Effect of poverty on mental health of children in rural China: the mediating role of social capital

Abstract: Underprivileged children are a relatively special vulnerable group in rural China, but the relationship between poverty and children's mental health has been rarely examined. This study aimed to investigate the effect of poverty on children's mental health and the mediating role of social capital in their family, peer, school, and community level. Data used in this study were collected in 2015 from a school-based survey of 1,314 children in grades 4–9 through a multi-stage cluster random sampling method in Xiushui, a poverty-stricken city in Mainland China. The result of structural equation modeling indicated that poverty elicited a significant predictive effect on children's negative and positive mental health. Family social capital and peer social capital played intermediary effects between poverty and children's mental health. However, the mediating effects of school and community social capital are not significant. The implications of these findings on theory, social policy, and social work services were also discussed.

Keywords: Children, Poverty, Mental health, Social capital

Introduction

Child poverty is a worldwide social problem with lasting effects on children's development and well-being (Huston, 2011). According to a report released by the United Nations International Children's Emergency Fund (UNICEF) (2016), nearly

900 million people worldwide are living under the a new poverty standard of spending less than $1.9 per day, and children accounted for nearly half of this population. Based on a survey conducted among 89 countries worldwide, World Bank Group and the UNICEF (2016) stated that the number of children in extreme poverty reached 385 million. The child headcount poverty rate in China reached 2%, and the share of extremely poor children was 1.8%. Thus, numerous children remain poor in China.

Ortiz et al. (2012) revealed that poverty may be temporary for adults, but it can be experienced by children during their lifetime. Child poverty is widely recognized as a multi-dimensional concept (Minujin & Roelen, 2012). Existing studies are based on a multi-dimensional concept, which measures poverty according to seven indicators, namely, food, water, hygienic facilities, health care, housing, education, and information (Qi & Wu, 2014). Using the data of China Health and Nutrition Survey, Qi and Wu (2015) found that the deprivations of these seven indicators among Chinese children were reduced significantly in 1989–2011, but problems remained relatively serious in hygienic facilities (25.4%), food (13.4%), and housing (8.8%). Wong et al. (2015) used child deprivation indices to define child poverty based on the data of Beijing Family and Children Survey in 2011 and they observed that the indicator of education deprivation among children in poverty was high, especially in interest courses and after-school workshops with deprivation indices reaching 13% and 9.8%, respectively.

According to the World Health Organization (2004), mental health is "a state of well-being in which the individual realizes his or her own abilities, can cope with the

normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" This study aimed to investigate the effects of poverty on children's mental health and to examine how the effects might be mediated by the social capital embedded in their family, peer, school, and community level. This study can propose policy suggestions for improving the mental health of impoverished children and provide guidelines for children's psychological health intervention services.

Literature review

Poverty and children's mental health

Poverty is a threat to children's mental health (Cohen et al., 2010). The mechanism between poverty and mental health can be contributed to social causation theory, which indicated that lower socioeconomic status would lead to adverse health outcome (Dohrenwend, 1969). According to this theory, children's mental health problems are the result of socioeconomic deprivation. Empirical studies also demonstrated the impact of poverty on children's mental health problems, such as cognitive ability, autism, anxiety, depression, and other emotional problems (Flouri, 2016; Meredith, 2014; Reiss, 2013; Sell et al., 2010). For instance, studies showed that poor children living in rural areas in China are more susceptible to anxiety and depressive symptoms than other children (Fan et al, 2010; Gao, 2008). Needy children are possibly associated with high risk of loneliness and low self-esteem (Jia, 2012; Liu et al., 2009).

In the cognitive field, poverty during childhood exhibits a sustained effect on their

psychological development and possibly results in children's negative cognitive abilities (Dearing, 2008; Sell et al., 2010). Moore et al. (2002) found that poverty elicits remarkable and long-term effects on children's cognitive abilities and emotional problems. On the basis of the data of a 3-year follow-up study of 1,364 children by the National Child Health and Human Development Institute, Dearing et al. (2008) reported that the children's cognitive development weakens as family income reduces.

The effects of poverty on children's mental health remain controversial. Many scholars believed that poverty adversely influences the children's mental health (Burnett & Farkas, 2009; Dearing, 2008). Conversely, other researchers indicated that poverty does not significantly affect children's mental health directly. For example, Gyamfi (2004) examined the relationship between economic poverty and mental health in children and revealed that economic poverty is not significantly correlated with children's emotional or behavioral problems. Conducting a survey of 800 poor children in southwest China, Liao et al. (2014) found that family economic difficulties and poor social condition will not lead to children's anxiety, depression, or other psychological problems. Therefore, poverty maybe not directly related to children's mental health.

Social capital and mental health of children

According to Coleman (1988), social capital is an inherent resource in a variety of relationships, which can lead to a series of social outcomes (Coleman, 1990; Wu, 2011). Social capital can be observed at any level of social aggregation (Parcel & Menaghan, 1993) and can be defined as the quality of social relations in various social contexts (Coleman, 1994; Pinkerton & Dolan, 2007; Putnam, 2001). The dominant social relations for children are composed of four factors: parents, teachers, peer groups, and

neighborhoods. That is the reason why our study mainly focuses on the social capital embedded in the above four level.

Family social capital is mainly reflected by the ties between parents and children, including the accompanying and interacting with their children, monitoring children's activities, and promoting children's well-being and social adaption (Coleman, 1990; Wu, et al., 2015). Family social capital is mainly determined by parental expectations (Marjorbanks, 2017), parents' supervision of children's behaviors and activities (Parcel & Dufur, 2001), family cohesion (Furstenberg & Hughes, 2004), parent-child relationship (Coleman & Hoffer, 1987). Empirical studies have also demonstrated that family social capital allows parents to transfer their resources to their children through interaction, and this phenomenon can alleviate children's psychological pressure (Lohman & Jarvis, 2000), and improve their mental health (Coleman, 1988).

In addition to family, school is a major activity place of children where they spend a lot of time in their early life; hence, school social capital significantly influences the mental health of children (Crosnoe et al., 2004; Schneider & Coleman, 1993). School social capital includes the supervision, control, and necessary investment provided by school staff; with these factors, students can transform the learned knowledge and norms into positive development (Coleman, 1990). Many scholars used the teacher–student relationship to measure children's school social capital (Parcel, 2001; Wu, 2011). Relevant empirical studies have suggested that a good teacher–student relationship reduces the negative feelings of loneliness and tension, and improves the children's mental health (Adelman & Taylor, 2002; Fisher et al., 1998).

Peer groups play a vital role in the personality formation and development of children (Bukowski et al., 1996). Peer social capital is described as the social capital embedded in peers' relationship, which is achieved through children's interaction with peers, and is of great significance to the physical and mental development of children (Coleman, 1990). Peer social capital is mainly indicated by peer relationship (Wu, 2015). The children's peer group networks significantly affect the children's social, emotional, and cognitive conditions (Rubin et al., 2006). A good peer relationship can enhance children's self-esteem, self-confidence, and self-identity (Bagwell, 1998), and alleviate their mental health problems (Hay et al., 2004).

Community is an important place for children's daily life, and the community social capital remarkably affects the physical and mental development of children (Sampson et al., 2002；Sun, 1999). Community social capital mainly refers to the social relationships, including social networks, norms, trust, community sense, and civic participation (Coleman, 1990; Putnam, 2001; Wu, 2011). Community social capital establishes an extra-familial social network that can provide social control and monitoring functions for children in neighborhoods (Coleman, 1990; Sampson, 1997). Community social capital remarkably affects the mental health of children (Ross & Heath, 2002; Ziersch et al., 2005). Children with lower community involvement tend to have a higher risk of mental illness (Morgan & Haglund, 2009), and lower community cohesion can directly predict children's depression, anxiety, and provocation (Drukker et al., 2005). Children with high levels of community social capital are seldom frustrated and have less helpless feelings (Stevenson, 1998).

Poverty, social capital, and mental health of children

Further studies have gradually shifted to the path analysis of the influence of poverty on the children's mental health. The effect of poverty on children's mental health can be indirect. The potential mediating role between poverty and children's mental health can be contributed to family process (Dearing et al., 2008；Murali & Oyebode, 2004), parental behavior (Elder, 1999), parental psychological health (Hernandez et al., 2010), school climate, peer interaction (Eamon, 2005; Qi & Kaiser, 2003), community environment and participation (Chen, 2006). As intermediary variables, these factors would influence children's mental health.

In the family environment, the negative effects of poverty on children's mental health are mainly reflected by their link with their parents' teaching techniques, behavior, moods, and family process. Murali and Oyebode (2004) found that family poverty exerts pressure on parents and restrains the informal social control of family process, which in turn increases the risk of harsh family teaching techniques and reduces the parents' emotional input to their children. It is not conducive to children's mental health. Poverty and economic insecurity can negatively affect the interactions and relationships between parents and their children, thereby affecting children's mental health (Hernandez et al., 2010).

Poor children often study in schools exposed to poor conditions because of low economic status. Teachers in these schools mobilize frequently, and poor teaching quality caused by continual teacher losing results in a more chaotic learning environment, which may leads to higher risk of psychological problems (Eamon, 2005;

Malecki & Demaray, 2006).

Peer group is one of the most vital factors in children' social ecosystem. Peers may hold a negative view toward poor children, which consequently, may increase the risk of mental health problems, such as mental illness, in poor children (Qi & Kaiser, 2003).

For children, communities are important activity places; however, poor children always live in poor physical and social environment because of their inferior economic conditions and low social class. Poor communities often lack effective social support and yield inferior level of neighborhood trust. The lack of social resources in poor communities negatively affects the children's mental health, cognition, and social mood adaptation. Eamon (2005) found that community problems and negative community involvement mediated the relationship between poverty and children's depression. Moren-Cross (2006) also found that the perceived community resources, such as negative neighbor effects, service barriers, and community overall assessment, partially play a mediating role in the relationship among family economic conditions, children's mood, and problematic behavior.

Research gap

Previous empirical researches have described the path of poverty affecting the children's mental health; however, studies have rarely integrated all dimensions of social capital in children's ecosystem into a holistic conceptual framework. This study mainly integrates the four dimensions of social capital, namely, family social capital, peer social capital, school social capital, and community social capital, as intermediary variables and investigates their mediating role on the relationship between poverty and

children's mental health.

In addition, due to the differences on sample, measurement, research site and social context, the relationship between poverty and children's mental health is still in controversy. Some studies stated that poverty would influence children's mental health (Dearing, 2008), whereas others indicated that there is non-significant correlation between poverty and children's mental health (Liao et al., 2014). Facing this academic controversy, our study aims to investigate how poverty predicts the mental health outcomes of children and how this effect is mediated by four dimensional social capital factors and hence enhance our understanding of the relationship among poverty, social capital, and mental health of children in Chinese context.

Research hypothesis

The conceptual framework of this study (Fig. 1) is used as a basis for the development of two major research hypotheses: (H1) children who are in poorer conditions have more negative mental health outcomes and less positive mental health outcomes and (H2) children who are in poorer conditions yield lower family/school/peer/community social capital, which predicts more negative mental health outcomes and less positive mental health outcomes.

Insert Figure 1 here

Methods

Data

The data used in this study were collected by conducting a school-based survey in

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2015 through a multi-stage cluster random sampling method of 1,314 children (grades 4–9) in Xiushui, a poverty-stricken city in Mainland China. This study was reviewed and approved by the Survey and Behavioral Research Ethics Committee of the Chinese University of Hong Kong. The steps of the multi-stage cluster random sampling method are as follows. First, two townships in each ranking were extracted with the simple random sampling method according to the list of township economic rankings (i.e., good, medium, and poor) provided by the statistical department in the samples that satisfied the sampling requirements. Thus, six townships were obtained. Second, 3 primary schools and 3 junior high schools were randomly selected in each township. As a result, 12 schools were extracted. Third, 1 class was extracted in each school (i.e., grades 4–6 in primary school and grades 7–9 in junior high school) for a total of 36 classes. Finally, the simple random sampling method was utilized to extract 40 students who would participate in the survey in each class. The sample size was 1,440.

We handed out 1,397 questionnaires based on the sampling produce. A total of 1,364 students and their parents signed the consent forms and completed the questionnaires, and the response rate was 97.6%. After checking each questionnaire, we successfully collected 1,314 valid questionnaires, and the effective response rate was 96.3%.

Measures

The measurements of mental health were mainly divided into negative mental health and positive mental health. Negative mental health was mainly measured on the

basis of children's anxiety and depression. (a) Children's anxiety was quantified by using the Social Anxiety Scale for Children (SASC), which was developed by Greca & Lopez (1998). This scale focuses on the emotional, cognitive, and behavioral aspects of children suffering from social anxiety. The SASC has 10 items, and each item is measured with five points for the Likert scale: never=1, rarely=2, sometimes=3, often=4, always=5". A higher score represents a higher degree of anxiety. For this scale, Cronbach's alpha was 0.783. (b) Children's depression was evaluated on the basis of the Center for Epidemiologic Studies Depression Scale for Children (CES-D), which was prepared by Fendrich et al. (1990). This scale mainly covers the "Depression Mood," "Feeling of Guilt/Worthlessness," "Sense of Helplessness/Hopelessness," "Psychomotor Retardation," "Loss of Appetite," and "Sleep Disturbance." CES-D is scored by 5-point Likert scale, from "never=1" to "always=5". Higher score indicates higher levels of depression. For this scale, Cronbach's alpha was 0.837.

Positive mental health was determined in terms of children's self-esteem and self-efficacy. (a) The measurement of children's self-esteem was mainly based on Rosenberg's Children's Self-Esteem Scale (CSES) (Rosenberg, 1965). This scale contains a total of 10 items with 5-point scoring, from "very nonconforming=1" to "very consistent=5". A higher score indicates higher level of self-esteem. Cronbach's alpha of this scale was 0.695 in our study. (b) Children's self-efficacy was mainly identified by utilizing the Chinese version of General Self-Efficacy Scale devised by Schwarzer et al. (1997), which includes a total of 10 items with five points for each item. A higher score represents a higher level of self-efficacy. For this scale, Cronbach's

alpha was 0.793 in our study.

The measurement of multidimensional child poverty was divided into four steps. First, we identified the various indicators.of the multidimensional child poverty, which consisted of seven dimensions, namely, food, water, hygienic facilities, health care, housing, education, and information. Second, we defined the deprivation threshold of poverty in every dimension based on the criterion used to delineate the poverty of children in multidimensional poverty measures. If a child reached the certain threshold, he or she was assumed to be poor in this respect. Third, the dimensions and weights of each indicator were identified. Food, drinking water, hygienic facilities, health care, housing, education, and information was given the same weight based on the human poverty index and the weight for each dimension of child poverty is 1/7. Fourth, the multidimensional child poverty deprivation score was calculated by summing up the total score of the seven dimensions of deprivation. The obtained child deprivation scores exhibited a normal distribution with a mean of 0.287 and a standard error of 0.167.

As a mediator variable, social capital was identified on the basis of four dimensions: family, school, peer, and community social capital. Family social capital was mainly quantified in terms of parent–child relationship and parental monitoring. Parent–child relationship was determined with the Parent–Child Relationship Schema Scale (PCRSS) designed by Dixon et al. (2014). PCRSS was a children's self-rating scale revised by Chinese scholars. PCRSS includes four aspects: "things that parents and children are supposed to do together," "things that parents are supposed to do for

children," "ways a father behaves toward his children," and "ways a mother behaves toward her children." Parental monitoring was evaluated by using the Parental Monitoring Scale devised by Shek et al. (2006). For this scale, Cronbach's alpha was 0.815.

School social capital was determined by quantifiying teacher–student relationship measured on the basis of Teacher–Student Relationship Inventory (TSRI), which was developed by Pianta (2001) and revised by Qu (2004). TSRI measures the teacher–student relationship in terms of four dimensions: "intimacy," "conflict," "support," and "satisfaction." For TSRI, Cronbach's alpha was 0.868.

Social capital among peers was identified by using Friendship Quality Scale designed by Bukowski et al. (1994). This scale measures the quality of child–peer relationship from five dimensions: "association," "conflict," "help," "safety," and "intimacy." For this scale, Cronbach's alpha was 0.885.

Community social capital measurements were based on the scale used in the study of Sheidow et al. (2001) to determine the community social capital for children in terms of three perspectives: "community attribution," "community support," and "community participation." For this scale, Cronbach's alpha was 0.787.

The social-demographic variables controlled in this study comprised gender, grade, parent's education level, parent's occupation, single-parent status, left-behind status and region type. Gender (female=1), grade (4th -9th), single-parent status (yes=0 vs no=1), left-behind status (yes=0 vs no=1) and region type (good=0 vs medium=1 vs poor=2) were self-explanatory. Parent's education level was assessed in six categories

ranging from "Illiterate" to "University and above". Parent's occupation was reflected by six categories, including "civil servants", "business affairs", "migrant worker", "farmer", "retirement" and "unemployment". The descriptive statistical results of social demographic variables are presented in Table 1.

Insert Table 1 here

Data Analysis

Structural equation modeling was adopted with Amos 21.0 to analyze the data and test the model. In the structural equation model, the goodness-of-fit indices were the main points in the evaluation of the hypothetical path and the data. In this study, we used the three criteria to evaluate the modeling fitness: (1) χ^2. The smaller χ^2 indicates that the theoretical model is more suitable for the actual data, and the non-significant (P> 0.05) χ^2 indicates that the theoretical model is well fitted to the sample data (Bollen, 1989). However, the χ^2 is very sensitive to the size of sample. The larger the sample size is, the more likely that χ^2 is significant, resulting in the theoretical modeling being rejected. Therefore, if the sample size is large, it would be difficult to test the degree of modeling fitness by the χ^2 (Rigdon, 1995; Byrne, 2001). (2) CFI. The value of CFI is between 0 and 1, and the value above 0.9 indicates that the model is good (Bentler, 1990). (3) RMSEA. Value below 0.05 indicates that the model is close to fit, and the value between 0.05 and 0.08 indicates that the model is fitting well (Browne et al., 1993; Kline, 2005).

Results

Means, SDs and correlation between poverty,social capital and children's mental health

Pearson's correlation was used to analysis the correlations among poverty, social capital (i.e. family social capital, peer social capital, school social capital, community social capital) and mental health (i.e. anxiety,depression,self-esteem,self-efficacy) of children in this study. The means, standard deviations and the correlations for each factor were presented in Table 2.

Insert Table 2 here

Test of Measurement Model

The measurement model of six latent variables (family social capital, peer social capital, school social capital, community social capital, negative mental health, positive mental health) should be verified before the structural model validation. Results show that the measurement model has a good fit index. χ^2 (186, N = 1314) = 1262.594, p <0.001, although χ^2 is significant, the other two indicators show that the model fit well, CFI (0.914) is greater than the critical value of 0.9, and RMSEA (0.066) is less than the critical value of 0.08. Therefore, the results of CFI and RMSEA show that the measurement model is satisfactory. The model analysis results show that all the variables that make up the latent variable in this model have significant loadings on the

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latent variable. The standard factor loadings of all the variables that make up the latent variable are between 0.448 and 0876 (shown in Table 3), and the acceptable factor loading is above 0.3 (Agnew, 1991). Therefore, the analysis results mean that the selected observation variables effectively reflect the intrinsic structure of the latent variable, indicating that the model fits well.

Insert Table 3 here

Test of Structural Model

Results show that the structural model of the conceptual framework in our study has a good adaptability ($\chi^2 = 1641.662$, df $= 321$, p <0.001). χ^2 is large and significant. However, due to the large sample size (N=1314), and the satisfying results of the other two fitness indicators, the structural model is well fitted. CFI (0.911) is greater than the critical value of 0.9, and RMSEA (0.056) is less than the critical value of 0.08. The results show that negative mental health and positive mental health can be interpreted by this model at 21.4% and 41.2% respectively.

Insert Figure 2 here

The structural model standardized results are shown in Figure 2. For simplicity of the model, this graph shows only the associated paths for independent variable, dependent variables, and mediating variables, and the path diagram of control variables is omitted. Results shows that family social capital has a significantly direct impact on

children's negative mental health, suggesting that children with higher family social capital have lower levels of anxiety and depression after controlling for other factors (β=-.157, p<0.001). Family social capital has a remarkably direct influence on children's positive mental health, indicating that children with higher family social capital have higher levels of self-esteem and self-efficacy (β=.339, p<0.001) after controlling for other factors. The social capital of peers plays a significant direct role in the negative mental health of children, meaning that children with higher peer social capital have lower anxiety and depression levels (β=-.148, p<0.01) after controlling for other factors, The peer social capital also has a distinguished direct effect on children's positive mental health, indicating that children with higher peer social capital have higher levels of self-esteem and self-efficacy (β=. 210, p<0.001) after controlling for other factors. School social capital has a significant direct impact on the positive mental health of children, indicating that after controlling other factors, children with higher school social capital have higher self-esteem and self-efficacy (β=.152, p<0.01). But the path results show that the influence of school social capital on negative psychological health of children is not significant. And the impacts of community social capital on both children's negative mental health and positive mental health are not remarkable.

Path diagram shows that poverty has a significant direct impact on negative mental health of children, suggesting that children with higher levels of poverty have a higher level of anxiety and depression after controlling for other factors (β=.151, p<0.001). At the same time, poverty also has a distinguished direct influence on children's

positive mental health, indicating that children with higher levels of poverty have lower self-esteem and self-efficacy after controlling other factors (β=-0.094, p<0.01).

The diagram shows that the effect of poverty on children's mental health is mediated by family social capital and peer social capital. Poverty is significantly associated with low levels of family social capital (β=-.191, p<0.001), which, in turn, predicates higher levels of anxiety and depression, and lower levels of self-esteem and self-efficacy outcomes. Likewise, poverty is significantly associated with low levels of peer social capital (β= -.163, p<0.001), which predicates higher levels of anxiety and depression, and lower levels of self-esteem and self-efficiency outcomes as well.

Among the control variables in social demographic variables, only two of them (gender and grade) have a remarkable effect on the negative mental health of children, indicating that female children (β = .084, p<0.01) and higher grades (β = .358 , p <0.001) children have higher levels of anxiety and depression. Only gender has a significant effect on the positive mental health of children, indicating that female children (β = -.138, p <0.001) have lower self-esteem and self-efficacy. The unstandardized and standardized path coefficients of poverty, social capital and mental health of children were shown in Table 4.

Insert Table 4 here

Discussion and conclusion

On the basis of the data collected from Xiushui City in Jiangxi Province, China, we evaluated the effect of poverty on children's mental health and the mediating effects

of social capital between poverty and children's mental health. This study also discusses the mental health problems of impoverished children by utilizing the theoretical framework of integrated social capital, which has been rarely adopted in the Chinese context. Our results reveal the direct effects of poverty on children's negative and positive mental health and the mechanisms associated with the four indirect influencing factors, namely, family, school, peer, and community social capital. The main findings of the study are a useful basis for the implication of social policy to improve the mental health of impoverished children and conduct social work services for impoverished children with poor mental health.

This study demonstrates that poverty elicits significant predictive effects on children's negative and positive mental health. This observation is consistent with previous empirical studies, which reveal that poverty remarkably affects children's mental health and can consequently cause anxiety and depression among children and reduce their self-esteem and self-efficacy (Duncan & Brooks-Gunn, 2000; Flouri, 2016). Our results also address the academic controversy on this topic. Some of previous studies indicated that poverty is not correlated with children's mental health (Gyamfi, 2004). Conversely, we support that poverty can significantly predict children's mental health levels. Thus, our study provides a strong response to this academic controversy. As a study performed under the social context in China, this research also fills in the knowledge gap on the relationship between poverty and children's mental health in Mainland China.

Consistent with previous academic research, our study establishes that family

social capital exhibits a significant predictive effect on children's negative and positive mental health. Family social capital, which is embodied by parent–child relationship, parent–child communication, and parental supervision, is related to children's development outcomes, such as enhanced academic performance (Glick & White, 2000), alleviated behavioral problems (Parcel & Dufur, 2001), and decreased anxiety and depression levels (Wright et al., 2001). Therefore, high family social capital, including suitable parent–child relationship and parent–child communication, can reduce the anxiety and depression levels of children and improve their self-esteem and self-efficacy. Family social capital mediates the effect of poverty, in addition to its significant direct effect, on children's mental health. This phenomenon indicates that a decreased poverty level is associated with a strengthened family social capital, which then predicts relatively enhanced mental health outcomes, including alleviated anxiety and depression outcomes and improved self-esteem and self-efficiency outcomes. Economic hardship and life challenges experienced by parents who live in poor households cause anxiety, depression, and broken marital relations, which can directly affect the parent–child interaction in daily life and parental rearing patterns (Elder, 1999; Hernandez et al., 2010; Yoder & Hoyt, 2005). Parent–child relationship and parent–child interaction are the elements of the family social capital passed on to children, and these elements indirectly affect children's mental health (Voydanoff & Donnelly, 1999).

The effect of peer social capital on children's mental health has also been verified. The children's peer social capital, namely, children's peer relationship network, also remarkably influences children's psychological development, including their mental

health and behavioral problems (Crosnoe et al., 2004). Thus, peer relationship and peer support are important social capital elements that can effectively minimize children's unhealthy mood and problematic behavior and improve their mental health levels. Peer social capital can mediate the effect of poverty on children's mental health. Therefore, a reduced poverty rate is related to an increased peer social capital, which can indirectly improve mental health conditions, including decreased anxiety and depression outcomes and enhanced self-esteem and self-efficiency outcomes. Poor children are possibly excluded from peers and involved in conflicting partnerships (Bolger et al., 1995). The peer social capital embodied by different factors, such as peer relationship, is also closely related to children's mental health (Ream & Rumberger, 2008). Therefore, the effect of poverty on children's negative and positive mental health is an indirect result of the influence of peer social capital.

School social capital plays a significant predictive role in children's positive mental health but not in children's negative mental health. These results are inconsistent with the conclusion of previous studies, which showed that school social capital remarkably affects children's negative and positive mental health (Coleman, 1988; Adelman, 2002). Some studies have suggested that school social capital, which is reflected by teacher–student relationship, is beneficial to children's positive attitude toward school. For example, children actively participate in class activities, form positive emotional relations with classmates and teachers, and develop appropriate personalities and high social adaptability (Barker, 2008), which can help them establish a positive health psychological quality. Therefore, our results are inconsistent with the

majority of existing academic conclusions. The remarkable effect of school social capital on children's negative psychological health or the predictive role of school social capital in children's anxiety and depression has not been described in this study. The analysis of the intermediary effect reveals that poverty is not significant in predicting children's school social capital. Therefore, the social capital of school does not contribute intermediary effect to the influence of poverty on children's negative and positive psychological health. This observation is also inconsistent with existing research results. Although research on the social capital's mediator function is relatively limited, some studies have demonstrated that school experiences and teacher–student relationship among children are important intermediary variables in the relationship between poverty and social mental development among children (Felner et al., 1995). In our study, the school social capital, which was included in the measurement of the teacher–student relationship, has not played an intermediary role. Combining the social and cultural environment of Mainland China and the actual conditions of the research site, we determine the two main factors accounted for the unremarkable effect of school social capital. First, child poverty is prevalent. Poverty among children in the region is a common phenomenon because of the backwardness of economic development. This condition only differs in the extent of poverty, that is, teachers' care remains similar because of the degree of poverty among children in a school environment. Hence, children's poverty does not significantly affect the prediction of social capital in children's schools. Second, teachers exhibit mobility. The research samples are from an impoverished city, where the teacher's welfare treatment

is poor and primary and secondary schools cannot retain teachers. A considerable portion of the faculty team comprises volunteers and university interns who may have to leave school after their service validity expires because of policy reasons. Teachers in this area also change along with the grade level. Consequently, the teacher's mobility in the region has led to a significant increase in the instability of children's perception of teacher–student relationship. The fluidity and instability of this relationship also exacerbate the unstable condition of children's mental health. Therefore, the effect of school social capital on children's mental health is unremarkable based on the measurement of the teacher–student relationship.

Coleman (1988) defined community social capital as a factor beyond the family social capital and emphasized the relationship between family and community. Community as an important place for children's daily life and the existence of community social capital greatly influence children's physical and mental development (Coleman, 1988; Morrow, 1999). Studies have suggested the significant effect of community social capital on the physical and mental development of children through the measurement of community ownership, community support, and community participation of children (Sampson et al., 2002; Sun, 1999). Children with a high level of community social capital experience reduced frustrations, sense of helplessness, anxiety, depression, behavioral disorders, and other emotional problems (Morgan & Haglund, 2009). However, community social capital has no significant effect on children's negative and positive mental health. The effect of poverty on children's community social capital has also not been distinguished. Therefore, the intermediary

effect of community social capital between poverty and children's negative and positive mental health is insignificant. These results are inconsistent with the previous academic findings. A previous study verified that community social capital is an important intermediary variable that explains the relationship between poverty and children's mental health (Guerra et al., 1995). The main reason that contributes to the intermediary effect of community social capital is macroscopic factor disturbance. Several macroscopic variables can interfere with the establishment and stability of models (Drukker et al., 2005; Subramanian et al., 2003). The main macro-influencing factors related to poverty, community social capital, and children's mental health in the current study can be attributed to the following: geographic factors, regional culture, and population migration. In terms of geographical impact on community morphology and cohesion, the research site is mountainous, with underdeveloped traffic and scattered village settlement. These conditions also cause inconvenience to the community neighborhood's contact and communication. Consequently, community cohesion is negatively affected. In terms of traditional Chinese culture that emphasizes kinship and geographic relations, the role of public service institutions is disregarded and the cultural roots of community construction and participation are insufficient. In rural Chinese societies, the economic condition of an individual family is not considered an important factor influencing neighborhood solidarity and support. With the effect of the traditional Chinese culture, consanguinity and geography have emerged as the foundation of establishing trust in relationships. In the process of daily neighborhood intercourse and interaction, the main manifestation of trust is the family clan support

on kinship and neighborhood in a geopolitical relationship. In terms of the number of individuals in different age groups, young adults in the region are migrant workers, and many community or village members are left-behind elderly and children. These left-behind groups lack community participation enthusiasm, which leads to the weak vitality of the community and affects the children's community social capital. This phenomenon further results in the insignificant correlation between the children's psychological health and community social capital.

In summary, this study supports the remarkable effect of poverty on children's mental health and the intermediary influence of family social capital and peer social capital on the relationship between poverty and children's mental health in Xiushui City in Mainland China. This study provides certain theoretical values, policy contributions, and important practical significance to social services that can promote the mental health level of impoverished children.

First, this study responds to the controversy on the relationship between children's poverty and mental health in the academe and fills in the knowledge gap in the mental health path of impoverished children in the Chinese context. This study, which is based on Coleman's social capital theory, enriches its validity and applicability in cross-cultural research.

Based on the research findings, we develop a theoretical framework called Poverty-Social capital-Well-being (PSW) Model, which illustrates that poverty would reduce individual's well-being, and this link can be mediated by social capital. This

model can be applied to explain the relationship among deprivation, multi-dimensional social capital and well-being for various kinds of social groups.

Second, this study demonstrates that the policy of improving the mental health level of impoverished children is largely significant. Targeted increases in financial inputs and material guarantees for needy children are necessary in poverty alleviation. Social policy need ensure that the multidimensional needs of poor children are satisfied, the poverty level of children is reduced, and their mental health is improved.

Third, the effects of poverty on children's mental health, family, and peer social capital play a mediating role. Therefore, social services and social work interventions for children's family and peer social capital can be enhanced to a certain extent and consequently increase the children's mental health level. In terms of family social capital construction, family intervention services can be specifically utilized to teach parents on how to create a favorable family environment and atmosphere, which can enhance their parent–child communication and family's emotional support. Furthermore, the function of family social capital can be fully applied. Providing psychological counseling and education to the parents or guardians of poor children can help them foster positive and healthy parenting patterns, minimize their mental disorders, increase their time and energy inputs to poor children, and focus on the mental health of poor children and simultaneously satisfy their material needs. In terms of the peer's perspective, peer social capital construction can encourage poor children to participate actively in tasks through peer–aid group activities and cultivate their support and friendship with peer groups through a certain approach of active guidance.

Thus, poor children can be welcomed by peers in group activities. We can also help poor children establish a suitable adaptive interpersonal support system through the guidance of family and school-related staff. This system can further assist in addressing their learning, life, and psychological problems. Consequently, their anxiety and depression can be eliminated and their self-confidence and self-efficacy can be enhanced.

However, our results should be interpreted with caution because of several limitations. First, this study extracts samples from Xiushui, a poor city in China. As such, our conclusions cannot be generalized to other part of China. Second, this study adopts a cross-sectional survey method to gather data. Cross-sectional data can only reveal the correlation between poverty and children's mental health, but cannot establish causality between the independent and dependent variables. Hence, our findings should be further verified by longitudinal studies. Finally, according to PSW Model proposed in our study, we investigate the relationship among poverty, social capital and children's mental health on the special group of impoverished children in China. PSW Model can be further examined by future research in different social context and other social groups.

Conflict of Interest: The authors declare that he/she has no conflict of interest.

Ethical approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Moreover, the research process, the investigation of informed consent, and measurement tools have been reviewed and approved by the

Ethics Committee of the Chinese University of Hong Kong.

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Figures and tables:

Figure 1: Conceptual framework
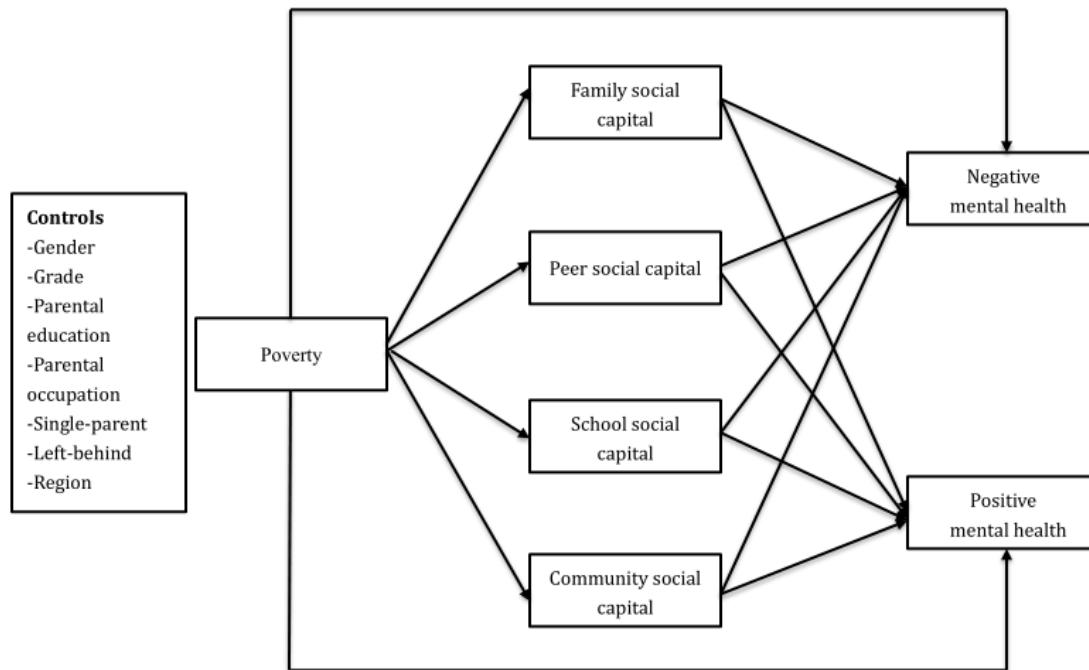
Figure 2 : Standardized solutions for the structural model of poverty,social capital and children's mental health. (***p<0.001；**p<0.01；*p<0.05)
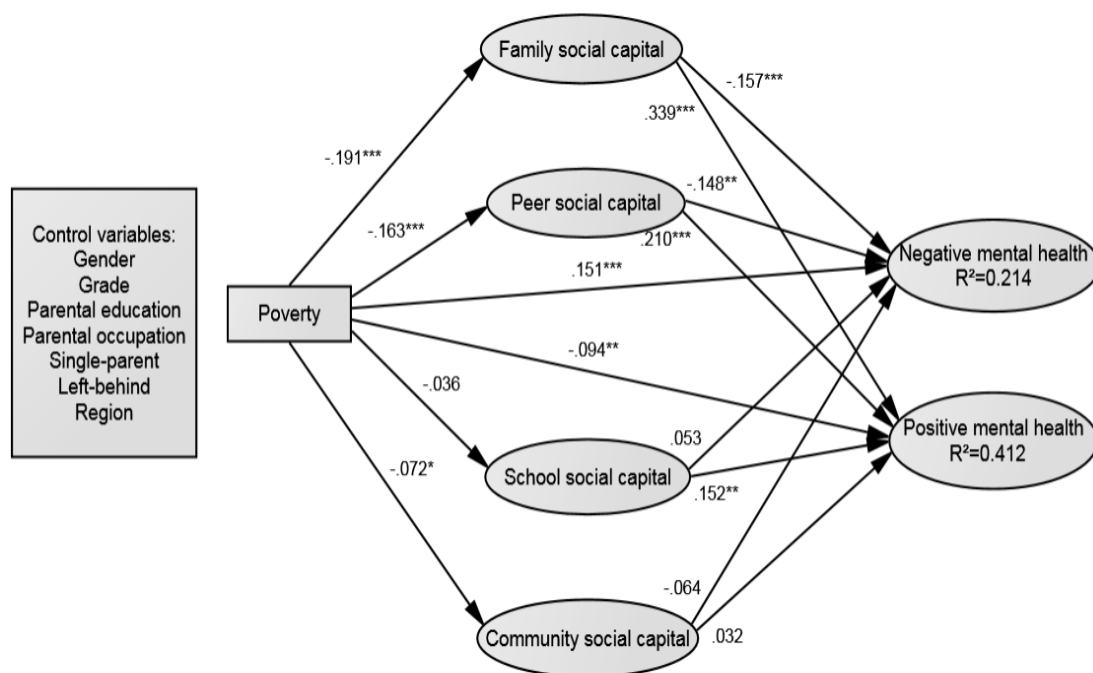
Table1：**Sociodemographic characteristics（N=1314）**

	Frequency （N）	Percentage （%）
Gender		
Male	585	44.5
Female	729	55.5
Grade		
Grade 4	227	17.3
Grade 5	211	16.1
Grade 6	229	17.4
Grade 7	233	17.7
Grade 8	190	14.5
Grade 9	224	17.0
Education level (Father)		
Illiterate	213	16.2
Primary school	336	25.6
Junior high school	374	28.5
Senior high school	58	4.5
Junior college	3	0.2
University and above	9	0.7
Education level (Mother)		
Illiterate	241	18.3
Primary school	350	26.6
Junior high school	298	22.7
Senior high school	40	3.1
Junior college	4	0.3
University and above	11	0.8
Occupation (Father)		
Civil servants	39	3.0
Business affairs	184	14.0
Migrant worker	767	58.4
Farmer	221	16.8
Retirement	5	0.4
Unemployment	74	5.6
Occupation (Mother)		
Civil servants	43	3.3
Business affairs	127	9.7
Migrant worker	630	47.9
Farmer	229	17.4
Retirement	12	0.9
Unemployment	251	19.1
Single-parent status		

Yes	102	7.8
No	1177	89.6
Left-behind status		
Yes	625	47.6
No	670	51.0
Region		
Good	463	35.2
Average	442	33.6
Bad	409	31.1

Table 2: Means, SDs, and correlation between the variables.

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	.29	.17	1																					
2	2.62	.72	-.184**	1																				
3	3.40	.84	-.175**	.686**	1																			
4	3.35	.60	-.055*	.494**	.499**	1																		
5	3.36	.60	-.055*	.463**	.473**	.758**	1																	
6	2.95	.89	-.100**	.477**	.523**	.429**	.425**	1																
7	3.46	.93	-.147**	.216**	.262**	.235**	.237**	.324**	1															
8	3.63	.85	-.092**	.061*	.062**	.189**	.197**	.016	.043	1														
9	3.59	.89	-.112**	.194**	.308**	.273**	.273**	.310**	.592**	.097**	1													
10	3.43	.80	-.078**	.162**	.266**	.284**	.284**	.273**	.509**	.175**	.618**	1												
11	3.82	.86	-.089**	.206**	.280**	.283**	.283**	.301**	.530**	.148**	.608**	.591**	1											
12	3.78	.69	-.011	.034	.076**	.213**	.213**	.009	-.001	.315**	.007	.107**	.107**	1										
13	2.86	.81	-.025	.251**	.255**	.323**	.323**	.389**	.243**	.059**	.270**	.258**	.351**	.144**	1									
14	3.63	.84	-.005	.235**	.295**	.351**	..351**	.351**	.303**	.086**	.324**	.288**	.428**	.283**	.633**	1								
15	3.27	.82	-.016	.186**	.224**	.282**	.282**	.304**	.282**	.066*	.297**	.281**	.411**	.181**	.684**	.648**	1							
16	3.61	.77	-.066*	.180**	.253**	.292**	.294**	.187**	.281**	.083**	.340**	.324**	.384**	.156**	.195**	.313**	.271**	1						
17	3.2	.87	-.017	.229**	.227**	.278**	.290**	.290**	.336**	.004	.396**	.357**	.380**	-.004	.376**	.329**	.296**	.430**	1					
18	2.47	1.05	-.025	.182**	.127**	.165**	.276**	.276**	.151**	-.026	.187**	.148**	.175**	-.117**	.385**	.225**	.241**	.126**	.400**	1				
19	2.41	.71	.173**	-.076**	-.079**	-.119**	-.103**	-.103**	-.115**	-.186**	-.077**	-.047	-.006	-.088**	-.018	-.009	.011	-.034	-.085**	-.072**	1			
20	2.32	.57	.224**	-.135**	-.146**	-.246**	-.137**	-.137**	-.158**	-.317**	-.163**	-.127**	-.089**	-.222**	-.150**	-.188**	-.137**	-.139**	-.102**	-.097**	.608**	1		
21	3.41	.56	-.132**	.237**	.289**	.296**	.236**	.236**	.244**	.218**	.285**	.268**	.231**	.190**	.184**	.262**	.226**	.232**	.192**	.121**	-.228**	-.487**	1	
22	3.20	.59	-.114**	.251**	.300**	.267**	.328**	.328**	.301**	.038	.293**	.247**	.282**	.019	.284**	.315**	.312**	.209**	.266**	.224**	-.136**	-.225**	.446**	1

Note: (1) *p<.05; **p<.01

(2) 1 Poverty;2 Parental cooperation;3 Parental support;4 Mother's behavior;5 Father's behavior;6 Parental monitor;7 Peer association;8 peer conflict;9 Peer help;10 Peer safety;11 Peer intimacy;12 Teacher-student intimacy;13 Teacher-student conflict;14 Teacher-student support;15 Teacher-student satisfaction;16 Community attribution;17 Community support;18 Community participation;19 Anxiety;20 Depression;21 Self-esteem;22 Self-efficacy

Table 3 Standardized Factor Loadings of Observed Variables on Latent Construct

Latent Construct	Observed Variable	Factor Loading
FSC	Things parents and children supposed to do together	0.675
	Things that parents supposed to do for children	0.726
	The ways father behave to children	0.655
	The ways mother behave to children	0.676
	Parental monitoring	0.698
SSC	Closeness	0.820
	Conflict	0.543
	Supportive	0.798
	Satisfaction	0.812
PSC	Companionship	0.693
	Conflict	0.473
	Help	0.810
	Security	0.758
	Closeness	0.773
CSC	Sense of belonging	0.561
	Community support	0.769
	Community participation	0.448
NMH	Anxiety	0.709
	Depression	0.876
PMH	Self-esteem	0.769
	Self-efficiency	0.580

Note. FSC=family social capital; SSC=school social capital; PSC=peer social capital; CSC=community social capital; NMH=negative mental health; PMH=positive mental health.

Table 4 Unstandardized and standardized path coefficients of poverty, social capital and

mental health of children

			B	β	S.E.	C.R.	*p*
Family social capital	←	Poverty	-.553	-.191	.092	-6.030	***
Peer social capital	←	Poverty	-.629	-.163	.111	-5.654	***
School social capital	←	Poverty	-.036	-.036	.030	-1.191	.234
Community social capital	←	Poverty	-.185	-.072	.087	-2.142	*
Negative mental health	←	Poverty	.452	.151	.091	4.955	***
Positive mental health	←	Poverty	-.241	-.094	.081	-2.972	**
Negative mental health	←	Family social capital	-.162	-.157	.050	-3.274	***
Negative mental health	←	Peer social capital	-.115	-.148	.041	-2.844	**
Negative mental health	←	School social capital	.157	.053	.142	1.107	.268
Negative mental health	←	Community social capital	-.075	-.064	.070	-1.076	.282
Positive mental health	←	Family social capital	.300	.339	.046	6.552	***
Positive mental health	←	Peer social capital	.141	.210	.037	3.839	***
Positive mental health	←	School social capital	.390	.152	.135	2.889	**
Positive mental health	←	Community social capital	.032	.032	.063	.511	.609
Negative mental health	←	Gender	.084	.084	.030	2.813	**
Positive mental health	←	Gender	-.119	-.138	.027	-4.406	***
Negative mental health	←	Grade	.105	.358	.011	9.712	***
Positive mental health	←	Grade	.015	.060	.009	1.667	.096
Negative mental health	←	Father's education	.002	.009	.007	.243	.808
Positive mental health	←	Father's education	.005	.032	.007	.794	.427
Negative mental health	←	Mother's education	-.009	-.049	.007	-1.278	.201
Positive mental health	←	Mother's education	-.003	-.020	.006	-.495	.620
Negative mental health	←	Father's occupation	.007	.015	.014	.504	.614
Positive mental health	←	Father's occupation	-.005	-.012	.012	-.386	.700
Negative mental health	←	Mother's occupation	.004	.011	.011	.349	.727
Positive mental health	←	Mother's occupation	.013	.042	.010	1.291	.197
Negative mental health	←	Single-parent	.025	.016	.046	.544	.586
Positive mental health	←	Single-parent	.019	.014	.041	.465	.642
Negative mental health	←	Left-behind	-.023	-.024	.029	-.791	.429
Positive mental health	←	Left-behind	-.040	-.049	.027	-1.502	.133
Negative mental health	←	Region	.000	.000	.018	-.005	.996
Positive mental health	←	Region	.004	.008	.016	.270	.787

Note: B stands by unstandardized path coefficient，β stands by standardized path coefficient，
S.E. refers to standard error，C.R.is the critical ratio，*p* is the significance level.*** *p* <0.001；
** *p* <0.01；* *p* <0.05.