

Inclusive education of elementary students with autism spectrum disorders in Shanghai, China: From the teachers' perspective

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SUMMARY Given an increasing number of children with ASD, the need for inclusive education has rapidly increased in China. Since 2011, children with ASD have been eligible for inclusive education. However, little is known of the implementation process by key personnel. The purpose of the current study was to qualitatively explore elementary school teachers' experiences and perspectives on an inclusive education policy and practice for students with ASD. Participants were from 5 elementary schools in 2 districts in Shanghai. This study consisted of data collection in 2 phases. First, semi-structured, in-depth interviews were conducted with school psychologists and vice principals responsible for students' mental health for implementation of general inclusive education at each school. Second, focus groups of frontline teachers were assembled to hear their firsthand experiences. A thematic analysis was performed. Findings indicated that although all 5 schools had some ASD-related support, training and resources varied depending on whether learning in regular classrooms (LRC) was implemented. Frontline teachers in particular faced challenges implementing LRC, including the limited extent of LRC, tedious implementation procedures, and parents' misconceptions of LRC. Regardless of these challenges, frontline teachers tried to support students with ASD as much as they could. The current findings should help to advance the inclusive education policy in Shanghai, including increasing the availability of inclusive education resources and training for teachers, issuing specific LRC guidance, and reducing ASD-related stigma. This study is among the first to explore the implementation of inclusive education in urban China.

Keywords autism spectrum disorder (ASD), elementary school, inclusive education, policy implementation, urban China

1. Introduction

Autism spectrum disorder (ASD) is a neurodevelopmental disability characterized by continuing challenges with social communication, restricted interests, and repetitive or stereotyped patterns of behaviors across multiple contexts (1). Evidence-based practices are the most useful form of rehabilitation for autistic children, including prompting, differential behavior reinforcement, modeling, naturalistic interventions, and task analysis; these are crucial building blocks of rehabilitation programs for children with ASD (2). Many scholars have stressed that these interventions should be provided in natural settings, such as home, community, or school, so that

the best functional outcomes of the academic, social, or occupational setting can be achieved (2). Inclusive education provides students of all backgrounds the same access to regular classrooms and school environment, which is the basis for implementing evidence-based practices to rehabilitate autistic children in a natural environment (3).

In 1994, the United Nations announced the Salamanca Statement proposing inclusive education, advocating that all children be educated in the same educational environment, regardless of whether they had special needs or not (4). Since then, countries around the world have explored inclusive education. Previous studies have indicated that receiving an

education in regular schools can help children with ASD improve the interpersonal skills, social adaptability, academic skills, and self-confidence (5). Inclusive education in the United States requires placement of the student in the least restrictive environment (LRE), which spans a continuum of placement options from general classrooms to residential school. With various degrees of support from special needs educators, 91.1% of autistic children can eventually be placed in mainstream classrooms (6).

Since the 1980s, China has implemented a program of *Sui Ban Jiu Du*, or learning in regular classrooms (LRC), that is focused on including children with special needs in regular classrooms (7). In 1988, the first national conference on special needs education affirmed LRC as an official policy of special needs education. In general, LRC provides equal opportunities for children with disabilities to enter regular schools for compulsory education. LRC is open to children with 5 types of disabilities: low vision, hearing loss, a mild intellectual disability, a physical disability, and a mental disability (8). The Committee to Certify Disabled Children's Eligibility will examine an enrollment application and make the final decision. According to the "2020 Statistical Bulletin on Education", 49.47% of all students receiving special needs education were included in the LRC program in China (9). According to the current inclusive education policy in Shanghai, a school will receive an extra 6,000 RMB (*i.e.*, \$941 USD at the current exchange rate) for each student enrolled in the LRC program. A full-time special needs education teacher will be assigned if there are more than 5 students enrolled in the LRC program in each school.

Although the prevalence of ASDs in Chinese children is estimated to be 26.50 per 10,000 (10), education of autistic children has been overlooked until the last decade, which is much later than the launch of LRC. In 2006, China classified ASD as a mental disability requiring rehabilitation services (11). In 2011, the Chinese Ministry of Education included ASD in the category of a "mental disability", making children with ASD eligible for LRC (12). Although the current authors were unable to find specific statistics regarding ASD, *Statistics on Special Needs Education 2020-2021* indicated only 4.62% of all elementary school students enrolled in LRC in China were diagnosed with a mental disability (13). In reality, the majority of students with ASD are still excluded from the LRC program for various reasons, including no desire to enroll a child on the part of his or her parents, failing to meet the LRC criteria in practice, a lack of educational resources, or a lack of awareness of the program (14).

Even if a child with ASD is successfully placed in a regular classroom, this does not ensure that the child transitions or learns successfully since many receive limited or inappropriate support (15). Whether

children with ASD continue to successfully operate in a mainstream educational setting depends on many factors. Teacher training is a major challenge of inclusive education. Scholars have contended that better inclusive education training allows special needs teachers to significantly increase their knowledge of ASD and effectively guard against negative attitudes toward inclusive education (16-18). However, a lack of teacher training is common around the world (19-21). Even in the United States where most ASD students receive inclusive education, their teachers and service providers rarely receive direct and specific training on evidence-based practices for ASD (19). Without sufficient ASD-specific training and mentoring, teachers have difficulty understanding each child's characteristics and managing their challenging behaviors. Organizational factors, such as class size and the availability/presence of educational assistants, may further impact students' development of social skills, behavioral management, and social inclusion. Social attitudes also can prevent teachers from creating an inclusive environment (22-25).

The school-family partnership is also considered to be an important factor in successful implementation of inclusive education (26,27). Teachers and educators strive to establish close collaborative relationships with parents, which is not always successful (20). However, the stigma of ASD is another common barrier that prevents families from receiving proper educational and social support for children with ASD. Abnormal/repetitive behaviors, a low level of parental education, ignorance, stereotypes, and misunderstanding of ASD can aggravate the avoidance of inclusive education from the perspective of parents (28-30).

Although previous studies have focused on the challenges of inclusive education for students with ASD from the perspective of educators and parents, most used quantitative research methodologies. The literature has remained relatively mute on salient experiences and perspectives of these key personnel during the process of implementing inclusive education, which may shed light on improved policies and practices (31). Moreover, existing evidence is primarily from teachers who were already involved in inclusive education. Since students with ASD who are not enrolled in the LRC program have been overlooked in regular Chinese schools, teachers' experiences are understudied. Thus, the purpose of the current study was to use qualitative research methodologies in order to explore teachers' experiences of implementing inclusive education for students with ASD in Shanghai.

2. Materials

2.1. Study setting and procedures

After this study was approved by the Hospital (IRB2021-538), the research team solicited participants

from 10 elementary schools with established teacher-physician collaboration (*e.g.*, fast-track diagnoses and evaluation) in 3 districts in Shanghai. Five schools agreed to participate while the other 5 declined due to time conflicts or privacy concerns. These 5 schools were located in 2 districts in Shanghai, China.

The research team first contacted principals or vice principals who were responsible for managing students' mental health. The purpose of this study and proposed study procedures were explained. Their questions were also answered and their concerns were addressed. The team then met with the school psychologist at each school to obtain information on inclusive education. Once all 5 schools agreed to participate, school psychologists helped recruit frontline teachers, such as head teachers and teachers of main subjects such as Chinese, mathematics, and English, who had direct experience with students with ASD over the past 3 years to participate in focus groups.

2.2. Participants

Four focus groups with 19 frontline teachers were assembled to gain insight from their daily teaching and interaction experiences with students with ASD. Three focus groups consisted of 5 teachers and one consisted of 4 teachers. Eighteen of the participants were female and one was male. These teachers were 38.3 years of age on average and had worked for an average of 16.6 years as elementary school teachers, with years of teaching experience ranging from 3 to 30 years. Six of the teachers were head teachers. The subjects they taught included Chinese, mathematics, English, arts, and music.

Individual semi-structured, in-depth interviews were conducted with 3 vice principals and 4 school psychologists. Six were female and one was male. They were primarily middle-aged, with an average age of 45.1 years. On average, these administrators and school psychologists had relatively extensive teaching experience of 20 years. Participants' demographic information is shown in Tables 1 and 2.

2.3. Data Collection and Analysis

Data collection took place from October to December 2021. All interviews were held in the participants' own offices and focus groups met in the private conference room at each school. Written informed consent was obtained from each participant before data collection. Participants were fully informed that their participation was voluntary and that they could stop whenever they felt uncomfortable or concerned. To protect the anonymity and confidentiality of students and their parents, teachers were asked to use pseudonyms to describe them and not to disclose the students' gender.

All of the interviews and focus groups were

Table 1. Demographic Characteristics of Focus Group Participants ($n = 19$)

Items	Focus Group Participants
Age (years)	
Average (range)	38.3 (27-51)
25-29	2 (10%)
30-34	5 (26%)
35-39	4 (21%)
40-44	3 (16%)
45-49	2 (11%)
50-54	2 (11%)
Gender	
Female	18 (95%)
Male	1 (5%)
Teaching experience (years)	
Average (range)	16.6 (3-30)
3-5	2 (11%)
6-10	6 (32%)
11-15	1 (5%)
16-20	4 (21%)
21-25	1 (5%)
26-30	5 (26%)
Subject taught	
Chinese	7 (37%)
Mathematics	5 (26%)
English	4 (21%)
Arts	1 (5%)
Music	1 (5%)

Table 2. Demographic Characteristics of Interview Participants ($n = 7$)

Items	Interview Participants
Age (years)	
Average (range)	45.1 (35-57)
35-39	1 (14%)
40-44	2 (29%)
45-49	3 (43%)
50-59	1 (14%)
Gender	
Female	6 (86%)
Male	1 (14%)
Teaching experience (years)	
Average (range)	20 (6-37)
6-15	3 (43%)
16-25	1 (14%)
26-35	2 (29%)
36-45	1 (14%)

conducted in Mandarin. The interviews began with a grand tour question regarding inclusive educational practices at the school. This was followed up with specifics about the daily operation of the LRC program, teacher training, teachers' experiences, and teachers' needs. Each interview concluded with an inquiry about each administrator and school psychologist's suggestions to promote an inclusive education policy and practices in Shanghai. On average, each interview took an hour.

The focus groups began with a question about their general impressions of inclusive education and students with ASD. Teachers were then asked about their understanding of ASD, their daily interactions

with students with ASD, students' parents, their most rewarding and most difficult experiences, pedagogical adaptation, and relevant training. Each focus group concluded with an inquiry about each teacher's suggestions for improving inclusive education. During the focus groups, each teacher was encouraged to participate in the discussion. On average, each focus group took 1.45 hours.

Trained master's students transcribed all of the transcripts into Chinese verbatim. All members of the research team read and open coded all of the transcripts independently. Codes and statements about teachers' experiences with autistic students, inclusive education, interactions with students' parents, as well as teachers' struggles, perceptions, and understanding of inclusive education were identified and extracted from their accounts. With extensive discussion, codes and statements were grouped into various categories based on the similarity of the description (32). Themes emerged from recurrent categories of behaviors, expressed feelings, and perceptions (33), which were then labeled and defined through extensive discussion. Because the first and second authors are proficient in both Chinese and English, excerpts and themes were translated into English to write up findings. The first and second authors read through the original Chinese transcripts again to ensure that all themes were accounted for. All discussion notes and memos were retained as an audit trail.

3. Results and Discussion

3.1. Current inclusive education practices at a glance

Frontline teachers in the focus groups displayed a surprisingly limited knowledge of the terminology of inclusive education. However, they were familiar with the LRC program and they acknowledged the need for LRC for students with ASD. All 5 schools assigned a vice principal to oversee students' mental health. In contrast to the teachers, these vice principals and school psychologists expressed familiarity with inclusive education and their concerns about its practice in the school, and particularly for students with ASD. One part-time special needs teacher also worked closely with 4 of the schools. Six students had a confirmed ASD diagnosis and dozens more students were suspected of having ASD at the 5 schools, only 2 students with ASD were currently enrolled in the LRC program in 2 schools. In these 2 schools, one had a full-time special needs teacher, and the other had a part-time special needs teacher. Students with ASD enrolled in LRC received a range of support during the learning process to keep up with the regular curricula. For example, Mr. Wang (here, pseudonyms are used for all participants), the vice principal at 1 of the 2 schools, described the details of the LRC program at his school:

We evaluate the student's capabilities at the beginning of each school year and create a workbook that monitors the student's progress, including class activity records, interactions with their families, and stratified teaching plans, such as individual sessions or group sessions, for the whole school year. Each teacher of a main subject creates a workbook for each student with ASD. Additional group lessons, individual lessons, and special courses like picture book reading classes are also available.

The vice principal in the other school, Ms. Jiang, stressed that professional training and guidance for frontline teachers was essential. Her school closely collaborated with the Shanghai Special Education Guidance Center. The Center offers teacher training on LRC techniques for ASD and other types of mental disabilities several times per semester. The Center also evaluates students with ASD each semester in 5 developmental areas, including perception, movement, cognition, speech and communication, and social adaptation.

Teacher training varied among the 5 schools. For the 2 schools that had an LRC program, 12 teachers had received regular training on LRC. A special needs teacher also regularly came to the 2 schools to mentor frontline teachers and school psychologists. In contrast, the other 3 schools had received limited special needs educational support. Although they had attended some form of special needs training before, teachers from these 3 schools had not received any LRC training or undergone regular supervision. For example, Ms. Hu, a school psychologist, mentioned, "I know that there is LRC training, but my school has not participated, perhaps because we currently don't have any students receiving LRC". These 3 schools had not arranged for any stratified teaching at the time of the interviews, either.

3.2. Multifaceted challenges of LRC

Although all teachers agreed that having an LRC program was crucial, tailoring its implementing to the needs of students with ASD was particularly challenging. Teachers identified 3 main areas of challenges, including the limited extent of LRC, tedious LRC implementation procedures, and parents' misconceptions of LRC.

Limited extent of LRC: Although the diagnosis of ASD is listed as a criterion for enrollment in LRC, schools reported that in practice, the intelligence quotient (IQ) < 70 was actually used as the sole enrollment criterion. All of the teachers believed that using IQ as the sole criterion for enrollment in the LRC program was decisively limiting to students with ASD. Students' IQs may differ across the ASD spectrum, so they may all need additional learning support from

the LRC program. Although students with ASD in the 2 schools had an average IQ or above, they still displayed various learning difficulties. For example, Ms. Chen, who was a mathematics teacher with 15 years of teaching experience, remarked, "[The student] had a good memory and was good at calculating, so the student's scores were actually very good in the first grade. Beginning in the third grade, the student had problems with words and difficulty in comprehending sentences. That was a real challenge".

All of the teachers were more concerned about characteristics of ASD that impeded students' participation in regular class activities, such as limited social interaction, not following classroom rules, and behavioral issues. For example, Ms. Qian, another head teacher and an English teacher with 18 years of teaching experience, recalled, "[The student] cried nonstop whenever the teacher assistant (hired by the family) was absent. I think that if [the student] can receive additional emotional support, it could be helpful". Moreover, the question of who to prioritize – students with ASD or the other 40-50 students in the same classroom – was a constant challenge for frontline teachers. All of the teachers expressed their frustration and helplessness. For example, Ms. Sun, who was a Chinese teacher with 30 years of teaching experience, said:

The most difficult thing is when anything happens to [a student with ASD] during a class. I don't know whether I should take care of the student [with ASD] first or keep teaching the other students first. I can't take do both at the same time and neglecting either would be unfair.

This persistent dilemma - taking care of a student with ASD without interrupting regular teaching for other students - was overwhelming to frontline teachers. Thus, teachers believed that the LRC program should cover schooling as a whole, from learning to social interaction, rather than being limited to learning ability in order for students with ASD to be able to participate in regular school life.

Tedious LRC implementation procedures: Implementing the LRC program was a chore for teachers. First, if parents did not report their child's special needs to the school, the frontline teacher was responsible for determining the student's potential eligibility for the LRC program. Without any prior notification of or knowledge on a student's mental health problems, head teachers have to carefully observe each student. All 6 of the head teachers mentioned that they had made such observations during admission interviews, home visits, and daily classroom interactions. Other frontline teachers also mentioned the observations they made during class. When they noticed that something was off, these teachers would report that to the school psychologist and vice principal. The administrators would make a further

evaluation. However, these frontline teachers did not use any professional evaluation tools when determining a student's potential LRC eligibility. They admitted that they realized that this could be problematic, but they countered that they had no other professional support except their own teaching experience.

Second, parents' avoidance prevented teachers from suggesting LRC enrollment. For example, Ms. Wu, a head teacher with 21 years of experience of teaching English, stressed, "The biggest problem is no professionals available to suggest LRC directly to parents. Professionals are more persuasive [than teachers]". Currently, the head teacher is responsible for suggest that parents visit a child psychiatrist for further evaluation. Ms. Wu continued:

When parents refuse to see a child psychiatrist, the only thing we can do is to wait... wait for the student to get into trouble again and then we can suggest that parents seek medical advice again. It is a long-term battle.

Only when parents report a student's diagnosis to the school can head teachers follow up by implementing LRC. Teachers were not able to do anything except wait.

Extra paperwork was another reason for the tedious LRC implementation procedures. Almost all of the teachers, and especially head teachers, considered the extra paperwork to implement the LRC program as "unrealistic" for each student with ASD. For example, Ms. Zhou, a head teacher who taught Chinese for over 27 years, said, "I agree that the LRC program can be very helpful, but considering all the paperwork and procedures I have to go through, I'd say 'No.'" In fact, all of the teachers believed that their everyday teaching and mentoring of students with ASD already exemplified the concept of LRC. Ms. Zhou continued:

We really care about this student and we have helped [this student] make significant progress. Honestly, what we have done is equivalent to LRC. I'd rather keep on doing the one-on-one tutoring after school than fill out a whole lot of paperwork.

What was worse, teachers were not been properly compensated for their efforts to meet the learning needs of students with ASD. When one student is enrolled in the LRC program, the head teacher and teachers of Chinese, Mathematics, and English can receive a subsidy, ranging from 30 RMB to 500 RMB each month (*i.e.*, \$4.7-\$78.5 USD at the current exchange rate). As such, the existing heavy workload and inequivalent compensation for the LRC program further diminish teachers' motivation to implement the LRC program.

Parents' misconceptions of LRC: Teachers believed that parents' avoidance was related to

their misconceptions of LRC, which stemmed from stigmatization of intellectual disabilities and ASD. LRC eligibility depends on IQ, so parents refused to have their children be considered "developmentally challenged". For example, Ms. Feng, who had taught mathematics for over a decade, said, "A mother was afraid that her child would be considered retarded after signing up for LRC even though she knew that her child was in need". Teachers understood parents' concerns but still valued the benefits of LRC.

Still, teachers were frustrated that most parents chose to ignore their children's ASD-related symptoms. For example, Ms. Jin, who had taught English for 15 years, recalled, "When I was a head teacher, a father refused to discuss with me his child's repetitive behaviors in the classroom. He just believed that his child was going to grow out of it...". The stigma of ASD, mental health, and intellectual disabilities prompted parents to not disclose any information about their child's mental health problems, let alone a diagnosis of ASD. Ms. Jin continued, "A mother was reluctant to let me praise her child's progress at the parent-teacher meeting. She believed such public acknowledgement would actually expose her child's condition". Even when a few parents had chosen to seek professional help and disclosed their children's diagnosis to the school, they were still likely to forego the LRC program. The stigma related to the LRC prompted parents to turn away from inclusive education.

3.3. Inclusive education in practice

In reality, all of the teachers, including vice principals and frontline teachers, agreed that a variety of practices embodying inclusive education had already been integrated into routine teaching, regardless of whether LRC had been implemented or not. All teachers felt that they were responsible for doing their best to help students with ASD. Head teachers often asked for help from colleagues, school psychologists, and administrators. Teachers of different subjects shared strategies that worked for individual students with ASD to better facilitate the learning process for these students. Many teachers also gained ASD-related knowledge on their own time. Moreover, teachers tried to meet the needs of students with ASD as much as possible. During class, they tried various strategies, such as comforting, incentives, paying more attention, time-outs, and ignoring minor misbehavior. Head teachers also arranged for other students to be desk mates to help students with ASD study and interact socially.

Teachers and school administrators also actively sought to collaborate with students' parents. Teachers tried to invite parents to accompany their children as a private tutor in the classroom, and especially when parents received relevant rehabilitation training. For example, Ms. Bai, who taught mathematics for just 3 years and who was often nervous about classroom order,

said, "When the parent was present, I felt quite relieved". The schools had also invited parents to attend workshops on parenting skills.

This study is among the first to explore the experiences and perceptions of school administrators and frontline teachers with regard to inclusive education in urban China. Inclusive education emerged in the US in 1975, but LRC appeared for the first time in China in 1987, and the inclusion of ASD students was not stipulated until 2011 (12). Despite its nascent stage, inclusive education, and LRC in particular, has been well received in Shanghai. Although not all frontline teachers were familiar with the terminology of inclusive education, the concept LRC was not unfamiliar to them. All frontline teachers felt a sense of responsibility to help students with ASD adapt to regular classroom teaching as much as they could, regardless of whether LRC was implemented. None of the participants rejected or avoided students with ASD. This finding is contrary to the results of previous studies, which found that teachers were undecided or they displayed negative attitudes towards inclusive education (34,35). However, frontline teachers acknowledged difficulties with the actual implementation of LRC, including its tedious procedures, limited extent, and parents' misconceptions. These difficulties further exacerbated the already undermet needs of students with ASD. More individualized educational programs are needed to cater to each autistic student's needs (6,36).

The current findings should help to advance the inclusive education policy in Shanghai. First, increasing the availability of inclusive and/or special needs educational resources and training for teachers is crucial. Findings indicated that relevant resources primarily depend on the current number of students enrolled in the LRC program in Shanghai. When no students are currently enrolled in LRC at a school, special needs educational support is likely to stop. This finding is consistent with existing evidence that teacher training is often in short supply in many countries (37,38). The lack of relevant training has been found to cause stress for a large number of teachers (39), which likely triggers burnout (40). Thus, relevant training in inclusive education should be available to all teachers in all mainstream schools. Training can enhance teachers' knowledge and self-efficacy, which is essential to interventions for students with ASD (41). Consistent with previous findings (42,43), the current participants also believed that ongoing professional development, such as curriculum design and stratified syllabus preparation, is key to successful LRC implementation.

A related topic is the need to balance special needs education resources among schools citywide. Two schools with students currently in the LRC program reported their close collaboration with the Shanghai Special Education Guidance Center but the other 3 did

not. Nevertheless, all 5 of the participating schools had established a teacher-physician collaboration for fast-track diagnosis and evaluation of students' mental health problems. Such collaboration should occur at every elementary school in Shanghai to aid frontline teachers and parents (44). Hiring teacher assistants or specialized agencies, which are widely used in developed countries, is another possible solution to fill the gap of limited professional personnel (45).

Second, specific LRC guidance for students with ASD in Shanghai needs to be issued. First, ASD is listed under the category of a "mental disability" in the inclusive education policy, which accounts for parents' strong resistance. The word "mental disability" is often connected to "crazy", "out of control", and "attack" in Chinese culture (46), which may lead to parents' concerns about social exclusion and even the expulsion of their children from regular schools. Second, there is no specific guidance for enrollment of students with ASD students in the LRC program. As an example, there are no detailed rules for reference for specific educational placement, teaching plans, or evaluation of students with ASD for the LRC program. Parents have difficulty monitoring the LRC program and their children's academic and social progress. Thus, even when teachers recommend the LRC program, parents may still eschew it.

Compared to a "mental disability", an intellectual disability is a more approachable alternative for schools and has become a substitute criterion for LRC enrollment. According to *Statistics on Special Needs Education 2020-2021*, the diagnosis of an intellectual disability is 8 times higher than that of a mental disability among elementary school students enrolled in LRC (13). Given the spectrum nature of ASD, the cognitive capacity of each student can vary significantly. Under the current criteria, many students with ASD and a normal IQ but impaired social skills are not eligible for LRC, which precludes teachers and schools from paying special attention to these children. For these reasons, ASD should be considered as an independent special needs education category in order to address these practical issues and help both students and their parents and teachers. This practice has already been in effect in other places, such as Japan, Taiwan, and the United States (47-49). In Shanghai, LRC eligibility is being experimentally expanded to include other neurodevelopmental disabilities, such as attention deficit/hyperactivity disorder (ADHD) and learning disorders. The same should be done for ASD.

Finally, the deeply-rooted stigma of mental disorders that hinders families actively seeking diagnose and accepting the concept of inclusive education needs to be acknowledged (28). Asian culture usually focuses on children's academic performance instead of prioritizing social and emotional aspects. Since *China's 2035 Education Modernization* plan was published in 2019

(50), a comprehensive development framework that values children's mental health has increasingly been favored by the public. The recently announced "ease the burden of excessive homework and off-campus tutoring for students receiving compulsory education" ("*Shuang Jian*") policy can also help to promote education equality for students with ASD. The services the government can provide and how to actively access resources should be publicized to encourage greater involvement of families of children with ASD.

Limitations: This study's limitations should be kept in mind when interpreting the current findings. First, the sample size was relatively small. Tight teaching schedules prevented more teachers from participating in the study than planned. More ASD-related characteristics would have been included if more teachers participated. Second, the 5 schools in this study had partnerships with this Hospital. Teachers from other schools lacking teacher-physician collaboration may have different experiences. Third, the findings may not generalizable nationwide. This study was conducted in Shanghai, which is one of the most economically developed cities in China. A point worth mentioning is that the sample was only from 2 districts in Shanghai, which may not represent LRC implementation and inclusive education at all elementary schools. Finally, this study focused only on elementary school. Future research on students with ASD should cover the 9 years of compulsory education.

In conclusion, it takes a village to care for students with ASD. This study is an important first step to understanding an inclusive education policy that includes ASD and its implementation in urban China. Findings suggested that elementary school teachers in Shanghai are receptive to including students with ASD. Findings also revealed the current challenges of implementing inclusive education and an LRC program in Shanghai, and corresponding suggestions have been offered. Future research should examine special needs educational resources and implementation in other areas of China in more detail.

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References

1. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders: DSM 5. American Psychiatric Publishing, New York, US, 2013; pp. 50-58.
2. Wong C, Odom SL, Hume KA, Cox AW, Fettig A, Kucharczyk S, Brock ME, Plavnick JB, Fleury VP, Schultz TR. Evidence-based practices for children, youth, and young adults with autism spectrum disorder:

- A comprehensive review. *J Autism Dev Disord.* 2015; 45:1951-1966.
3. UNICEF. Inclusive education. <https://www.unicef.org/education/inclusive-education> (accessed February 28 2022).
 4. United Nations Ministry of Educational, Cultural Organization & Science. The Salamanca statement and framework for action on special needs education. 1994.
 5. Bulletin N, Fall VN. National Study on Inclusion: Overview and Summary Report. 1995.
 6. US Department of Education. Digest of Education Statistics 2017. 2019.
 7. Deng M. Inclusive education in the eyes of special needs education administrators: A study on the implementation of China's learning in regular classrooms policy. *Ed Res and Experiment.* 2004; 4:41-47. (in Chinese)
 8. Shanghai Municipal Education Commission. Several Opinions of the Shanghai Municipal Education Commission on Enhancement of the Management of Learning in Regular Classrooms. 2006. (in Chinese)
 9. Ministry of Education of China. 2020 Statistical Bulletin on Education. 2021. (in Chinese)
 10. Liu X, Lin S, Chen W, Chan F, Shen S, Qiu X. Prevalence of autism spectrum disorders among children in China: A systematic review and meta-analysis. *Chin J Child Health Care.* 2018; 26:402-406+429. (in Chinese)
 11. The Central Committee of the Communist Party of China. "Eleventh Five-Year" Outline for Advancement of the Cause of Disabled People in China 2006-2010. 2006. (in Chinese)
 12. Ministry of Education of China. Measures for learning by disabled students in regular classrooms. 2011. (in Chinese)
 13. Ministry of Education of China. Basic Statistics on Special Needs Education in China 2020-2021. 2021. (in Chinese)
 14. Xu Y, Zhu M. The "pain" and "difficulty" of inclusive education for children with autism in China. *A J Modern Special Ed.* 2016; 10:24-27. (in Chinese)
 15. Wei Y, Chen Q, Huang Y. The current status of, problems with, and measures to improve the quality of inclusive education in China. *J Modern Special Ed (Higher Education).* 2017; 18:9-14. (in Chinese)
 16. Desombre C, Lamotte M, Jury M. French teachers' general attitude toward inclusion: The indirect effect of teacher efficacy. *Educ Psychol-UK.* 2019; 39:38-50.
 17. Lautenbach F, Heyder A. Changing attitudes to inclusion in preservice teacher education: A systematic review. *Educ Res-UK.* 2019; 61:231-253.
 18. Tournaki N, Samuels WE. Do graduate teacher education programs change teachers' attitudes toward inclusion and efficacy beliefs? *Action in Teacher Ed.* 2016; 38:384-398.
 19. Simpson RL, Mundschenk NA, Heflin LJ. Issues, policies, and recommendations for improving the education of learners with autism spectrum disorders. *J Disabil Pol Stud.* 2011; 22:3-17.
 20. Bualar T. What has gone wrong with inclusive education in Thailand? *J Publ Aff.* 2016; 16:156-161.
 21. Thaver T, Lim L. Attitudes of pre-service mainstream teachers in Singapore towards people with disabilities and inclusive education. *Internatl J Inclusive Ed.* 2014; 18:1038-1052.
 22. Lindsay S, Proulx M, Thomson N, Scott H. Educators' challenges of including children with autism spectrum disorder in mainstream classrooms. *Int J Disabil Dev Educ.* 2013; 60:347-362.
 23. Osborne LA, Reed P. School factors associated with mainstream progress in secondary education for included pupils with Autism Spectrum Disorders. *Res Autism Spect Dis.* 2011; 5:1253-1263.
 24. Symes W, Humphrey N. Including pupils with autistic spectrum disorders in the classroom: The role of teaching assistants. *Eur J Spec Needs Educ.* 2012; 27:517-532.
 25. Parsons S, Guldberg K, MacLeod A, Jones G, Prunty A, Balfe T. International review of the evidence on best practice in educational provision for children on the autism spectrum. *Eur J Spec Needs Educ.* 2011; 26:47-63.
 26. Ludicke P, Kortman W. Tensions in home-school partnerships: The different perspectives of teachers and parents of students with learning barriers. *Australas J Spec Educ.* 2012; 36:155-171.
 27. Chu SY. Perspectives of teachers and parents of Chinese American students with disabilities about their home - School communication. *Preventing School Failure.* 2014; 58:237-248.
 28. Kinnear SH, Link BG, Ballan MS, Fischbach RL. Understanding the experience of stigma for parents of children with autism spectrum disorder and the role stigma plays in families' lives. *J Autism Dev Disord.* 2016; 46:942-953.
 29. Nian S, Chen Y. Correlation between psychological distress and stigma and self-compassion in parents of children with autism. *Internatl J Pathol and Clin Med.* 2018; 38:1301-1305. (in Chinese w/English abstract)
 30. Zuckerman KE, Lindly OJ, Reyes NM, Chavez AE, Cobian M, Macias K, Reynolds AM, Smith KA. Parent perceptions of community autism spectrum disorder stigma: Measure validation and associations in a multi-site sample. *J Autism Dev Disord.* 2018; 48:3199-3209.
 31. Ewing DL, Mosen JJ, Kielblock S. Teachers' attitudes towards inclusive education: A critical review of published questionnaires. *Educ Psychol Pract.* 2018; 34:150-165.
 32. Strauss A, Corbin J. Basics of qualitative research: Techniques and procedures for developing grounded theory. SAGE, Thousand Oaks, CA, 1998.
 33. Guest G, MacQueen KM, Namey EE. Applied Thematic Analysis. SAGE, Thousand Oaks, CA, 2011.
 34. Boer A, Pijl S, Minnaert A. Regular primary schoolteachers' attitudes towards inclusive education: A review of the literature. *Internatl J Inclusive Ed.* 2011; 15:331-353.
 35. Ma H, Tan H. A survey of the status quo of Shanghai teachers for special students learning in regular classes. *Chin J Special Ed.* 2010; 1:60-63,82. (in Chinese w/English abstract)
 36. Ministry of Education of Singapore. Report of the advisory panel on the implementation of compulsory education for children with special educational needs. 2017.
 37. Humphrey N, Symes W. Inclusive education for pupils with autistic spectrum disorders in secondary mainstream schools: Teacher attitudes, experience and knowledge. *Internatl J Inclusive Ed.* 2013; 17:32-46.
 38. Majoko T. Teachers' concerns about inclusion in mainstream early childhood development in Zimbabwe. *Internatl J Special Ed.* 2018; 33:343-365.
 39. Galaterou J, Antoniou AS. Teachers' attitudes towards inclusive education: The role of job stressors and demographic parameters. *Internatl J Special Ed.* 2017; 32:643-658.

40. Candeias A, Galindo E, Calisto I, Borralho L, Reschke K. Stress and burnout in teaching: Study in an inclusive school workplace. *Health Psychology Report*. 2020; 9:63-75.
41. Anglim J, Prendeville P, Kinsella W. The self-efficacy of primary teachers in supporting the inclusion of children with autism spectrum disorder. *Educ Psychol Pract*. 2018; 34:73-88.
42. Larcombe TJ, Joosten AV, Cordier R, Vaz S. Preparing children with autism for transition to mainstream school and perspectives on supporting positive school experiences. *J Autism Dev Disord*. 2019; 49:3073-3088.
43. Henderson K. Policies and practices used by states to serve children with autism spectrum disorders. *J Disabil Pol Stud*. 2011; 22:106-115.
44. Huefner DS. *Getting Comfortable with Special Education Law: A Framework for Working with Children with Disabilities* (2nd ed.). Christopher-Gordon, Norwood, MA, 2006.
45. Suter JC, Giangreco MF. Numbers that count: Exploring special education and paraprofessional service delivery in inclusion-oriented schools. *J Spec Educ*. 2009; 43:81-93.
46. Jiang F, Tang Y, Hou Y. Stigma related to mental illness and coping strategies. *Chin Mental Health J*. 2002; 16:721-722,713. (in Chinese)
47. Congress of the United States. Americans with Disabilities Act. 2004.
48. Ministry of Education, Culture, Sports, Science, and Technology of Japan. Ordinance for Enforcement of the School Education Law. 2006. (in Japanese)
49. Zhao D. The features of and insights from laws on special needs education in Taiwan. *Chin J Special Ed*. 2013; 2:10-14. (in Chinese)
50. State Council of China. China's 2035 Education Modernization plan. 2019. (in Chinese)

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