at time 1. Interestingly, higher parent wellbeing at time 1 predicted lower child prosocial competencies at time 2. While this is unexpected, given the hypothesis was that higher parent wellbeing scores would be associated with higher child prosocial competencies, it must be noted that the values for prosocial skills in this sample at time 2 were high (mean = 3.5; SD = 0.4; whereby 4 is the highest possible value), which makes it very difficult to differentiate between low and high prosocial skills at time 2. Therefore, this surprising result may be due to a sampling effect.

In the German cohort, increase in child age was associated with lower prosocial skills at time 2, although the size of the coefficient was small. Previous research conducted during

the pandemic showed that child social-emotional behaviour scores significantly decreased with children's increasing age, which may be as a result of older children missing out on important interactions that they have with peers when attending ECEC [14].

4.3. Overall Findings from the Australian and German Samples

Findings overall indicate that of the various environmental factors associated with child wellbeing, parent wellbeing was the strongest predictor of child wellbeing for both the Australian and German cohort during the pandemic. Reassuringly, on average, parent-reports their children's wellbeing was in the typical range during the height of the pandemic, although as noted, both samples included parents from more socioeconomically advantaged backgrounds. Future research examining the long-term impacts of COVID-19 and mitigation measures on child and family wellbeing is critical for identifying the children and families most in need of ongoing support, as well as how to best support children and family wellbeing during any future lockdowns or restrictions. In both cohorts, there was also evidence of a small association between parental satisfaction of ECEC support during the lockdown periods and child wellbeing. This finding aligns with a qualitative Australian study examining parents' perspectives of ECEC engagement during the pandemic, which demonstrated that successful methods used by ECEC educators to maintain communication and engagement with families supported children's learning and development [5]. Supporting ECEC services and educators to develop and maintain engagement with children and families as a way of promoting child learning and development is critical, but particularly during stressful events such as the COVID-19 pandemic.

For the Australian cohort, there was also evidence suggesting the home learning environment had a potential protective influence on child wellbeing. These findings are in line with Bronfenbrenner's [76] multileveled ecological systems theory of human development, whereby children's wellbeing is most significantly influenced by their relationships and interactions in their immediate environment (i.e., with their parents/caregivers in the home environment) followed by their interactions with others in education, health and community settings such as ECEC services. The German lockdown restrictions during the baseline surveys were comparatively not as lengthy or strict as the Australian lockdown, which may account for the lack of associations between HLE and child outcomes in the German sample. During the global pandemic, it is likely that the influence of a child's immediate home environment became even stronger than in the pre-pandemic context, highlighting the importance of providing adequate support for parents as well as children.

4.4. Limitations and Strengths

This study has a number of limitations. The samples included are unlikely to represent broader populations in both the German and Australian contexts, due to the small sample sizes and self-selecting nature of the study. Respondents were predominantly mothers, from less disadvantaged socio-economic areas and had completed high levels of education. Consequently, the presented findings must be interpreted with caution.

Although similar constructs were measured in both the Australian and German samples, different measures were used for most constructs meaning they were not directly comparable. Consequently, our analyses are exploratory and descriptive. A strength of the current study, is that unlike many studies examining child wellbeing during the pandemic, both samples included a measure of ECEC support during the pandemic, which is demonstrated to provide a buffer against stressful home environments [36].

Despite these limitations, we were able to assess and analyze various important child and family characteristics and outcomes in two comparable samples, that were affected by the pandemic. Further, we reassessed these samples after several months, going from stricter to more lenient regulations of social distancing.

5. Conclusions

The findings from both the Australian and German samples in this study add to the evidence demonstrating the relationship between parent and child wellbeing, and importance of providing support to both parents and their children both during and beyond the pandemic. The study also highlights the importance of HLE and ECEC support as potential protective factors for child wellbeing. Although the families participating in this study were from socio-economically advantaged backgrounds, findings demonstrate the negative burden of the pandemic on families and their children. Given the well-established disproportionately negative impacts of the pandemic on families who were already experiencing disadvantage, sustained and well-targeted parenting and family supports will be critical to minimizing adverse impacts of the pandemic for child wellbeing in years to come.

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Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to ethical restrictions.

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