COVID-19 and Mental Health of Young Adult Children in China: Economic Impact, Family Dynamics, and Resilience

Objective: The current study aimed to examine the economic impact of COVID-19 virus on family dynamics and college-age children’s mental health in China and to identify personal and social or relational resilience factors that could buffer the negative consequences of COVID-19.

Background: Since an outbreak of COVID-19 was first reported in China in December 2019, it has profoundly changed the lives of families and children of all ages. In particular, it has created challenges among families with college-age young adult children.

Method: Using a sample of 484 college students from 21 universities in China, an online survey design was utilized to obtain information from these students on their family demographics and economic situation, parent–child interactions, and individual well-being during COVID-19.

Results: Results from structural equation modeling suggested that family income loss due to COVID-19 was related to economic pressure. Economic pressure was associated with negative interactions between parents and young adult children, which were associated with problems in young adult children’s mental health (i.e., anxiety and depressive symptoms). Further, self-control was found to buffer the association between family income loss and economic pressure, and respect for family was found to weaken the association between economic pressure and negative parent–child interactions.

Conclusion: Findings supported the hypotheses of the negative impacts of COVID-19 on young adult children’s mental health and the resilience factors that buffered the negative impacts.

Implications: Implications to family researchers, family life educators, practitioners, and policymakers were discussed.

Background
In December 2019, China reported an outbreak of the coronavirus disease (COVID-19) in the city of Wuhan (World Health Organization, WHO, 2020). Since then, COVID-19 has quickly spread throughout China, as well as the rest of the world (Mahase, 2020). According to the WHO (2020), by October 2020 China had reported over 90,000 confirmed cases. There were more than 8 million cases in the United States with over 218,000 deaths. Worldwide, the virus had infected over 40 million people with more than 1 million deaths. With the recent third wave of COVID-19 hitting many countries, little is known about how long the situation will last. More important to family researchers, COVID-19 has profoundly changed the lives of families and children of all ages around the world. The current study aimed to examine the economic impact of COVID-19 on family dynamics and college-age children’s mental health in China and to identify personal and social or relational resilience factors that could buffer the negative consequences of COVID-19.
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**Theoretical Perspectives**

From the perspectives of family systems theory (Becvar & Becvar, 2008; Broderick, 1993) and systemic family development theory (Laszloffy, 2002), a family is a dynamic social system that responds to changes outside and within the family. An external stressor causes the family to respond and adapt. Negative family economic change due to the outbreak of COVID-19, such as family income loss, poses as a stressor that affects a family system. Further, these theories suggest that family members are interdependent and a family member’s well-being is affected by relations with other members in the family. Facing economic hardship, such an external stressor could then lead to greater economic pressure, which promotes greater negativity in interactions among family members, and subsequently affects individual family member’s health and well-being (e.g., family stress model; Conger & Conger, 2002). Finally, these theories propose that not all families are equally affected by the negative economic situation. Families with necessary resources are able to adjust adequately and therefore may be more resilient to the adversity (Laszloffy, 2002). Among the various resources, personal and social or relational resources are identified to reduce the negative effects of stressors and to promote successful adaptation (Conger & Conger, 2002).

**COVID-19 and Mental Health of Chinese Young Adult Children**

Since the outbreak of COVID-19, various measures of social distancing were implemented across countries, such as stay-at-home orders and travel restrictions. As a result, schools and colleges were closed, children went back home and were separated from their peers, and many parents worked from home. Families around the world were facing the unprecedented challenges of the economic, emotional, and psychosocial consequences beyond the fear of contracting the virus itself. In particular, the negative economic impact on a family could be an upfront stressor that brings substantial health risks (Conger & Conger, 2002; Elder, 1974). While some parents worked from home, some had to take a pay cut, and others lost their jobs or business (for many the pandemic prevented them from seeking other job activities). Such family income loss caused by COVID-19 has put economic pressure on many families, which requires families to respond and adjust. In China, COVID-19 has severely weakened the country’s economic performance. As a result, China has suffered its first financial contraction in almost 30 years (National Bureau of Statistics of China, 2020). Financial experts say the financial effects are likely to last for years.

Among all the families being affected by COVID-19, families with college-age young adult children are facing particular challenges (Germani et al., 2020). During the COVID-19 pandemic, unlike younger children who have always lived with their parents at home or older adults who have families of their own, most college students who left home and started independent living had to go back home to live with their parents again during the COVID-19 pandemic (Ministry of Education of China, MOE, 2020). This situation was particularly common in China because, unlike college students in the United States who have varying living arrangements (e.g., living at home), most college students in China live on campus for all 4 years. Moving back home to live with parents during the pandemic likely produces many new demands for the young adult children who are both an “adult” and a “child” in the family. Examples of these challenges include being involved in dealing with family financial changes, adjusting to returning home and living under parents’ roof again, renegotiating parent–child relationships, and managing emotional and mental turmoil during this difficult time (e.g., Ornell et al., 2020; Pfefferbaum & North, 2020; Rajkumar, 2020).

Not all young adult children, however, were equally affected. During the COVID-19 pandemic, some young adults could become more resilient and others, more vulnerable. Resilience refers to a dynamic process that encompasses positive adaptation during adversity (Luthar et al., 2000; Masten, 2001). In his book *Children of the Great Depression*, Elder (1974) demonstrated that personal (e.g., personal characteristics) and social or relational (e.g., family/parent support) resources served as resilience factors that minimized the health risks of children and adolescents during the Great Depression in the 1930s. Similarly, Conger and
Conger (2002) examined family functioning and youth health in rural families affected by the farm crisis in the 1980s and suggested that personal (e.g., biological, psychological) and social or relational resources buffered the processes through which economic hardship (e.g., family income loss) influenced families and adolescent children.

Self-control, as a personal resource, was found to be related to economic hardship and the subsequent family functioning and youth outcomes (Hostinar & Miller, 2019; Taylor et al., 2017). Although these studies of self-control focused on adolescents, they could shed some light on investigation of young adult children during the COVID-19 pandemic.

Respect for family, as a social or relational resource, has been demonstrated to play an important role in children, especially in collectivistic culture, where families play a central role in society and are highly valued (Fuligni & Pedersen, 2002). Respect for family was found to be a protective factor among young adults in other collectivistic cultures (e.g., Filipino college students; King & Ganotice, 2015).

China was the first country that experienced the COVID-19 outbreak. Back in January 2020, the MOE issued closure policies for brick-and-mortar K–12 schools and higher education institutions for the entire country for the spring semester. After the spread of COVID-19 being gradually contained by March, some colleges started to open in April. About 1 million college students, which still only a small portion of the over 20 million college students in China, had returned to school by May (MOE, 2020). With several rules and measures being implemented (e.g., tracking and monitoring travel), all universities and colleges in China reopened in the fall semester of 2020. This timeline of the development of COVID-19 cases in China offers family researchers a first look into the economic impact of the COVID-19 pandemic on families and young adult children.

Emerging studies of COVID-19 in China have already provided some evidence of the negative effects of the pandemic on young adult children’s mental health. Cao et al. (2020) used convenience sampling of over 7,000 students from one college in China and reported a correlation between family income instability during the COVID-19 pandemic and college students’ anxiety. Even though this study demonstrated a direct association between family income instability and college-age young adults’ mental health, more theory-driven research is needed to look further into the role of family processes in the bivariate association.

Fewer studies have explored the potential resilience factors. With a sample of adults, one study suggested that social capital was associated with anxiety and stress during the COVID-19 pandemic (Xiao et al., 2020). But this study only examined the association between social capital and mental health and did not test the potential moderating role of social capital. Further, more research is needed to explore other personal and social or relational resources as resilience factors. Particularly relevant to the associations among economic situation, parent–child interactions, and child mental health are the personal and social or relational resources of self-control (Hostinar & Miller, 2019; Taylor et al., 2017) and respect for family (King & Ganotice, 2015). We propose that these resources could play a critical role in family and college students’ adjustment during the response to COVID-19.

**Current Study**

Following related theories and emerging literature, we hypothesized that family income loss due to the COVID-19 pandemic would be related to higher levels of economic pressure. We then hypothesized that this economic pressure would be related to difficulties in parent–young adult child interactions in the family, which in turn, would be associated with young adult children’s mental health problems (i.e., symptoms of depression and anxiety) (H1). Further, we proposed that young adult children’s higher levels of self-control and respect for family could buffer these associations (H2). Several important demographic factors, including young adult children’s age, gender, family structure, living arrangement during the COVID-19 pandemic, and family socioeconomic status (SES), also were considered, as previous studies have demonstrated their relevance to the study variables (e.g., higher mental health risks during COVID-19 among women, Liu et al., 2020).

**Method**

**Sample and Procedures**

This study used an online survey design. Participants were college students recruited from 21
universities in China during the COVID-19 pandemic in May and June 2020. This was a time when most college students were still at home, and most families and college-age children were very much under the same situation and heavily affected as in the earlier months of the outbreak of COVID-19. Through contact information provided by their universities, students from a wide range of majors (e.g., psychology, education, physics) were sent a Qualtrics survey link inviting them to participate in an online survey. The questions included their family demographics and economic situation, their family life and relationships, and their own health and well-being during the COVID-19 pandemic.

A total of 484 students participated and provided information on variables in this study. Among the 484 participants, the age range was 18 to 26 years old (M = 20.21, SD = 1.33), 30.8% were young men, and 90.7% were from two-parent families (which is representative of the household demographics in China, Pew Research Center, 2019). Consistent with the COVID-19 situation described earlier, 97.9% of the college students lived with their parent(s) during COVID-19.

Measures

Family income loss due to COVID-19. Participants were asked to indicate, compared with the income during regular times, whether their family income during COVID-19 was 1 = much higher, 2 = somewhat higher, 3 = about the same, 4 = somewhat lower, or 5 = much lower (adapted from Conger & Conger, 2002). Frequency results suggested that 49.6% of participants reported no change in family income, whereas 40.5% reported family income decreased some and 6.0% decreased by a lot.

Economic pressure. Economic pressure was assessed by asking participants whether they felt their family economic situation during COVID-19 to be 1 = no pressure at all, 2 = a little pressure, 3 = some pressure, 4 = quite a bit of pressure, or 5 = a great deal of pressure (adapted from Conger & Conger, 2002). Over two-thirds (72.5%) of participants reported varying degrees of economic pressure.

Negative parent–child interactions. Negative parent-young adult child interactions were assessed by 10 items we developed to evaluate the problems and difficulties in parent–child interactions during the COVID-19 pandemic. Sample items included “I experienced more conflicts with my parents,” “I found it easier to communicate with my parents (reverse coded),” and “I felt my parents were more controlling of my life” (1 = strongly disagree to 5 = strongly agree). After reverse coding of several items, the items were summed to create a composite score, such that a higher score indicates a higher level of negativity in parent–child interactions (α = .79).

Mental health. Mental health was constructed as a latent construct with two indicators—anxiety and depressive symptoms. Anxiety symptoms were measured by the 10-item Beck Anxiety Inventory (Beck et al., 1988), which asked participants how much they were bothered by the listed symptoms during the past month (e.g., “unable to relax” and “fear of losing control” from 0 = not at all to 3 = severely). The items were summed together (α = .88). Depressive symptoms were assessed by the 10-item Center for Epidemiologic Studies–Depression (CES-D) scale (Radloff, 1977), which asked participants how often they had certain feelings during the previous week (e.g., “I felt that everything I did was an effort” from 1 = rarely or none of the time (less than 1 day) to 4 = most or all the time (5–7 days)). The items were summed together (α = .86).

Resilience. Two resilience factors were included—self-control and respect for family. Self-control was assessed by the 12-item Brief Self-Control Scale (BSCS, Tangney et al., 2004). Sample items included “I am able to work efficiently toward long term goals” and “I often act without thinking through all the alternatives.” The answers ranged from 1 = not at all like me to 5 = very much like me. After reverse coding some items, the items were summed, with a higher score suggesting a higher level of self-control (α = .85). Respect for family was measured by seven-item scale that assessed respect for family (Fuligni & Pedersen, 2002). Sample items included rating the importance of “treating my parents with great respect,” and “doing well for the sake of my family.” The coding ranged from 1 = not at all important to 5 = very important. The items were summed, with a higher score...
indicating a higher level of respect for family ($\alpha = .73$).

**Other demographic information.** Other demographic information considered in this study included young adult children’s age (in years), gender (1 = men, 2 = women), family structure (dichotomized to 1 = two-parent families and 0 = other), living arrangement (1 = living with parent(s) during COVID-19 and 0 = not living with parent(s) during COVID-19), and family SES (assessed by family income in a typical year with seven categories).

**Results**

First, descriptive statistics and correlations were provided for a preliminary look into the distribution of the variables used in this study and their bivariate associations. Next, structural equation modeling (SEM) with full information maximum likelihood (FIML) was used (Kline, 2015) to test the hypotheses. All the covariates (i.e., age, gender, family structure, family income, and living arrangement) were included. For testing the moderation effects, interaction terms (with main variables centered first) were created and added to the main effect SEM (Little et al., 2007; Whisman & McClelland, 2005). Standardized coefficients were reported.

**Descriptive Statistics**

Means, standard deviations, and percentages of the variables used in this study were examined (see Table 1). Correlations are reported in Table 2. Family income loss due to COVID-19 was positively and significantly correlated with economic pressure ($r = .45, p < .01$). Economic pressure was positively related to negative parent–child interactions ($r = .25, p < .01$). Negative parent–child interactions were significantly correlated with anxiety ($r = .33, p < .01$) and depressive symptoms ($r = .40, p < .01$). Self-control and respect for family were negatively correlated with family income loss, economic pressure, negative parent–child interactions, and mental health indicators. SES (family income) was negatively correlated with family income loss, economic pressure, negative parent–child interactions, and depressive symptoms. The correlations of family structure and living arrangement with other variables should be interpreted with caution because of the unbalanced proportions (i.e., 90.7% from two-parent families, and 97.9% were living with their parents during the COVID-19 pandemic).

**Hypotheses Testing**

To test the hypothesis that family income loss due to COVID-19 would be related to higher levels of family economic pressure, negative interactions between parent and young adult child, and young adult children’s symptoms of depression and anxiety ($H_1$), all the covariates were included and tested in the initial model (not shown), and only those with significant paths to the endogenous variables were kept in the final model. As a result, family structure and income were included in the final model. The final model (Figure 1) produced an excellent model fit to the data (chi-square $= 15.11$ with 11 dfs, CFI $= .99$, RMSEA $= .03$, $p$ close $= .85$).

From the SEM results, family income loss due to COVID-19 was positively and significantly related to economic pressure ($b = .39, p < .01$). Economic pressure also was positively and significantly related to negative parent–child interactions ($b = .25, p < .01$). Negative parent–child interactions were positively related to mental health problems ($b = .45, p < .01$). No significant direct paths were found either between family income loss and parent–child interactions or mental health problems, or between economic pressure and mental health problems. Regarding the covariates, two-parent family structure and higher family income were both negatively related to economic pressure.

To test the hypothesis of the moderating effects of self-control and respect for family ($H_2$), interaction terms were created and added to the main model. Significant moderating effects were indicated in Figure 1 by arrows to the corresponding paths. For self-control, the interaction between family income loss due to COVID-19 and self-control on economic pressure was significant ($b = -.44, p < .05$), which suggests that the positive association between family income loss due to COVID-19 and economic pressure was much weaker among those with higher levels of self-control (i.e., buffering effects of self-control). For respect for family, it moderated the association between economic pressure and negative parent–child interactions ($b = -.17, p < .05$), which suggests that the positive path from economic pressure to negative parent–child interactions was weaker.
Table 1. Descriptive Information on Study Variables and Demographics

| Variables                        | M or % | SD    | Min | Max |
|----------------------------------|--------|-------|-----|-----|
| Family income loss               | 3.48   | 0.68  | 1   | 5   |
| Economic pressure                | 2.10   | 0.95  | 1   | 5   |
| Negative parent–child interactions | 25.50 | 5.26  | 12  | 45  |
| Mental health problems           |        |       |     |     |
| Anxiety symptoms                 | 5.91   | 5.31  | 0   | 26  |
| Depressive symptoms              | 19.47  | 5.64  | 10  | 38  |
| Resilience                       |        |       |     |     |
| Self-control                     | 37.17  | 7.20  | 14  | 61  |
| Respect for family               | 26.26  | 3.92  | 13  | 35  |
| Demographics                      |        |       |     |     |
| Age                              | 20.21  | 1.33  | 18  | 26  |
| Gender                           |        |       |     |     |
| Women                            | 69.2%  |       |     |     |
| Men                              | 30.8%  |       |     |     |
| Family structure                 |        |       |     |     |
| Two-parent families              | 90.7%  |       |     |     |
| Other                            | 9.3%   |       |     |     |
| Living arrangement in COVID-19   |        |       |     |     |
| Living with parents              | 97.9%  |       |     |     |
| Not living with parents          | 2.1%   |       |     |     |
| Family SES (family income)       |        |       |     |     |
| Below 30 K yuan                  | 4.8%   |       |     |     |
| 30 K to <80 K yuan               | 17.4%  |       |     |     |
| 80 K to <150 K yuan              | 33.3%  |       |     |     |
| 150 K to <350 K yuan             | 28.2%  |       |     |     |
| 350 K to <800 K yuan             | 14.2%  |       |     |     |
| 800 K to <2,000 K yuan           | 1.6%   |       |     |     |
| 2000 K yuan and above            | 0.5%   |       |     |     |

Note. M = mean; SD = standard deviation; Min = minimum; Max = maximum. N = 484.

for those with higher levels of respect for family (i.e., protecting effect of respect for family).

**Discussion**

This study is one of the first to look at the economic impact of the current outbreak of COVID-19 on families and children. With China being the first country to be affected by COVID-19, this study of Chinese families could give us an early look at its impact. Further, families with young adult children represent have faced challenges during this pandemic. With a sample of 484 college students from 21 universities in China, results from structural equation modeling suggested family income loss due to COVID-19 was associated with economic pressure, and economic pressure was associated with negative parent–child interactions, which in turn, were associated with young adult children’s mental health problems. Further, self-control buffered the association between family income loss and economic pressure, whereas respect for family served as a protective factor in the association between economic pressure and negative parent–child interactions.

First, this study found that family income loss due to COVID-19 was associated with economic pressure. Official statistics in China suggested that COVID-19 has made worse the already weak employment situation (National Bureau of Statistics of China, 2020). All sectors in the job market were affected, which is reflected in the prevalence of income loss experienced in many Chinese families (Survey and Research Center for China Household Finance, 2020). Such prevalence of income loss experience is a global phenomenon. Indeed, statistics in the United States also suggested that
unemployment rates reached the highest level since the Great Depression (U.S. Bureau of Labor Statistics, 2020). Many working people lost their jobs or experienced income losses because of being furloughed or having to work fewer hours. In facing family financial demands, many families experienced difficulties in paying for rent and other bills, postponing medical needs, and experiencing food insecurity (Social Policy Institute, 2020). Just like the Great Depression in the United States in the 1930s and the farm crisis in the 1980s, such experiences put tremendous economic pressure on families (Conger & Conger, 2002; Elder, 1974).

Next, the economic pressure felt by families then was found to be related to negative parent–child interactions. This finding is consistent with the spillover hypothesis that there can be negativity spillover across family domains (Engfer, 1988). When parents experience...
economic pressure, such distress could lead to problems in family functioning, including difficulties in parent–child interactions. Such spillover of negativity could lead to more conflicts and communication problems in parent–child interactions (Cui & Conger, 2008). This association could be especially salient among families with young adult children, because, on the one hand, most young adult children are still financially dependent on their parents; on the other hand, they are starting to share adult responsibility in the family (including financial responsibility) (Szydlik, 2016). Unlike younger children in the family, young adult children are more likely to directly participate in discussions and resolutions in family financial matters (LeBaron et al., 2018; Zhang et al., 2020), thus making economic pressure and parent–child interactions more connected. Findings from this study suggested that almost all college-age young adult children went back home and lived with their parents during the COVID-19 pandemic and that economic pressure from COVID-19 was associated with greater negativity in parent–child interactions.

Further, support was found from this study on the association between negative parent–child interactions and young adult children's mental health problems. Previous studies have established a robust and longitudinal association between parent–child interactions and child mental health among children and adolescents, but young adult children are an understudied group (e.g., Weymouth et al., 2016). Our findings added to the current literature on the relationship between parent–young adult child interactions and young adult children's mental health. Our findings also added to the literature on the association between parent–child interactions and young adult children’s mental health specific in the context of COVID-19 (e.g., Ornell et al., 2020; Pfefferbaum & North, 2020; Rajkumar, 2020).

The delineation of the family processes in the current study extended and modified the family stress model (Conger & Conger, 2002) for families with young adult children. Specifically, this study suggested that family income loss (one element in economic hardship; see Conger & Conger, 2002) indirectly affected young adult children’s well-being through a series of risk factors in the family (i.e., family income loss, economic pressure, negative parent–child interaction, young adult child outcome). Such delineation is not exactly what was proposed in the family stress model (i.e., economic hardship, economic pressure, marital problems, parenting, child outcome), but is more appropriate for the developmental stage of young adult children. When young adult children start to assume adult roles in the family, the processes of inter-parental problems and negative parenting could be replaced by the more direct interactions and relationship between parents and young adult children.

In addition to delineating the processes of economic impact on young adult children’s mental health, this study further identified two resilience factors: self-control and respect for family. Self-control was found to buffer the association between family income loss and economic pressure, which suggests that greater self-control could weaken the negative role of family income loss as a stressor in a series of subsequent family functioning and child outcomes (Hostinar & Miller, 2019; Taylor et al., 2017). This study extended the support for a resilience perspective to young adult children. Further, respect for family was found to moderate the association between economic pressure to negative parent–young adult child interactions. No study has looked into the resilience role of respect for family during economic hardship. Respect for family, however, could be particularly relevant in the Chinese culture, because a sense of family respect could enhance motivation and engagement among young adult children in the collectivistic culture where family and interdependence are highly valued (King & Ganotice, 2015). The findings highlighted the protective role of respect for family for young adult children in collectivist culture, such that when experiencing economic pressure, those who have a higher level of respect for family could alleviate its negative spillover into their relationship and interaction with their parents. Instead of conflict and hostility, they may take a more proactive and positive approach in sharing their parents’ financial responsibility and working with their parents to readjust their relationship.

Limitations

There are several limitations in this study. First, the sample used in the study was college students. More diverse samples of the general population of young adults and their families...
are needed to test the generalizability of the findings to other young adult populations. Second, all of the data were self-reported, which may inflate the associations that were tested (Cui et al., 2005). Future research is needed to examine the views of both parent(s) and child on the topic. Third, the study was cross-sectional and correlational. From a life course perspective (Elder, 1974), the impact of COVID-19 could be long lasting. Therefore, more studies are needed to use longitudinal design to examine the long-term consequences, and to unfold the direction and mechanisms reported in the study.

Implications and Future Directions

Despite the limitations, with a sample of Chinese young adult children, this study extended the current theoretical perspective and literature in delineating the processes of economic impact of COVID-19 on young adults’ mental health and identifying resilience factors in the family processes. The study has meaningful implications for family researchers, practitioners, family life educators, and family policy makers to help families across the world cope with the negative economic impact during the COVID-19 pandemic. In the U.S., for example, the federal Coronavirus Aid, Relief, & Economic Security (CARES) Act was signed into law in March 2020 (U.S. Department of the Treasury, 2020). The CARES Act includes several provisions to help struggling families, including extending unemployment benefits and economic impact payments. Despite the beneficial policies, limitations, such as the unemployment payment expiration restriction, insufficient rental assistance, and lack of health coverage, still remain. Findings from this study could provide empirical support for the need to continue and expand the CARES Act as these assistances will bring long-term impacts to many aspects of family life and well-being beyond the immediate economic relief.

Author Note

Both authors contributed equally to this study.

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