

# *Psychological Influence of Covid-19 Pandemic on Chinese Infants and Toddlers*

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**Abstract:** While the Covid-19 pandemic brings a brutal hit to social members, it also affects child development. Nevertheless, there is still a research gap about how the pandemic has influenced Chinese infants' and toddlers' development. Under such a circumstance, this quantitative research aims to identify and evaluate the psychological influence exerted by the pandemic. Based on practical developmental screening tools such as ASQ®-3 and ASQ®: SE-2, the survey was oriented to 9 participants in their infancy or early childhood from Baby Friendly East, a China-based early childhood education organization. The descriptive analysis of these survey takers' scores and the thematic analysis of their parents' interviewee responses reveal crucial findings: 1) the pandemic has exerted negligible influence on five aspects related to ASQ®-3; 2) the pandemic obviously adverse influence on the seven areas of social-emotional development; and 3) interviews oriented to parents of sampled infants and toddlers underlined specific ways for the pandemic to take effect on child development, including changes in family environment and parent-kid bond, reduction in outdoor activities, and emotional regulations and children's susceptibility to sleep problems. These findings are supposed to bring positive implications for policy makers, communities and parents to work out feasible and effective interventions to offset negative pandemic-related influence on infants' and toddlers' development.

**Keywords:** psychological, Chinese infants and toddlers, influence, behavior, Covid-19 pandemic

## 1. Introduction

### 1.1. Background Review

The Covid-19 pandemic has exposed numerous Chinese families to physical, psychological, emotional, and financial pressure since its outbreak at the end of 2019 [1]. Under such a circumstance, there exist research gaps about whether and how the pandemic has been influencing Chinese children's personal growth and development. Annie Imboden et al. [2] believe that infants and children exposed to pandemic-related pressure are more likely to experience delayed developmental milestones, problematic emotional regulations, and social or behavioral development obstacles. The pandemic has even been found to cause damage that has the potential to exert a lifelong impact on infants because the first three years are critical to people's brain development and other aspects of personal development [3]. In spite of such findings, there are different opinions

and heated debates over the exact influence brought by the pandemic on specific demographics like infants and toddlers. As the pandemic can exert an impact on children's development and growth in a long-lasting manner, carrying out an in-depth analysis and evaluation of pandemic challenges helps with policy design and delivery, familial support or community-based programs. All these considerations of research gaps, remaining debates and support for the human future make the topic of psychological influence caused by the pandemic on Chinese infants and toddlers intriguing and rewarding.

## **1.2. Research Purpose and Significance**

The research aims to identify and evaluate the psychological influence caused by the pandemic on Chinese infants and toddlers. Driven by such an aim, this research project is supposed to meet three specific objectives. The first objective is to provide a clear understanding of the development of Chinese infants and toddlers in the post-pandemic age. By using well-established tools designed exclusively for screening and a quick check, this research project aspires to realize its objective of casting light on children's development in critical aspects amid and after the outbreak of the global health crisis. Based on the close observation of the selected demographic, the research project then works on evaluating and analyzing the influence of the pandemic on the development of Chinese infants and toddlers. Using relevant and practical tools and reliable data, this research is supposed to figure out the potentially negative or positive impact brought by the pandemic on Chinese infants and toddlers, particularly in terms of their communication, gross motor, fine motor, problem-solving, personal-social skills, and also social-emotional health conditions. More importantly, major findings about the impact of the pandemic on the development of Chinese infants and toddlers are supposed to help families, communities or other parties concerned to figure out what could have been done to promote the development of children regardless of potential effects brought by the pandemic. Staying committed to these aim and objectives, the research project aspires to update knowledge about psychological development and inform feasible ways to guarantee children's development in the post-pandemic age.

## **1.3. Roadmap of the Research Paper**

To realize the above-mentioned aim and objectives, this research paper includes six major components.

The first chapter is an introduction which provides a background review, states research purposes and significance, and outlines the overall structure of the research paper.

The second chapter is a literature review which provides a clear understanding of theoretical models, concepts and scholarly findings about the influence brought by the pandemic on the development of infants or toddlers.

The third chapter aims to explain and rationalize research design, including the overall paradigm, research approach, data collection and analysis method.

The fourth section revolves around major research findings and results. This pivotal chapter is supposed to offer a clear understanding of crucial findings about the research topic.

The fifth section aims to discuss major research findings by comparing them to preexisting theoretical models or broad themes communicated by academia.

The conclusive section covers research outcomes, identifies potential implications and limitations, and proposes recommendations.

## **2. Literature Review**

Relevant theoretical models have shed light on the complicatedness of children's development and

their susceptibility to various factors during social, emotional, and cognitive development. Erik Erikson's eight-stage theory of psychosocial development not only describes and separates different life stages from infancy to death but also underscores critically important developmental conflict, which exerts a great impact on an individual's development and growth [4]. In light of the theory proposed by Erikson, infants aged between 0 to 1-year-old face the basic conflict between trust and distrust, while toddlers during their early childhood between 1 to 3 years old face the main conflict between autonomy and shame or doubt. In light of the Erikson's eight-stage theory of psychosocial development, Sunil Batra [5] claims that parents, families, schooling and other factors play an essential role in the personal development of infants or young children. The specific findings confirm the complexity of children's development and multiple factors that could influence their psychological development. In spite of such findings, there are remaining concerns about whether the theoretical model can provide sufficient details about how the pandemic affects infants and toddlers from the selected geographic context.

In addition to practical theory, the current research discourse has also explored and defined the potential impact exerted by the pandemic on infants and toddlers [6]. A general trend is for scholars to voice concern about the negative influence caused by the global public health crisis on the subpopulation's development. According to a study oriented to 539 Canadian infants' and toddlers' language development, the pandemic has disproportionately influenced infants and toddlers from different socioeconomic backgrounds, as those from low-income households face more challenges in their language development [7]. The research findings thus warn people of the negative influence that should have been mitigated in the post-pandemic age. Similarly, Bruna Gabriella Pedrotti et al. [8] also found the pandemic has dropped obstacles for young children and their mothers to ensure mental health, screen time control, and psychological development. In more detailed words, as the pandemic forced many families and their young children to stay indoors, mothers' time spent on media use increased and contributed to an uptrend in young children's media use duration and changes in their daily behavioral patterns. Alternatively, an academic study oriented to 684 infants and toddlers suggests that households from humble backgrounds and lower socioeconomic status disproportionately face pandemic-triggered plights, hindering children's development [9]. The comparative analysis of these prior scholarly findings confirms the negative influence caused by the pandemic on infants' and toddlers' development. Regardless of the common understanding about the adverse influence imposed by the pandemic on infants' and toddlers' development, there exists a research niche about how such a pandemic affects Chinese children's development [10]. As there is limited effort to evaluate and analyze the impact caused by the global epidemic among Chinese infants and toddlers, this research project is supposed to address such a knowledge gap, data gap and practical gap.

### **3. Methodology**

Focusing on the aforementioned research goal and three specific objectives, this research opted for the positivism paradigm. Briefly speaking, this epistemological position appeals to working with observable social reality and searches for regularities or causal relationships as reflected by the datasets available [11]. Based on this overall paradigm, the research project used a deductive research method and a quantitative research approach. A deductive research method was a good fit for the research project since it could generalize from the general to the specific, and the data collection could be used to evaluate propositions or hypotheses related to a specific reality or theoretical model. In more detailed words, as the research project made good use of the quantitative method, it could leverage quantified or numeric information to figure out the underlying patterns or trends related to the influence of the pandemic among Chinese infants and toddlers. The reasons why the quantitative research method was preferred include objectivity and reproducibility of

research findings about the real-world impact caused by the pandemic among the studied population, generalizability of research outcomes, and the possibility of data-driven policy making for those prone to the impact of the pandemic. With these specific shining points considered, a qualitative research method based on the positivism paradigm and deductive approach could pave the way for a productive research project [12].

The quantitative research method applied for this research project included two major research strategies, which include questionnaire-facilitated survey and semi-structured interviews. On the one hand, Ages & Stages Questionnaires®, Third Edition (ASQ®-3) and Ages & Stages Questionnaires®: Social-Emotional, Second Edition (ASQ®:SE-2) would be distributed to a total amount of 9 survey takers. In other words, the sample size is 9, including an infant aged below 1 year old, three toddlers aged around 1 to 2 years old, and 5 toddlers aged between 2 to 3 years old. These survey takers were selected from Baby Friendly East, an early childhood education center headquartered in Beijing, China. Their responses were collected with the help of the well-designed ASQ®-3 and ASQ®:SE-2, and their survey would be accomplished online with the help of an online web survey platform. On the other hand, a semi-structured interview oriented to the sampled infants' and kids' parents was conducted to collect feedback on the questionnaire-facilitated survey, hopes and concerns about children's development and other additional information. Integration between the questionnaire-facilitated survey and the interview was an appealing choice as it could help the research project gain a clear understanding of how the pandemic has influenced Chinese infants and toddlers.

As the research project chose to use primary data collection, it used descriptive analysis and thematic analysis as primary data analysis approaches. First of all, the description of primary data could help the research project to underline key trends and patterns related to the influence of the pandemic. Using visual aids like tables, the data description could offer a quick look at children's development among the sampled population. Besides, a thematic analysis of interview responses provided by sampled infants' and toddlers' parents could help to reveal how they measured and interpreted the pandemic's impact on child development. Combining descriptive analysis and thematic analysis for the two research strategies could help the project reveal crucial insights into the influence brought by the epidemic.

As the research project involved human research subjects, ethical considerations should be addressed properly to hedge risks or harms [13]. Major ethical considerations applicable to this research project include integrity and objectivity, respect for all research participants, avoidance of harm caused to those involved in the research process, informed consent of research participants, voluntary participation and freedom to quit at any time throughout the research procedures, protection of privacy and confidentiality, and effective measures to cope with confidentiality concern [14]. The ethical compliance can help to establish the quality of the research design and hedge relevant risks.

## 4. Results and Findings

### 4.1. Descriptive Analysis

In the view of the Table 1: ASQ®-3 and ASQ®:SE-2 Scores of Chinese Infants and Toddlers, the pandemic did not cause much trouble for the sampled population's ASQ®-3 scores. As showcased in the table, 8 out of 9 infants and toddlers' ASQ®-3 scores are above the cutoffs, suggesting that these children are developing typically in specific dimensions, which include communication, gross motor, fine motor, problem-solving and personal-social aspects. In this sense, the pandemic is found to cause limited restrictions on children's development in these five key areas. Nevertheless, one of the survey takers has his score close to the cutoffs of fine motor. That means he falls into the

monitoring zone and is very likely to benefit from some targeted intervention in addition to the use of the ASQ as a practical developmental screening tool. In addition to the generally satisfying ASQ®-3 scores, the developmental screening tool casts light on a series of major concerns or risks facing the sampled population. As the pandemic forced many Chinese families to stay indoors, some common concerns reflected by the survey outcomes include the risk of shortsightedness or sideways looks, long screen time duration, potential delays in language and communication skills, interpersonal conflicts and a lack of confidence.

In addition, the primary data collected from the sampled population also provides a clear understanding of an alarming trend for these Chinese infants and toddlers to show poor social-emotional skills and behaviors. As ASQ®:SE-2 scores measure children’s development related to self-regulation, compliance, adaptive functioning, autonomy, affect, social communication, and interaction, it could indicate potential impediments to social-emotional skills or behaviors. Among all the 9 survey takers, only 1 has her ASQ®:SE-2 score above the cutoffs, while the remaining 8 infants and toddlers have their ASQ®:SE-2 scores below the cutoffs. That means that a vast majority of the sampled children’s social-emotional development is not on schedule. Using jointly with the above-mentioned developmental screening tool, ASQ®-3, these children’s general functioning in communication, motor, and cognitive areas under the lingering influence of the pandemic calls for further analysis and evaluation. In addition to the upsetting trend for these Chinese infants and toddlers to face obstacles to social-emotional skills and behaviors, the survey also indicates the need for children prone to social-emotional issues to seek pediatric outpatient preventative care or visit psychological clinics. In simplified terms, the ASQ®:SE-2 scores collected during the survey suggest that the surveyed Chinese infants and toddlers in the post-pandemic age still face serious challenges.

Table 1: ASQ®-3 and ASQ®:SE-2 Scores of Chinese infants and toddlers.

Participant No.	Demographic Information				ASQ®-3						ASQ®:SE-2		Remark
	Gender	Birth day	Age	Completion Date	Communication	Gross Motor	Fine Motor	Problem Solving	Personal–Social	Major Concerns	Score	Conclusions	
1	Male	2022.11.5	9 months 23 days	2023.8.28	55 above cutoffs	55 above cutoffs	50 above cutoffs	50 above cutoffs	40 above cutoffs	Risk of shortsightedness	10 below cutoffs	none	

Table 1: (continued).

2	Female	20.10.31	33 months 27 days	2023.8.28	60 above cutoffs	Concern about sight due to screen time duration.	20 below cutoffs	none					
3	Male	2022.4.23	16 months 5 days	2023.8.28	35 above cutoffs	60 above cutoffs	60 above cutoffs	55 above cutoffs	50 above cutoffs	Risk of shortsightedness ; Concern about language and communication skills,	25 below cutoffs	none	
4	Female	20.11.2	33 months 26 days	2023.8.28	60 above cutoffs	55 above cutoffs	60 above cutoffs	50 above cutoffs	50 above cutoffs	Concern about sight due to sideways looks once in a while; Fights with the younger brother; Lack of confidence.	75 above cutoffs	Visits to Pediatric Outpatient Preventative Care or Psychological Clinic is suggested.	A comprehensive analysis is necessary. A referral for mental health evaluation will be recommended.
5	Male	2021.8.4	24 Months 25 days	2023.8.29	55 above cutoffs	55 above cutoffs	55 above cutoffs	60 above cutoffs	40 above cutoffs	sleep debt	45 below cutoffs	none	

Table 1: (continued).

6	Male	2020.10.31	33 months 27 days	2023.8.28	60 above cutoffs	55 above cutoffs	40 above cutoffs	55 above cutoffs	55 above cutoffs	Concern about sight due to long screen time duration and poor time management for outdoor activities.	50 below cutoffs	none	
7	Male	2021.6.25	26 months 3 days	2023.8.28	55 above cutoffs	50 above cutoffs	40 above cutoffs	45 above cutoffs	55 above cutoffs	none	45 below cutoffs	none	
8	Male	2021.2.7	30 months 21 days	2023.8.28	55 above cutoffs	60 above cutoffs	25 close to cutoffs	45 above cutoffs	55 above cutoffs	none	15 below cutoffs	none	Gameplay experience and monitoring is recommended
9	Female	2022.6.16	14 months 13 days	2023.8.29	55 above cutoffs	55 above cutoffs	50 above cutoffs	55 above cutoffs	55 above cutoffs	none	5 below cutoffs	none	

#### 4.2. Thematic Analysis

While the primary data cast light on the pandemic's negligible influence on five aspects related to ASQ®-3 and obviously adverse influence on the seven areas of social-emotional development, the

follow-up interviews oriented to parents of sampled infants and toddlers provide a clear understanding of specific ways for the pandemic to take effect on child development. One of the key themes underlined by interviewees is that the pandemic has caused obvious changes in family environments or familial bonds. The lockdown measures and social isolation imposed by the Chinese government have exerted a significant impact on family life. The pandemic has made it harder for families to provide infants and toddlers with diverse forms of family structures like multi-generational families or multi-child families and harmonious neighborhood for their development on schedule. Such changes or instability of the family environment and increased parental stress levels were highlighted by interviewees as potential contributors to emotional problems among infants and toddlers. Even though the surveyed infants and toddlers would not directly be exposed to emotional stress or other devastating factors to social-emotional behaviors, being locked up indoors with anxious family members could mean troubled parent-kid connectedness and uncertainties in their early childhood development.

Another alarming theme underscored by interviewees is that the pandemic has drastically reduced social interactions. As the pandemic forced a vast majority of people, including young children, to stay indoors, those in their early childhood could hardly plan or guarantee their outdoor activities. The pandemic outbreak and consequent mandates then led to a series of unfavorable conditions, such as insufficient outdoor activities, longer screen time duration, a lack of opportunities to explore the natural environment, and poor chances to prevent shortsightedness. Because of social distancing and restrictions, infants and toddlers have had limited opportunities for social interactions. The decrease in social interactions may lead to an increase in emotional problems and delays in social and language development. In spite of the negative influence caused by the pandemic on outdoor activities or resources, some interviewees found that being locked up indoors did not necessarily mean helplessness, as they could spend more time and make greater effort to play with their infants or toddlers. This helps to explain why the reduced social interactions during the global public health crisis did not hold back infants' and toddlers' gross motor, fine motor, problem-solving and personal-social aspects.

Besides, parents of the sampled population have voiced their deep concern about the pandemic's negative effect on emotional regulations and children's susceptibility to sleep problems. The uncertainty and tense atmosphere which pervaded the entire society and different families during the global health crisis may result in emotional instability and increased anxiety among social members, including infants and toddlers. The pandemic may have a negative impact on the sleep of infants and toddlers. The lack of outdoor activities and reduced physical activities during the pandemic may affect the quality of sleep and increase the occurrence of sleep problems among young children who are usually energetic in their daily lives.

While the data fail to highlight the pandemic's negative influence on five key areas such as communication, gross motor, fine motor, problem-solving and personal-social aspects, its vicious impact on ASQ®:SE-2 is noteworthy. Due to the pandemic, social restrictions and limited access to critical resources tended to cause developmental delays in infants and toddlers whose cognitive, language, and fine motor development thus face more obstacles in the post-pandemic age.

## 5. Discussions and Analysis

In view of the above-mentioned research findings, the pandemic has had a negative influence on Chinese infants' and toddlers' development, particularly in terms of their social-emotional skills and behaviors. This general pattern or causal relation stays in line with the mainstream viewpoints communicated by academia. For instance, the findings about limited the influence on ASQ®-3 scores, but the adverse impact on ASQ®:SE-2 scores resonates with research findings of Annie Imboden etc. [15], who found that there existed no significant differences in pre-pandemic and

post-pandemic ASQ-3 scores for the entire sampled population made up by 1024 ASQ-3 survey takers. While this research project engaged a comparably smaller sample, its follow-up interviews oriented to infants' and toddlers' parents supplement the preexisting research findings by offering a more detailed explanation about how and why the pandemic has profoundly influenced young children. The specific factors identified and elaborated by interviewees, including changes in family environment and parent-kid bond, reduction in outdoor activities, and emotional regulations and children's susceptibility to sleep problems, help to explain why the pandemic should be viewed as a threat to children's development on schedule, particularly their social-emotional skills.

The research findings informed by the primary data collected from infants and toddlers from Baby Friendly East also resonate with major child development theories. For instance, Erikson's eight-stage theory of psychosocial development highlights the critically important developmental conflict that exerts significant influence on an individual's development and growth, such as a conflict between trust and distrust experienced by infants and conflict between autonomy and shame or doubt faced by toddlers, this research project suggests that the pandemic has changed ways or opportunities for children to experience and handle such conflicts during their crucial life stages. As the pandemic forced Chinese infants and toddlers to stay indoors, they might miss out on the chance to cope with basic conflicts or face more obstacles during conflict resolution. Under such a circumstance, the pandemic is bound to hinder the psychosocial development of those in their infancy and early childhood. Alternatively, this research project and its major findings make sense from the behavioral perspective proposed by behaviorists like John B. Watson and B. F. Skinner. From such a perspective, human beings, including infants and toddlers, remain prone to environmental factors, and their learning process takes place merely via a process of association and reinforcement within a specific environment. Such a behavioral perspective resonates with the research findings about how the pandemic changes the complicated environment in which child development takes place, especially the family environment and atmosphere, parent-kid connection, and outdoor or indoor activities. In simplified terms, the research findings echo well-established theoretical frameworks to illustrate the pandemic's undeniable impact on child development.

## **6. Conclusion and Recommendations**

In conclusion, the research project has realized its overall goal and specific objectives of evaluating the pandemic's negative influence on infants' and toddlers' development. Noticeably, there is no obvious negative influence caused by the pandemic on five key areas, as reflected by the ASQ®-3 results, such as communication, gross motor, fine motor, problem-solving and personal-social aspects. Alarmingly, the research findings warn that the pandemic has an exerted adverse influence on major areas, as reflected by the ASQ®:SE-2 results. The survey outcomes thus provide a quick look at general trends and patterns for the pandemic to hinder child development. More importantly, the research findings and the interview outcomes, in particular, provide an in-depth understanding of major ways for the pandemic to affect Chinese infants' and toddlers' development. Key mediating factors, such as changes in family environment and parent-kid bond, reduction in outdoor activities, and emotional regulations and children's susceptibility to sleep problems, illustrate major ways for the pandemic to take effect among the subpopulation under study.

The findings and results are supposed to bring about positive implications from a theoretical perspective and a practical perspective. From a theoretical perspective, the research findings offer primary data for in-depth analysis, critical evaluation and insightful interpretations of child development. The focus on the post-pandemic psychosocial development among Chinese infants and toddlers can fill the knowledge gap, data gap and practical gap about how public health crises or other unfavorable conditions can impede child development. Besides, a combination of a questionnaire-facilitated survey and a semi-structured interview can provide a clear understanding

of how child development theories like Erikson's eight-stage theory of psychosocial development or the behavioral lens make sense. The research outcomes can be used to guide real-world practices. As research outcomes shed light on potential ways for the pandemic to influence infants' and toddlers' development, all parties concerned, such as health authorities, communities, and parents, are supposed to figure out effective and efficient measures to mitigate pandemic-related risks.

To achieve the aforementioned positive implications, several recommendations are proposed to support infants and toddlers who are vulnerable to black swan events like the pandemic. The first recommendation is for policy makers or health authorities to offer guidelines, instructions or educational campaigns via which knowledge can be spread to families. This can help communities, households and parents to improve their awareness about plights faced by infants and toddlers before taking supportive steps. Another recommendation is for families to seek professional healthcare support from various organizations, such as early childhood education centers, pediatric outpatient preventative care, psychological clinics. Professional support can help parents make good use of various effective developmental tools and resort to effective interventions before young children's development trajectories deteriorate. All in all, these two recommendations are supposed to help primary stakeholders to offer support timely to infants and toddlers during the hard times.

In spite of the above-mentioned findings and positive implications, this research project has multiple flaws that should be addressed by future studies. The first limitation of this research project is the small sample size. Even though the survey and the interview jointly provided reliable primary data for in-depth analysis, a total of 9 survey takers and their parents undermined the generalisability of research outcomes or findings. Therefore, it is highly suggested that future studies recruit a larger sample base from diverse backgrounds and different age groups so as to improve the generalisability and validity of research findings. The second drawback of this research is related to its data analysis methods. While the descriptive analysis and the thematic analysis revealed crucial insights into the major influence caused by the pandemic among Chinese infants and toddlers during their development, future quantitative research is expected to opt for other data analysis methods, such as regression analysis and hypothesis testing.

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