A Systematic Review on Digitalisation, Parenting, and Children's Mental Health in China amid the Pandemic

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Abstract
While a raft of existing Chinese literature examines the associations between the outbreak of the pandemic and students' mental health, rarely do Chinese studies assess the nuanced relationships between digital learning, parenting, and students' mental health since the coronavirus (COVID-19) outbreak. Such a rarely discussed topic has substantial scholarly value as mismanagement of digital learning and parenting, such as the exposure to cyberbullying and negative parenting during the public health crisis, could add substantial, unforeseeable psychological burdens for Chinese students. In this article, the author applied a systematic review to find all relevant Chinese literature that contains the words "digital learning", "children/adolescents", "mental health", and "parenting" published since January 2020. As such a complex topic has rarely been addressed in Chinese contexts, the author was only able to find four related scholarly articles. The author summarises the arguments and empirical findings to explore the nuanced relationships between a) digitalisation, isolation, parenting, and children's mental health, b) parenting, teacher-student relationships, and students' mental health, and c) maternal and paternal parenting styles.

Introduction

Existing literature argues that the ongoing COVID-19 outbreak significantly impacts children and adolescents' emotional and social development. For example, children aged three to six years old displayed clinginess symptoms and phobia that their family members might be infected with COVID-19. Older children aged six to 18 experienced inattention in studies (Golberstein et al., 2020; Singh et al., 2020). Globally, the education, physical activities, and socialisation opportunities of 91 per cent of students worldwide were at some point, or have been, disrupted due to the pandemic and the associated need for home confinement (Singh et al., 2020).

In China, 2,330 students from grades two to six at two primary schools in Hubei province, where Wuhan is located, were asked to complete an online survey from February 28, 2020, to March 5, 2020. A total of 845 out of 2,330 invited students were from Wuhan. A sum of 1,784 (response rate at 76.6 per cent) students completed the survey. Findings showed that 403 students (22.6 per cent) suffered from depression symptoms, while 337 students (18.9 per cent) from anxiety traits (Xie et al., 2020). Despite Xie et al.'s (2020) survey failing to identify the causes of the high depression and anxiety rates, Singh et al. (2020) argue that the cancellation of in-person academic activities due to home confinement served as a major factor of students' encounters of depression and anxiety. Not only were Chinese students' academic activities disrupted, but their parents, who used to send children to extra-curricular activities before the pandemic, were no longer able to send their children to activities beyond education (Peng, 2022). In the pandemic epoch, Chinese parents have increasingly, to some extent, been restrained from arranging digital education for their children to ensure their children maintain satisfactory academic wellbeing (Ye et al., 2021). While a raft of existing Chinese literature examines the associations between the outbreak and students' mental health, Chinese studies

rarely assess the nuanced relationships between digital learning, parenting, and students' mental health in the years since the COVID-19 outbreak began. Such a rarely discussed topic has substantial scholarly values as mismanagement of digital learning and parenting, such as the exposure to cyberbullying and negative parenting during the public health crisis could add substantial, unforeseeable psychological burdens to Chinese students.

Therefore, in this article, the author applied a systematic review to find all relevant Chinese literature that contains the words "digital learning", "children/adolescents", "mental health", and "parenting" published in or after January 2020. As such a complex topic has rarely been addressed in Chinese contexts, the author was only able to find four related scholarly articles. The author summarises the arguments and empirical findings in the following sections.

Digitalisation, Isolation, Parenting and Children's and Youths' Mental Health amid the Pandemic

In response to the pandemic, a rising number of less affluent households have lost their source of daily wages, fostering their encounters of despair and frustration. Such frustration may result in using violence against children. Children experiencing verbal, physical, or mental assaults are more vulnerable to suffer from anxiety, depression, and suicide. Among the least advantaged rural households, facing economic adversity and school closures prompts some parents to send their children and adolescents into child labour. Worse still, left-behind rural Chinese children (i.e., parents who migrate away from children for at least six consecutive months) are particularly likely to be forced into child labour (Singh et al., 2020).

As a long-term solution to tackle child exploitation from negative parenting or the absence of parenting, it is crucial for underprivileged Chinese youths to receive a formal education to be able to obtain a better-paid and aptly skilled career in the future. During the pandemic, ample Chinese schools offered digital, distance education to students. Yet, financially vulnerable cohorts fail to obtain the necessary online resources to gain access to remote learning (Singh et al., 2020). Such arguments indicate that financially underprivileged students are trapped in a vicious cycle of poverty, digital marginalisation or exclusion, and social immobility. Such students are inclined to suffer from financial stress and continual isolation, given that home confinement applies in regions where waves of regional COVID-19 outbreaks are persistently recorded. Moreover, the author discusses how financial stress and continual isolation, served as by-products of digital marginalisation or exclusion, are associated with children's and youths' mental health challenges. Understanding the multifaceted difficulties faced by less privileged Chinese cohorts, stemming from the digital divide, would help Chinese policymakers to arrange and deliver policies, such as constructing broadband networks in remote Chinese regions and offering computers to schools in villages, are beneficial to Chinese cohorts' acquisition of digital learning opportunities. As an outcome, local governments can ensure left-behind children are left-behind to a reduced degree when the society is in a transition of digitalisation.

Regardless of whether students can gain access to digital education, they are forced to spend most of their time at home. Students have more spare time to receive information from the media. It is necessary for local governments to ensure the dissemination of news within their sovereignty is neutral and less fear- or anxiety-provoking through strict regulations and surveillance. Otherwise, the anxiety and fear in relation to COVID-19 news suffered by children would compound, jeopardising their longer-term mental health (Singh et al., 2020). Parents, if present, should monitor their children's use of digital gadgets and social media, as a prolonged duration of digital and social media exposure may create or deepen the anxiety suffered by the latter (Singh et al., 2020). Parents should also spend more time engaging in indoor family activities, such as spending time playing board games or participating in indoor

workouts with their children, as receiving parental attention is important for children to maintain their mental health amid the pandemic (Singh et al., 2020).

When constructing positive parenting and family relationships under the influence of digital technology, parents need to employ "positive digital media role modelling." This means parents should act as their children's role models and avoid the addictive use of digital technologies. They could also co-explore online content with their children, in addition to supporting children's safe, appropriate technological use (Stoilova, 2020). When children experience negative emotional and psychological wellbeing due to the prolonged use of social media and the internet or lengthy home confinement, their parents should also teach them skills to cope with mental health challenges. Parents should listen to and communicate with their children regularly to understand their well-being. Shall their children encounter difficulties in coping with stress or negative emotions, parents could offer advice on relevant problem-solving (Singh et al., 2020). It is essential to understand that parent-children communication should not be restricted to talking and giving out advice, but listening too. Parents who patiently listen to their children's encounters of emotional, psychological, or otherwise challenges can foster the willingness to share their struggles. By applying proactive listening and exchanging ideas, parents can serve as reliable figures that their children can rely on whenever they face any unsatisfactory, internal or not, conflicts.

Parenting, Teacher-Student Relationships, and Students' Mental Health

To look at relevant empirical research, Ye et al. (2021) analysed data from 733 middle school students and their parents from Beijing between April 30 and May 3, 2020. They assessed the relationships between barriers to distance learning, risks of cyberbullying, academic engagement, and mental health. The researchers explored the potential effects of parenting and teacher-student relationships, in addition to what students and their parents believed the schools should do to support youths' academic engagement and mental health amid the pandemic. Ye et al. (2021) highlighted that students faced hindrances to transitioning to online education. Those who own sufficient online resources were inclined to extend their internet use during the pandemic and were at greater risk of cyberbullying. Such dilemmas significantly affect students' academic performance and mental health. Students relied heavily on the internet in the COVID-19 epoch for educational and social purposes. For example, middle-school respondents took six to seven online classes every day and completed their assignments on the internet when confined at home. Students additionally capitalised on opportunities to excessively use the internet for social interactions and entertainment when they had limited alternative choices for outdoor leisure activities (Ye et al., 2021).

While students increasingly relied on the internet for daily activities, their risk of being victims of cyberbullying increased. Findings reported that 26.9 per cent of middle school respondents in China purportedly experienced cyberbullying. Cyberbullying is harmful to children's academic engagement and mental health in the form of anxiety, depression, and suicide, fatal or not (Ye et al., 2021). Among respondents aged 12 to 18, 43.7 per cent of adolescents encountered depression symptoms, with an additional 37.4 per cent of youths suffering from anxiety symptoms (Ye et al., 2021). Ye et al. (2021) argued parenting, teacher-student relationships, and cyber-victimisation are determinants of adolescents' mental health. However, Ye et al. (2021) failed to indicate whether respondents' encounters with mental health challenges were caused by cyberbullying, the by-products (such as home confinement and isolation) of the pandemic outbreak, or a mixture of both. It is necessary for future research to explore causal relationships between Chinese students' mental health, cyberbullying, or the COVID-19 outbreak to understand what, and to what extent, causes Chinese students' emotional and psychological difficulties.

To maintain children's mental health during the pandemic, parents were urged to apply authoritative parenting. Authoritative parents are supportive and warm; they impart achievable, clear expectations on their children and employ inductive reasoning to realise parental control. Authoritative parenting promotes students' academic engagement, performance, and mental health (Ye et al., 2021). Alternatively, if authoritarian parenting applies, parents are highly, and sometimes unrealistically, demanding and directly, yet certainly not responsive. Authoritarian parenting is detrimental to children's poor academic achievement and mental health outcomes (Ye et al., 2021). This is especially crucial to discussing parenting styles in Chinese contexts amid the pandemic. This is because students could be at the brink of suffering from extensive mental health challenges, and parental support is necessary to mitigate their children's emotional and psychological challenges. Additionally, due to school closures and work from home policies during the pandemic, parents and children have far more time to spend together relative to the pre-pandemic situation. Applying appropriate and encouraging parenting is seen as unprecedentedly important as such a parental approach tremendously impacts youths' mental health and academic wellbeing.

Not only has parenting been deemed crucial, but teacher-student relationships are also important when considering students' interpersonal, academic, and psychological wellbeing. Ye et al. (2021) argued positive teacher-student relationships are seen as emotionally supportive, warm, and trustful, while negative teacher-student relationships are prone to the alienation faced by students and engendering their feeling of being less supported. With a more positive, healthy teacher-student relationship, students can learn in a more efficient manner and enjoy a more satisfactory socio-emotional development (Ye et al., 2021). Teacher-student relationships are, therefore, a key to students' long-term development. This is because, as per the Programme for International Student Assessment report (2018), Chinese students topped the ranking table in academic achievement, yet they scored poorly in socio-emotional outcomes, including life satisfaction and positive feelings (OECD, 2019). These outputs indicated that while Chinese students could excel in academic performance, they were less emotionally and psychologically satisfied. This shows why discussing Chinese students' mental health is necessary, as such an issue could be alarming if Chinese policymakers fail to address it as soon as possible. For example, facing continually unsatisfactory emotional and psychological wellbeing can harm the Chinese cohort's professional performance in the long term. They may also be deemed weaker in handling interpersonal relationships due to their suffered mental health conditions, barring them from working in a team in professional sectors in an efficient manner.

As per the culture in Chinese educational settings, Chinese students are required to obey and respect their teachers, while teachers are asked to support students by facilitating their academic learning and socio-emotional development (Ye et al., 2021). In the Chinese education system, middle school students, for example, need to study with the same groups of peers and be managed by the same class teachers for years (Ye et al., 2021), so it is very important to avoid maintaining any toxic or negative teacher-student relationships. Otherwise, hostile, toxic relationships could last for years and continually harm the emotional and psychological wellbeing of students. However, if students fail to obey teachers' orders, they may be deemed troublesome and disrespectful, even if the orders are not appropriate. Therefore, students could be placed in a passive position where they rarely enjoy a satisfactory degree of autonomy to decide the behaviours that they deemed rightful. Moreover, alongside parenting, it is important to understand how teacher-student relationships and students' mental health are interrelated in the era of digitalisation in educational settings.

In the aforementioned online survey conducted by Ye et al. (2021), the findings revealed that a positive teacher-student relationship moderated the association between barriers to online education and academic engagement ($b = 0.17$, $p = 0.00$) and between cyberbullying

and mental health challenges ($b = 0.07$, $p = 0.02$). These showed that a positive teacher-student relationship minimises students' experiences of negative effects of cyberbullying on psychological conflicts (Ye et al., 2021). The positive teacher-parent relationship is important as Ye et al. (2021) found students' encounters of cyberbullying and negative academic engagement under the digitalisation in educational settings were entrenched. For example, 86.8 per cent ($n = 636$) of respondents reported difficulties in remote learning, including facing obstacles with understanding the learning materials (56.8 per cent, $n = 389$), becoming inattentive due to the absence of teachers (56.6 per cent, $n = 388$), and losing motivation as a result of the lack of appropriate study space (50.6 per cent, $n = 347$; Ye et al., 2021). With the presence of digital learning challenges, developing a healthy teacher-student relationship should therefore be emphasised to minimise any adverse impacts caused by online education.

Positive teacher-student relationships ($b = 0.34$, $p < 0.00$) and authoritative parenting ($b = 0.03$, $p = 0.48$) caused better academic engagement, but authoritarian parenting failed to achieve so (Ye et al., 2021). A sum of 238 out of 610 parents (39.0 per cent) and 277 out of 469 students (59.1 per cent) in Ye et al.'s (2021) study gave suggestions to teachers in relation to online education. In particular, parents ($n = 143$) and adolescents ($n = 109$) preferred a rise in interaction opportunities with teachers. Such interaction includes demanding teachers to provide feedback on online homework, holding extra office hours, and closely regularly monitoring students' academic progress (Ye et al., 2021). A total of 154 parents (25.2 per cent) and 58 students (12.4 per cent) also expected teachers to facilitate socio-emotional aspects of learning by motivating students to apply appropriate time management skills, avoiding internet addiction, and adjusting students psychologically once schools reopened. Another 64 parents (10.5 per cent) and 38 students (8.1 per cent) requested mental health support, such as arranging school-based psychologists to consult students on emotional and psychological needs (Ye et al., 2021). Moreover, 67 parents (11.0 per cent) and 79 students (16.8 per cent) suggested teachers host more virtual class meetings to let students engage in online group activities with peers (Ye et al., 2021). Parenting should not be restrained in domestic settings. Under the transition to digital education, many students lack the experience in optimising their use of the internet for educational and social purposes. As parents have been spending more time with their children at home, they are the primary figures to observe and understand the educational, social, and psychological needs of their children. They should, therefore, proactively communicate with school representatives and their children's teachers to suggest possible ways to arrange online education to satisfy their children's needs.

Gendered Parenting Styles

While positive parenting can facilitate youths' academic, emotional, and psychological well-being, Peng (2022) argued that parenting styles in China are gendered. The gendered parenting approaches stem from Confucianism which emphasises the importance of patriarchal familial relations. In traditional Chinese domestic settings, fathers are interpreted as authority figures who economically support and morally guide their children, whereas mothers serve as caregivers. Despite the traditional gendered roles, in contemporary urban China, middle-class Chinese parents, including some fathers, perform multiple roles as playmates, teachers, friends, and counsellors in everyday childcare (Peng, 2022). Compared to more traditional Chinese fathers, their urban, privileged parental counterparts are more willing to take part in the emotional and physical care of children. However, urban middle-class Chinese mothers rather than fathers remain the primary caregivers in domestic settings by far, even if they have a full-time job and economically contribute to their families (Peng, 2022). As contemporary Chinese society is increasingly digitalised, the author discusses whether gendered parenting roles change or remain to help understand how fathers and mothers, if needed, should adjust their

parenting styles to accommodate the academic, emotional, or psychological needs of their children.

Digitalisation significantly impacts parenting, where parents popularly incorporate digital platforms and media into everyday childcare. Parents explore childcare information online, maintain digital communications with children, and check children's academic duties on the online school system (Peng, 2022). This demonstrates that parenting and digitalisation are significantly tied, prompting the need to investigate if today's gendered parenting should be adjusted to better fit the digital influence and improve the mental health of children.

Relative to Chinese mothers, their paternal counterparts have limited engagement in online parenting activities and demonstrate a lower degree of interest in exploring online resources and knowledge in relation to parenting. Due to the less digitalised paternal involvement in parenting, mothers are more burdened by the digitalisation of childcare (Peng, 2022). Due to mothers' proactive participation in children's upbringing and educational development, they usually communicate with teachers to follow up on their children's academic performance. Most Chinese kindergartens and schools use WeChat (i.e., the Chinese version of WhatsApp) or QQ (i.e., the Chinese version of Facebook) to foster parent-teacher communications. Parents, especially mothers, use these digital tools to check for updated school announcements and homework or to discuss any education-related matters (Peng, 2022). However, Peng failed to address if grandparents, other relatives, or guardians would take up digital parenting to facilitate the upbringing and educational development of left-behind children whose parents migrate to other regions for work. Also, Peng did not examine whether worse-off rural parents would engage in digital parenting, especially when they were more likely to be digitally illiterate.

To investigate the gendered division of digital labour in parenting in Chinese contexts, Peng (2022) collected qualitative data (by in-depth interviewing) from 147 parents within 84 urban Chinese households to observe how paternal and maternal use of media and digital technology in daily childcare differed. Peng defined digital labour in parenting as 1) exploring online parenting information, 2) maintaining online communications with teachers, and 3) paying for online shopping or education services for their children. Peng additionally carried out field observations and studied second-hand data from online posts, news reports, and blogs to corroborate the findings obtained from the interviews. Field observation was conducted in Tai'an in Shandong Province, Xiamen in Fujian Province, and Shenzhen in Guangdong Province, each representing a third-tier, second-tier and first-tier city respectively, in coastal Chinese regions. All data were collected from March 2019 to June 2020 (Peng, 2022). Non-probability sampling methods (i.e., purposeful and snowball sampling) were employed to collect interview data from friends, colleagues, neighbours, and their connections. These samples predominantly came from middle-class Chinese families (Peng, 2022). While findings could be indicative, such research outputs lack generalisability and representation. When Peng studied individuals from urban middle-class backgrounds, it is less likely that samples failed to possess the necessary digital literacy to employ online labour in parenting. Therefore, the socio-demographic and socio-economic nature of the samples allowed Peng to study if respondents presented a gendered labour division in parenting.

Findings revealed that mothers spent an average of 4.8 hours daily on digital media and technology (including for entertainment, work and childcare) and an average of 1.4 hours per day was used for parenting. Alternatively, fathers spent 4.9 hours each day on average on the use of digital media and technology, and only one hour every day on average was contributed to parenting. Further findings indicated that urban Chinese mothers were inclined to use digital media and technology to explore online parenting information. This supports the gender perception where mothers are natural caregivers while fathers mainly act as breadwinners (Peng, 2022). Urban Chinese mothers proactively used Zhihu (a Chinese question-and-answer

platform like Quora), Baidu (a Chinese search engine like Google), Little Red Book (an online platform for individuals to share reviews and personal experiences), and other websites to seek solutions to childcare problems (Peng, 2022).

Relative to their maternal counterparts, most urban Chinese fathers were passive in the exploration of online parenting information. Only six out of 47 fathers (compared to 76 out of 80 mothers) in Peng's study demonstrated the tendency of using digital media and technology to seek online parenting information on a regular basis. Most fathers purported that they had never or rarely subscribed to parenting blogs, looked up online childcare information, or joined online parenting forums (Peng, 2022).

The digitalisation of children's education has raised parental digital labour in online communications with teachers. However, such digital labour has remained profoundly gendered. Peng found that mothers were usually responsible for engaging in online communications with teachers, joining and participating in parent-teacher WeChat or QQ groups, adding teachers as virtual friends on social media, subscribing to schools' public blogs, and among other responsibilities (Peng, 2022). Fathers usually believed that they did not need to share the digital labour in parenting insofar as they observed that their wives assumed such responsibilities (Peng, 2022). For fathers who demonstrated impatience in their involvement in digital labour in parenting, they would either remain silent or neglectful when their wives were communicating with teachers via the use of online platforms or even apply criticism against children or their wives as a sign reflecting their lack of interest or patience in parenting (Peng, 2022).

Parental involvement in children's upbringing is crucial especially amid the pandemic. Both mothers and fathers should spend more time engaging in indoor activities with their children to help avoid children's misuse of digital devices and online platforms to minimise children's development or exacerbation of anxiety symptoms due to digital addiction. Parents should also regularly communicate with children to help monitor the emotional and psychological wellbeing of their children. Paternal disengagement in parenting, especially if mothers are tied up with full-time work and cannot spend sufficient time on childcare, discourages children and fosters the development of mental health issues amid the digitalised era and public health crisis. As children are now spending more time in domestic settings, both mothers and fathers should assume more responsibilities to take care of the everyday emotional and psychological needs of their children.

Conclusions

During the pandemic, Chinese students made substantial socio-educational and socio-emotional adjustments in response to home confinement and mental health challenges caused by digitalisation and prolonged isolation. Parents, from both maternal and paternal sides, should simultaneously adjust and adapt to accommodate the needs of their children. For those who have sufficient digital literacy, both mothers and fathers should proactively utilise digital media and technology to better engage in everyday parenting-related activities. They should also spend more family time with their children at home to strengthen the parent-child relationship and ensure their children can accomplish satisfactory emotional and social development. For those who lack digital literacy, local governments and schools should take initiatives to offer guidance for digitally (semi-)illiterate parents to build up their skills to use digital devices and explore online platforms. This helps re-connect parenting and children's education to ensure children are on the trajectory to better academic, emotional, and psychological wellbeing.

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