

# How Does Dialect Ability Affect Migrant Children's Mental Health in China?—Evidence From The China Education Panel Survey

Bairen Ding (✉ [brding1989@hhu.edu.cn](mailto:brding1989@hhu.edu.cn))

Hohai University School of Public Administration <https://orcid.org/0000-0003-4481-9213>

Yijie Wang

Hohai University School of Public Administration

Yang Bai

Hohai University School of Public Administration

Xiaomin Zhao

Hohai University School of Public Administration

Shizhi Huang

The Institute for Analytical sociology, Linköping University

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## Research article

**Keywords:** migrant children, mental health, dialect ability, school integration, CEPS

**Posted Date:** November 11th, 2020

**DOI:** <https://doi.org/10.21203/rs.3.rs-102897/v1>

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# Abstract

**Background:** Mental health is a prominent problem faced by migrant children in China and has a profound impact on their academic and social development. Different from previous studies that emphasize the positive and negative effects of the external system, this paper, considering internal aspects of the migrant children themselves, regards language as an important capital and skill and empirically examines the relationship between dialect ability acquired by migrant children in the area of immigration and their mental health.

**Methods:** Data are from the China Education Panel Survey of 2015. One-way ANOVA and multiple linear regression are used to investigate the influence of dialect ability on migrant children's mental health. Mediating effect analysis is used to examine the role of school integration between dialect ability and migrant children's mental health.

**Results:** Dialect ability is an effective protective factor for migrant children's mental health. The more proficient they are in local dialects, the higher their mental health level. School is the center of the interaction between migrant children and the place of immigration and the main space in which they use the local dialect. Mediating effect analysis shows that, in this field, migrant children with good dialect ability can achieve social integration by expanding their school communication, enhancing their school identity and winning peer acceptance to maintain and improve their mental health.

**Conclusions:** This shows that migrant children's mastery of local dialects is conducive to their psychological development, and school integration acts as an important bridge between local dialect and migrant children's mental health, which reveals the importance of advocating language diversity and cultural integration.

## Background

Mental health is a positive state that includes rational cognition, emotional stability, appropriate behavior, interpersonal harmony and adaptation to changes in the process of individual growth[1]. Primary and secondary school students are in the critical stage of growth, and their cognition, emotion, willpower and personality development are gradually maturing, Therefore, it is particularly necessary to protect and promote their mental health during this period[2, 3]. Since the late 1990s, with the family migration of the floating population, the number and scale of migrant children in China has increased rapidly[4]. According to the most recent census data, there are 34.26 million migrant children aged 0–17 in China, including 23.72 million migrant children in the primary and secondary education stages, accounting for 69.24%[5]. A great deal of research has shown that rural-urban migration and urban-urban migration have brought great impacts and challenges to the mental health of migrant children in China[6–9]. Compared with local children, migrant children are evaluated as more psychologically at risk, and their overall mental health status is poor[10–12]. They are faced with problems such as anxiety, loneliness, hostility, low self-esteem, depression, unhappiness and poor life satisfaction to varying degrees[13–15]. Moreover,

the negative evaluation of migrant children's mental health has persisted over time[16, 17]. This not only concerns the academic and social development of the migrant children themselves but also affects the stability and development of their families and even the whole society; thus, this issue has become a focus of academic research.

It is crucial to address the mental health problems of migrant children, and this is the core topic of the research on migrant children's mental health[18]. Scholars have found that in general, the various factors affecting migrant children's mental health can be summarized into three levels: the macro-level social environment, the meso-level characteristics of school and the community, and the micro-level family background[19]. Regarding the macro social environment, the long-existing dual system of urban-rural division, household registration system and the implied cultural differences between urban and rural areas not only make migrant children frequently suffer social exclusion but also easily lead to identity crisis and pressure[20, 21]. In terms of school and community characteristics at the meso level, differentiated arrangements (such as special schools for migrant children or designated public schools), unfair treatment by teachers and discrimination by classmates constitute a special aspect of migrant children's learning, while geographical remoteness, poor conditions and noisy environment are common phenomena in this group's living spaces[19, 22]. For the micro family background, low socioeconomic status, poor parenting style and poor interpersonal relationships make it difficult for migrant children's families to act as a protective net against their mental health risks[23]. Moreover, these different levels of influencing factors interweave with each other, further aggravating the psychological plight of migrant children[19].

The mental health of migrant children, who act as agents in social situations, should be the product of the interaction between individuals and the environment[24]. In addition to the external influence from various ecosystems in immigrant areas (such as the family, school, community and society), the internal aspects of migrant children should not be ignored[25]. In past studies, more attention has been given to personality factors, such as self-efficacy, resilience and personality tendency[26–28]. However, the capital and skill factors of migrant children are seldom discussed. Among them, language ability is rarely considered in the mental health research of migrant children in China. Language can be decoded into symbols (such as voice or words) by people for communication. In terms of linguistics, language is a basic medium of communication that shows its value in communicative function and enables people to exchange information and express emotions. Since World War II, linguistic economics has enriched the practical value of language. Language is regarded as a form of human capital with economic characteristics, such as utility, costs and benefits[29]. In the 1960s, with the addition of sociology and sociolinguistics, the explicit function of language was further expanded. Language became a signal of social identity, depicting identity selection, comparison and belonging. Currently, language has many functions in communication, economy, society and culture[30]. It has a wide range of value attributes and has a profound impact on all aspects of people's lives.

The influence of language ability on migrant children's mental health should not be underestimated. In recent years, with the rise of cultural sociology, language has been developing into a key analytical

variable, and many immigration-related language studies show that language plays an important role in people's psychology and practice and include it in the interpretation of social consequences variables (such as income, behavior, psychology)[31]. These studies show that the language proficiency or bilingual ability of migrants can effectively improve their self-rated health and mental health. Schachter et al. show that bilingual migrants who are proficient in their mother tongue and the local language (such as English) can better self-assess their physical and mental health because they can obtain more economic status or social support[32]. Wong also proves this from the opposite side, and he finds that limited English proficiency has negative effects on the mental health of Chinese people living in the United States. The language barrier leads to poor social life adaptation, underutilization of mental health services or premature termination of treatment, which significantly reduces the mental health level of Chinese residents compared with native American residents with good English proficiency[33].

Dialect, also known as "Tuhua", is a local variant of language, which is different from the standard language (such as Mandarin Chinese) and is used only in a certain area. China has a vast territory and diverse cultures, and each region has its own dialect. Relevant statistics showed that, there were 10 dominant dialects in China (Mandarin, Cantonese, Wu, Jin, Min, Hui, Gan, Xiang, Pinghua, and Hakka), including 114 subdialects, and different dialects even exist between counties (districts) in the same province[34]. Although the government began to promote Mandarin Chinese in the mid-1950s, dialects have not withdrawn from the stage and are still widely used in people's daily lives.

Living across counties (districts) is the most significant identity of migrant children, distinguishing them from other children. Although the entire family may move together from the hometown to the area of immigration, the external environment of the family changes greatly, which leads to the loss of rights and interests in some aspects. Children need to readapt to the unfamiliar environment, and in this process, their mental health is affected to a certain extent[35]. On the one hand, an unfamiliar language is an important factor of the macro-level external environment for migrant children[36]. The types and uses of dialects in China are extensive, and there are great differences across regions. Migrant children shuttling across different counties (districts) often face dialect problems that are no less severe than the language distance international immigrants face in a certain sense. Their adaptation and mastery of the dialects in the area of immigration are related to their mental health. On the other hand, because most migrant children are of school age and receive compulsory education in the new area, the unfamiliar school environment is an important meso-level external environment for them and a key place for their socialization[37]. The social integration of migrant children in schools is directly related to their psychological development. Those with better social integration will maintain positive states, such as happiness, pride and satisfaction, while those with insufficient social integration often face negative emotions, such as anxiety, loneliness and inferiority complex. Moreover, for migrant children, dialect and school environment are two unfamiliar environments which are interrelated. Dialect, as the carrier of local culture, is regarded as the main means for migrant children to achieve social or school integration[36]. It can not only shorten the distance between different ethnic groups and reduce discrimination and exclusion but also increase communication and mutual assistance between different ethnic groups and enhance identity and belonging[38].

Therefore, this paper considers migrant children themselves from the language perspective and uses the most recent nationally representative data (CEPS2015) to analyze the relationship between school-age migrant children's local dialect ability and their mental health. Furthermore, it examines the mediating effect of school integration in this relationship to provide new ideas for promoting the mental health development of children in this group. Through this study, we found that migrant children with good dialect ability tend to have higher mental health levels. In addition, School is the center of the interaction between migrant children and the place of immigration and the main space in which they use the local dialect. School integration has not only significant positive effects on migrant children's mental health, but also acts as an important bridge between dialect ability and migrant children's mental health.

## Methods

### Data and Sample

This paper uses data from the China Education Panel Survey (CEPS) designed and completed by the National Survey Research Center at Renmin University of China in 2015. The survey is a nationally representative survey that tracks comprehensive aspects of education. All seventh grade students in the 2013-2014 academic year baseline survey were followed up. A total of 9450 students were successfully followed up, 830 were lost to follow up, and 471 were newly enrolled. There were 10751 samples. The survey objects include students, parents, teachers and school leaders. The survey content involves students' basic information, school performance, physical and mental health, social development, family education, class environment, school characteristics and many other contents, which can well meet the needs of this study.

According to the analysis object requirements of this study, we screened 1769 migrant children through the "registered address (i.e., whether it is in the county or district)" and the specific registered permanent residence of the students interviewed. After deleting a small number of invalid values and missing items, the final effective sample included in the analysis was 1279.

### Measures

#### *Dependent Variable*

The dependent variable is mental health. It focuses on the recent social psychological state of the students surveyed and uses a set of indicators constructed by six questions in the CEPS for measurement. The question set is as follows: "In the past seven days, have you had the following feelings: 'Depressed', 'Downhearted', 'Unhappy', 'Slouching', 'Sad', 'Nervous'." The answer options for each question are "Never", "Rarely", "Sometimes", "Often" and "Always". We adjust the score of each question in reverse and record 5-1 points. In addition, to simplify the data analysis, principal component analysis is used to extract common factors and convert them into a mental health index with a value range of 1-100 points. The higher the score is, the higher the mental health level of the migrant children.

### ***Independent Variable***

The independent variable is dialect ability. Many scholars use self-reported language proficiency to measure migrants' ability to master the local language[39]. Therefore, this variable is mainly measured by the students' mastery of the local dialect. The CEPS includes the question "Do you know the local dialect?" The answer options are divided into five grades: "Totally not", "Understand only", "Speak only a little", "Basically speak but not proficiently" and "Speak fluently". We record the answers from 1-5 points, where the higher the score is, the stronger the dialect proficiency of the migrant children.

### ***Mediator Variables***

The mediator variable is school integration. According to the two-way interaction theory of integration developed by scholars in China and internationally, school integration should be regarded as the changing process and state of the interaction between migrant children and the society in the destination[37]. It is neither the one-way and passive integration of migrant children nor the simple rejection or acceptance of the society in the destination. Considering the particularity of the school-age years regarding identity, learning and life, school integration can be considered in three dimensions: school interaction and identification, representing students' self-integration, and peer acceptance, reflecting others' recognition of students at school. The specific explanation is as follows.

The dimension of school communication is measured by migrant children's network of friends in school. The CEPS includes the following question "Please list the names of your five best friends (if there are not five, fill in a few). Do they share the same school with you?" The answer options to this question are "Yes" and "No", which are recorded as 1-0 points. After summing up, a continuous variable with a value range of 0-5 points is obtained. The higher the score is, the wider the school communication of migrant children.

The dimension of school identity is measured by migrant children's emotional belongingness and identity with the school. It is composed of four scales in the CEPS: "I often participate in activities organized by school or class", "I feel close to people in this school" and "I hope to go to another school (reverse scoring)". After summing up, a continuous variable with a value range of 3-12 points is obtained. The higher the score is, the stronger the school identity of migrant children.

The dimension of peer acceptance is measured by the acceptance, recognition and friendliness of the students in the county (district) school towards migrant children. There are three questions in the CEPS: "Do your classmates registered in this county (district) want to be friends with those from other cities?", "Do your classmates registered in this county (district) want to be friends with those from other rural areas?" and "Most classmates are friendly to me." 1-0 points are recorded for the options "willing (agree)" and "unwilling (disagree)", respectively. After summing up, a continuous variable with a value range of 0-3 points is obtained. The higher the score is, the better the acceptance of peers in the school.

### ***Control variables***

The control variables involve individual, family and school characteristics. The individual characteristics of students include household registration type, whether the child is an only child or not, whether the child is often ill or not, self-efficacy and confidence in the future. Family characteristics include family structure, family economy and family relationship. School characteristics include school type, school location and whether health education is offered.

**Table 1 Description of the study variables**

Variables	Definition and assignment	Mean(SD)
<b>Dependent variable</b>		
Mental health	Continuous variable(1-100 points)	69.48(21.97)
<b>Independent variable</b>		
Dialect ability	Continuous variable(1-5 points)	3.38(1.42)
<b>Mediator variable</b>		
School communication	Continuous variable(0-5 points)	3.50(1.62)
School Identity	Continuous variable(3-12 points)	9.25(1.99)
Peer acceptance	Continuous variable(0-3 points)	2.77(0.56)
<b>Control variables</b>		
Household registration type	Agricultural household registration=0; Non-agricultural household registration=1	0.26(0.44)
The only child or not	No=0; Yes=1	0.31(0.46)
Often get ill or not	Never=1; Rarely=2; Often=3	1.93(0.45)
Self-efficacy	Continuous variable 4-16points	12.69(2.70)
Confidence in the future	Not very confident=1; Quite confident=2; Very confident =3	2.09(0.68)
Family structure	Migrant parents=1; Migrant father only=2; Migrant mother only=3; others=4	1.25(0.73)
Family economy	Poor=1; Average=2; Wealthy=3	1.98(0.45)
Family relationship	Parents often quarrel=0; Parents never quarrel=1	0.89(0.31)
School type	Private school=0; Public school=1	0.88(0.32)
School location	City=1; Rural-urban continuum=2; Village and town=3	1.67(0.82)
Health education offered or not	No=0; Yes=1	0.92(0.27)

## Statistical Analysis

Statistical analyses were performed using STATA software version 15.0, unless otherwise noted. The research steps mainly include the following three aspects. First, one-way ANOVA is used to investigate the differences in school integration and migrant children's mental health under different dialect abilities.

Second, a multiple linear regression model is used to investigate the influence of dialect ability and school integration on migrant children's mental health. Third, a mediating effect analysis is used to examine the role of school integration between dialect ability and migrant children's mental health. Two-sided P-values less than 0.05 are considered statistically significant.

## Results

### The Influence of Dialect Ability on Migrant Children's Mental Health

Dialect is an important capital and skill of an individual. Its learning and mastery is a process of knowledge accumulation, which requires considerable time and energy. Data from the CEPS2015 show that, overall, the average score of dialect proficiency of school-age migrant children is 3.38, which is between "speak only a little" and "basically speak but not proficiently". Specifically, in this group, when asked "Do you know the local dialect?", 12.20% of them chose the option "Totally not", 20.72% of them chose "Understand only", 15.95% of them chose "Speak only a little", 19.08% of them chose "Basically speak but not proficiently", and 32.06% of them chose "Speak fluently". Therefore, the vast majority of school-age migrant children are more or less aware of the local dialect.

Migrant children span different counties (districts), and they may face challenges in life, learning and physical and mental development in the areas of immigration due to dialect differences. Table 2 reveals the mental health level of migrant children with different dialect abilities. On the whole, the average score of migrant children's mental health was 69.48, which was above the average level. Specifically, in this group, the average scores of those who chose "Totally not", "Understand only", "Speak only a little", "Basically speak but not proficiently", and "Speak fluently" were 65.29, 69.32, 68.03, 70.53, and 71.29, respectively. It can be seen that the mental health of migrant children is consistent with their proficiency in local dialects, generally showing an optimistic state of steady increase with fluency. This finding preliminarily verifies the promotion effect of dialect ability on mental health.

**Table 2 Dialects and migrant children's mental health**

Mental health	Mean	SD
<b>Dialect proficiency</b>		
Totally not	65.29	22.35
Understand only	69.32	20.75
Speak only a little	68.03	23.11
Basically speak but not proficiently	70.53	20.87
Speak fluently	71.29	22.50
Difference test	F(4, 1274)=2.49, p<0.05	

To accurately reflect the impact of dialect ability on migrant children's mental health, we adopt the method of gradually incorporating control variables to estimate the model to obtain a robust regression result. Table 3 shows that the regression coefficient of dialect ability in model 1.1 is 1.192, which passes the test at the significance level of 0.01. This shows that the better migrant children's dialect ability is, the higher their mental health level. In model 1.2, the following control variables are added on the basis of model 1, such as student characteristics, family characteristics and school characteristics. Although the regression coefficient of dialect proficiency decreases, it is still positive (1.140) and passes the test at the significance level of 0.01. The findings confirm the positive correlation between dialect ability and migrant children's mental health.

**Table 3 Influence of dialect ability on migrant children's mental health**

Variables	Model 1.1	Model 1.2
<b>Independent variable</b>		
Dialect proficiency	1.192**(0.431)	1.140**(0.430)
<b>Control variables</b>		
Household registration type (Taking Agricultural household registration as reference)		-2.196(1.396)
The only child or not (Taking Yes as reference)		1.931(1.316)
Often get ill or not (Taking Never as reference)		
Rarely		-5.111**(1.714)
Often		-13.506*** ( 2.758)
Self-efficacy		0.494*(0.223)
Confidence in the future (Taking Not very confident as reference)		
Quite confident		9.725***(1.604)
Very confident		13.126***(1.820)
Family structure (Taking Migrant parents as reference)		
Migrant father only		4.671(3.989)
Migrant mother only		-0.764( 2.432)
Others		-2.074(3.239)
Family economy(Taking Poor as reference)		
Average		3.425+(1.907)
Rich		6.613*(2.649)
Family relationship (Taking Parents often quarrel as reference)		6.795***(1.959)
School type (Taking Private school as reference)		3.595+( 2.106)

School location (Taking City as reference)		
Rural-urban continuum		1.221(1.579)
Village and town		1.690(1.508)
Health education offered or not (Taking No as reference)		-1.742(2.451)
F	7.66**	10.01***
$\Delta R^2$	0.005	0.113

Note: (1) the values in brackets are standard errors,(2)+p<0.1;\*p<0.05;\*\*p<0.01;\*\*\*p<0.001.

The following are similar.

### **The Influence of School Integration on Migrant Children's Mental Health**

How does dialect ability affect migrant children's mental health? In migrant families, adults are mainly concerned about how to integrate into the labor market of the destination, while children's activities mainly focus on the school in the destination. At present, the school is still the center of the interaction between migrant children and the local society, as well as the main communication space of the local dialect[37]. Therefore, this paper focuses on this important life scene to reveal that dialect ability can promote psychological development by improving the school situation. Specifically, this part takes migrant children's mental health as the dependent variable, adopts a nested model and gradually adds mediator variables (school communication, school identity and peer acceptance) on the basis of model 1.2 to test how school integration affects the mental health of migrant children with different dialect proficiency.

Model 2.1 includes the dimension of school communication on the basis of model 1.2. The regression coefficient of school communication is 1.037, which passes the test at the significance level of 0.01, showing that school communication can promote migrant children's mental health. When other control variables remain unchanged, the mental health level of migrant children increases by 1.037 units for each unit improvement in school communication. School communication is conducive to migrant children's mental health and represents an objective support system. This is because migrant children's extensive communication with teachers or classmates in the school to which they move can enhance their communication, help them form a certain interpersonal circle, and help expand their relationship network. Given the social function of the relationship network, such a network can reduce the pressure individuals face and help them obtain social support and cultivate scientific habits, reduce the likelihood of "collapse" (such as physical, psychological or other functional damage), and improve the possibility of positive outcomes such as immunity, health and happiness.

Model 2.2 includes the dimension of school identity on the basis of model 1.2. The regression coefficient of school identity is 1.213, which passes the test at the significance level of 0.001, thus showing that school identity also has a positive impact on migrant children's mental health. When other control variables remain unchanged, each additional improvement in the school identity of migrant children increases their mental health level by 1.213 units. Similar to school communication, school identity contributes to migrant children's mental health, which is embedded in their own subjective psychological resources. This is because the essence of identity is the psychological sense of belonging and the emotional and value significance it brings. According to identity theory, if people identify with the group to which they belong, they often experience positive psychological states, such as health, self-esteem and happiness. In contrast, if they do not agree with or find it difficult to integrate into the group, they experience negative psychological states, such as anxiety and depression. Migrant children's high sense of identity with the school reduces hostility, increases their sense of belonging, and helps them maintain a healthy mental state.

Model 2.3 includes the dimension of peer acceptance on the basis of model 1.2. It can be found that the regression coefficient of peer acceptance is 2.137, which passes the test at the significance level of 0.05, showing that peer acceptance is also conducive to migrant children's mental health. When other control variables remain unchanged, the mental health level of migrant children increases by 2.137 units for each additional increase in peer acceptance. Peer acceptance is an important part of peer relationships. Peer relationships are a horizontal relationship with the nature of equality and reciprocity, and they play an important role in the process of children's socialization. For migrant children, a high degree of peer acceptance means that they have good peer relationships in the areas of immigration, enjoy harmonious interpersonal interactions with their peers, obtain material and spiritual support from these interactions, smoothly adapt to the strange environment, and then maintain the mental health status of happiness, satisfaction, peace of mind, happiness, hope, confidence, etc.

Model 2.4 includes all of the variables. On the basis of model 1.2, three dimensions of school integration are included. It can be found that the impact of school integration is very robust. In addition to peer acceptance, school interaction and school identity dimensions are consistent with the previous model results, indicating that they have a positive effect on migrant children's mental health.

#### **Table 4 Influence of school integration on migrant children's mental health**

Variables	Model 2.1	Model 2.2	Model 2.3	Model 2.4
<b>Controlvariables</b>	Controlled	Controlled	Controlled	Controlled
<b>Independentvariable</b>				
Dialect proficiency	1.086*(0.429)	0.958*(0.430)	1.135**(0.429)	0.943*(0.429)
<b>Moderator variables</b>				
School interaction	1.037**(0.364)			0.790*(0.371)
School identity		1.213*** (0.323)		1.027** (0.334)
Peer acceptance			2.137*(1.076)	0.934(1.112)
F	9.97***	10.33***	9.72***	9.65***
$\Delta R^2$	0.118	0.122	0.115	0.125

Note: the control variables are the same as those in model 1.2.

### Dialect Ability, School Integration and Migrant Children’s Mental Health

School integration has a positive impact on migrant children’s mental health. Table 4 shows that the regression coefficient of dialect ability to migrant children’s mental health decreases when the three dimensions of school integration are gradually included. After the dimension of school communication is added, the regression coefficient of dialect ability decreases from 1.140 in model 1.2 to 1.086 ( $p < 0.05$ ). After the school identity dimension is added, the regression coefficient of dialect ability decreases from 1.140 in model 1.2 to 0.958 ( $p < 0.05$ ). After the peer acceptance dimension is added, the regression coefficient of dialect ability decreases from 1.140 in model 1.2 to 1.135 ( $p < 0.05$ ). Moreover, after the dimensions of school communication, school identity and peer acceptance are added, the regression coefficient of dialect ability reaches the minimum (0.943) and passes the test at the significance level of 0.05. This shows that school integration to a large extent explains the mental health differences among migrant children with different dialect abilities and may constitute an important intermediary between migrant children’s dialect ability and mental health.

Table 5 further examines the mediating effect of school integration on dialect ability and migrant children’s mental health and specifically examines the role of three dimensions of school integration. The results show that the total effect coefficient of dialect ability is 1.140, and it passes the statistical test at the significance level of 0.01, indicating that dialect ability constitutes an effective protective force for migrant children’s mental health, and its effect is 1.140, which is the same as the conclusion of model 1.2. Among them, the direct effect coefficient of dialect ability passes the statistical test at the significance level of 0.05, which shows that dialect ability can still positively affect the mental health of migrant children after the mediator variable of school integration is added, and its effect is 0.944, accounting for 82.80% of the total effect. The indirect total effect coefficient of dialect ability passes the

statistical test at the significance level of 0.01, which shows that school integration has a positive mediating effect between dialect ability and migrant children’s mental health, and its effect is 0.196, accounting for 17.20% of the total effect. Among them, the indirect effects of school interaction, school identity and peer acceptance are 0.041, 0.153 and 0.002, accounting for 3.59%, 13.46% and 0.15% of the total effect, respectively.

Then, how can we understand the relationship chain between local dialect ability, school integration and mental health? The most essential function of language is communication, which is not only the expression of language but also the collision of identity. People establish their relationship with society in the process of discourse communication. The social identity of the participants, such as birthplace, has an impact on the use of language. Social identity and language restrict each other; that is, social identity determines the way of language operation, and the way of language operation reacts to the identification of others with social identity[40]. Migrant children have certain life experiences and insights into the area of immigration. They care not only about their personal identity but also about their social identity. Therefore, when they communicate with others, they often choose the discourse types corresponding to different situations, relationships and personal factors to enhance their image and obtain recognition. When migrant children enter school in the area of immigration, the language environment is relatively complex. In addition to Mandarin, the local dialect is dominant. Therefore, in their daily study and life, teachers or students are more likely to adopt their familiar and intimate local language for communication. Migrant children’s efforts to speak the local dialect not only conveys the friendly signal of actively integrating into the local society (such as local peers) but can also reduce the exclusion and discrimination of the local society, win trust and favor, broaden the children’s study and life circle, and strongly support the maintenance or improvement in their mental health level.

**Table 5 Analysis of the mediating role of school integration**

Total effect, direct effect and indirect effect of dialect proficiency				
Type	Coefficient	Standard error	P-value	Effects proportion(%)
Total effects	1.140	0.427	0.008	—
Direct effects	0.944	0.429	0.028	82.80
Indirect total effects	0.196	0.074	0.008	17.20
Indirect specific effects				
School interaction	0.041	0.032	—	3.59
School identity	0.153	0.063	—	13.46
Peer acceptance	0.002	0.010	—	0.15

## Discussion

Increasing attention has been given to the relationship between language ability and the social psychology of children and adults. Many studies have shown that language is an important human ability that supports the functions of individual communication, thinking, self-confidence and identification and plays a positive role in the development of people's mental health[41-43]. The study of migrant children in China provides a unique opportunity to explore the relationship between language and mental health because the nature of these children's language problems is not based on neurolinguistic disorders or general cognitive deficits. China has a vast territory and a rich cultural heritage. In addition to the official language (i.e., Mandarin Chinese) promoted by the government, all localities retain their own unique languages (i.e., dialects), which are quite different from each other[34]. Migrant children moving across different counties (districts), provinces and cities in China face a multilanguage environment composed of Mandarin Chinese and dialects, which has a significant impact on their acquisition of language and communication skills. Our study found that although most migrant children have a certain understanding of the local dialect, their dialect ability directly affects their mental health, and those with better dialect ability have higher mental health levels. Moreover, for migrant children, school is one of the most important spaces of dialect communication, and their social integration in school serves as an important intermediary between dialect ability and mental health.

The findings of this study are consistent with previous studies on the relationship between language and mental health. Language is not only the most important part of culture but also the basic medium for the transmission of culture across time and space, and at the regional level, the cultural characteristics of a region are first presented by dialect. Therefore, the individual's mastery of the local language directly reflects his ability to adapt to the local cultural environment[44]. According to Berry's cultural adaptation stress model, children with multilanguage ability are actually in "integration" mode; they face less pressure of cultural adaptation and have better social and psychological conditions. In contrast, those facing special language disorders are in "nonintegration" mode and will bear more cultural adaptation pressure and face a greater risk of suffering from various psychological and mental diseases[45]. For example, Conti-Ramsden and Botting demonstrated a markedly higher rate of anxiety, loneliness and depression symptoms in adolescents with specific language impairment[46].

The findings of this study extend the research on language ability and mental health. In China, many scholars have discussed the economic impact of language on the floating population. For example, Chen et al. analyzed survey data of the floating population in rural and urban areas of Shanghai and found that the use of the Shanghai dialect had a positive effect on their work and income[31]. Wang Hai-xia et al. analyzed CLDS data and found that mastering appropriate dialects was conducive to improving the income level of the floating population[47]. There is a relative lack of attention to the noneconomic consequences of poor dialect ability, such as mental health. In other countries, although many scholars have investigated the impact of language on immigrants' mental health, the research objects are mainly international immigrants. For example, Ortiz and Arce's research on Mexican Americans found that the single use of either Spanish or English leads to worse psychological status, and people who use two languages equally achieve better cultural integration and mental health[48]. Howey et al. also found that Korean immigrants' excessive use of Korean has a negative impact on their psychological

development[49]. This paper focuses on migrant children in China, and there are some differences between Chinese migrant children and children of transnational immigrants in terms of institutional environment, cultural background, migration and mobility mode.

The findings of this study also promote the analysis of the relationship between language ability and mental health. Although the association between language and mental health has been illuminated by previous studies, the mediating variables in the relationship between language and mental health are not clear[50,51]. Therefore, as Pennebaker et al. indicated, there is a need for a more theorized approach in the explanation of the link between language and psychopathology[52]. Guided by the theory of social integration, our study points out that school is the center of the interaction between migrant children and their place of immigration as well as the main place where they use dialects. Having a strong dialect ability can help migrant children achieve social integration by expanding their school communication, enhancing their school identity, and winning peer acceptance, thus contributing to their mental health development.

Of course, there are some limitations in this study. First, because the analyzed data are from CEPS, we analyze migrant children in the compulsory education stage and lack attention to migrant children in other stages of education, such as senior high school. Second, related to the first point, the exploration of the relationship between dialect ability and migrant children's mental health focuses on the school space and pays little attention to other external aspects, such as community support. Finally, limited by the data available, this paper focuses on the local dialect of the place of immigration but pays little attention to the influence of the dialect in the emigration area or the official language (Mandarin Chinese). These are future research directions that may be better understood through follow-up investigations.

## **Conclusions And Policy Implications**

With the rapid development of new urbanization, increasing attention has been given to the mental health of migrant children. Studies examining the mental health of migrant children consider internal or external factors. The former refer to aspects of the migrant children themselves, while the latter focus on the social environment. Different from the previous studies that overemphasize the external effects of the ecological system in the area of immigration, this paper, considering the migrant children themselves, analyzes the influence of dialect ability on mental health from the perspective of language, guided by social integration theory.

In summary, based on the data of the CEPS2015, our study shows that in China, nearly 90% of migrant children have a certain understanding of the local dialect, and more than 30% have mastered the local dialect proficiently. Different from the economic impact of dialect ability for migrant adults, dialect ability brings noneconomic returns to migrant children; namely, migrant children with good dialect ability tend to have higher mental health levels. Moreover, after controlling for personal characteristics, family characteristics and school characteristics, the mental health effect of dialect ability is still significant and has strong stability. In addition, because school is the most important living space for migrant children in

the area of immigration, it is also the communication space in which dialect ability affects migrant children's mental health. Our study shows that school integration helps maintain and improve the mental health level of migrant children, which indicates an important way dialect ability can affect migrant children's mental health. On the one hand, school communication and identification, representing students' self-integration, and peer acceptance, reflecting school others' approval, have significant positive effects on migrant children's mental health. On the other hand, school integration acts as an important bridge between local dialect and migrant children's mental health, and given the two-way attribute of school integration, the sense of integration, especially school identity, plays a strong mediating role.

Mental health is an important part of health. Strengthening the promotion of mental health can help promote social stability and interpersonal harmony and enhance happiness. In China, with the increasing prominence of the trend of family migration, the development of migrant children's mental health is very important, and our research findings can provide a new idea and direction for protective interventions. The policy implications are as follows. First, the economic and noneconomic returns (such as mental health effects) of local dialects should be understood, and language diversity should be protected while promoting Mandarin. Second, migrant children should be encouraged to actively learn and master certain local dialects to reduce the cultural estrangement from local children and narrow the distance between them. Third, the government, community and public welfare organizations, and other institutions should advocate the strengthening of cross-cultural communication and learning based on local dialects to help migrant children understand the language and culture of the area of immigration and truly fit into the local society. Finally, close attention should be given to the value and significance of school integration for migrant children, as school integration not only links local dialect ability with mental health but also independently affects children's mental health.

## Abbreviations

CEPS: China Education Panel Survey.

## Declarations

**Acknowledgments:** The authors thank the National Survey Research Center at Renmin University of China for providing the data and all the participants in this research.

**Author contributions:** All authors made contributions to this study. B. D. and X.Z. applied for the data. B. D., Y.B., X.Z and S.H. analyzed the data and wrote the manuscript. Y.W. provided important guidance on the writing. B. D., Y.B., X.Z and S.H. read and revised the full text many times. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research was funded by the key project of National Social Science Foundation of China, grant number [17ASH010] and the Social science fund of Jiangsu Province of China, grant number

[19SHC006] .

## Availability of data and materials

This paper uses data from the China Education Panel Survey (<http://cnsda.ruc.edu.cn/index.php?r=projects/view&id=61662993>), which is designed and completed by the National Survey Research Center at Renmin University of China in 2015.

## Ethics approval and consent to participate

The data of this study are from CEPS, and Renmin University of China has obtained the consent and support of the survey participants when collecting the data.

## Consent for publication

Not applicable.

## Competing interests

The authors declare that they have no competing interests.

## Author details

<sup>1</sup> Department of Sociology, School of Public Administration, Hohai University, Nanjing, Jiangsu province, 211100, People's Republic of China. <sup>2</sup> The Institute for Analytical sociology, Linköping University, Norra Grytsgatan, Norrköping, 10, 60174 Sweden.

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