Received: 30 January 2023 | Revised: 12 May 2023 | Accepted: 1 June 2023

DOI: 10.1002/pcn5.115

PCN Reports
Psychiatry and Clinical Neurosciences
Open Access

ORIGINAL ARTICLE

Mental health status of children who use foreign languages at home in Japan

Michio Takahashi PhD[1,2,3] | Tomoko Nishimura PhD[2,4] | Yuko Osuka PhD[2] | Nobuaki Tsukui PhD[2] | Masaki Adachi PhD[2,3,5] | Taiichi Katayama PhD[2,6] | Manabu Wakuta PhD[2]

[1]Smart-Aging Research Center, Tohoku University, Sendai, Miyagi, Japan

[2]Institute of Child Developmental Science Research, Hamamatsu, Shizuoka, Japan

[3]Department of Neuropsychiatry, Graduate School of Medicine, Hirosaki University, Hirosaki, Aomori, Japan

[4]Research Center for Child Mental Development, Hamamatsu University School of Medicine, Hamamatsu, Japan

[5]Faculty of Psychology, Meiji Gakuin University, Minato-ku, Tokyo, Japan

[6]Department of Child Development and Molecular Brain Science, United Graduate School of Child Development, Osaka University, Suita, Osaka, Japan

Correspondence
Michio Takahashi, PhD, Smart-Aging Research Center, Tohoku University, 4-1 Seiryo-Machi, Aoba-ku, Sendai, 980-8575, Japan.
Email: takahashi.psy@gmail.com and michio.takahashi.a1@tohoku.ac.jp

Funding information
Japan Society for the Promotion of Science, Grant/Award Numbers: 21K18546, 22H01078; Japan Agency for Medical Research and Development, Grant/Award Number: 18076804

Abstract

Aim: Little is known about the mental health status of children in Japan whose roots are in foreign countries. The differences in language that are used every day may be a factor that makes adaptation difficult for these children. The aim of the present study, therefore, was to examine the mental health status of children who use foreign languages at home via a cross-sectional survey in a large cohort.

Methods: The survey was conducted among children who attended public elementary and junior high schools in a large city in Japan. Data were received from 20,596 elementary school-aged (above 4th grade) and 19,464 junior high school-aged children. We compared mental health status evaluated by the Patient Health Questionnaire-4 in the group based on language usage at home (only Japanese, only foreign languages, and both languages).

Results: We found that children who used foreign languages at home exhibited worse mental health status than children who used only Japanese at home. In addition, mental health status was slightly better among junior high school-aged children who used only foreign languages at home than among elementary school-aged children. This tendency was not observed in the group of children who used both languages at home.

Conclusion: Our results suggest that children in Japanese society who use foreign languages at home have worse mental health, therefore there is a need for support for these children living in Japan.

KEYWORDS
anxiety, Asia, depression, immigrants, mental health

INTRODUCTION

In Japan, there is active discussion about promoting the acceptance of foreign workers to compensate for the decline in the working population due to the shrinking population.[1] Accordingly, the fields in which foreign workers can work have increased, and the number of foreign labourers and their children living in Japan is increasing. A survey conducted in 2018 demonstrated that the number of children who need special support for Japanese language education is 1.5 times higher than it was 10 years ago.[2]

With the increasing number of children whose roots are in foreign countries, problems with adaptation to Japanese society and schools have emerged. Children whose roots are in foreign countries may suffer from disadvantages in the classroom and in

forming relationships with peers due to differences in culture and the difficulties of communicating in Japanese. These disadvantages might contribute to the development of mental health problems such as depression and anxiety.[3,4] If these mental health problems are pervasive in children of foreign origin, early intervention will be needed because these problems may persist into adulthood and influence their future.[3,5] In Japan, it has been reported that elementary school-aged children whose roots are in foreign countries with low levels of Japanese have lower well-being in terms of emotions, friends, and school life than Japanese children,[6] although mental health problems such as depression and anxiety have not been investigated in this population.

Most non-Japanese studies have found better psychological and behavioural status in children of immigrant families than in children of native families.[7–9] Inconsistent findings between studies might be attributed to the culture and social conditions of the country that accepts immigrants. For example, countries in which immigrants' children have fewer mental health problems have policies that actively embrace immigrants or have established certain immigrant communities.[10] In addition, the backgrounds of immigrant children vary according to the immigration policies in each country, and the background of immigrant children, such as whether they are refugees or unaccompanied by parents, influences the risk of developing mental health problems.[3] It is therefore necessary to understand the environment and mental health conditions of children whose roots are in foreign countries and intervene in their mental health as needed. However, in Japan, the mental health status of children who have roots in foreign countries has not been adequately surveyed thus far. Furthermore, to the best of our knowledge, there is no study examining the mental health status of children whose roots are in foreign countries in the Asian region that are in different social contexts to Western countries.

The aim of the present study was to examine the mental health status of children who use foreign languages at home in Japan because the difference in language that children use every day may be one of the various factors that make it difficult for children with foreign roots to adapt.[11,12] In addition, we examined the relationships between the mental health status of these children and language use at home by developmental stage because mental health status might be influenced by developmental stage.[13] These findings can provide administrators, clinicians, and educational staff of schools with informative data to support the improvement of the mental health hygiene of children in Japan whose roots are in foreign countries. The results of the present study can contribute to realizing a liveable society for people with various backgrounds in Japan.

METHODS

Procedure

A survey was conducted from May to November 2021 among all children who attended public elementary and junior high schools in a large city located in the Chubu region of Japan. The population of the city was 786,787 and 24,224 people were of foreign nationality in 2021. A demographic survey in 2021 showed that there were 1864 foreign children in the city; approximately 48% of the children were Brazilian, followed by Filipino (16%), Vietnamese (11%), Peruvian (10%), Chinese (8%), and others (8%). Another survey conducted in the same city as the present survey reported that 1390 children needed special teaching support for Japanese in 2021. The children who needed the special support included both children who had difficulty in daily conversation in Japanese and those who experienced difficulty participating in learning activities due to a lack of grade-level equivalent Japanese language skills but not difficulty in daily conversation. Our survey focused on children in the 4th grade or above because we employed a self-report questionnaire in this survey. In the city, the number of elementary and junior high schools was 96 and 48, respectively, and 21,149 and 20,606 children were in elementary (above 4th grade) and junior high schools, respectively, at the time this study was conducted. We conducted this survey using an application for tablet PCs, and children responded to the questionnaire in classrooms using a tablet PC distributed by the schools. In addition, we prepared translated paper versions in six languages (Spanish, Filipino, Vietnamese, Portuguese, English, and Chinese), and auxiliaries used each translated version for children who did not have the ability to sufficiently understand the questionnaire in Japanese. The classroom teacher explained the content of this survey and discussed the concept of informed consent with the children. In addition, we provided information to each child's caregiver(s), and we excluded children whose primary caregiver(s) indicated that they did not want their children to participate in the study. Among the target population, we collected 20,796 and 19,599 responses, respectively. The reasons why children did not respond were a refusal by the children and/or their caregiver(s) to participate or the children's absence from school when the survey was conducted in class. In addition, we excluded 235 cases due to missing responses on the items of the questionnaire. Finally, 20,596 (10,532 males, 10,039 females, and 25 other or missing gender responses) elementary school-aged children and 19,464 (10,061 males, 9,334 females, and 69 other or missing gender responses) junior high school-aged children provided valid responses, resulting in a valid response rate of 99.3%. The protocol of the current study was approved by the Committee on Medical Ethics of Hirosaki University (2019-1123-3).

Measurement

We used one item to identify the kinds of languages that children used at home: “Please select the language you speak at home and put a check in the box below.” We asked the children to choose from three options: “Japanese,” “non-Japanese only,” and “both Japanese and non-Japanese.” Based on the response to the item, children were grouped into an “only Japanese group,” an “only foreign languages group,” and a “both languages group.”

We used the Patient Health Questionnaire-4 (PHQ-4) to assess depression and anxiety in children.[14,15] This questionnaire consists of four items rated on a four-point Likert scale. Two items were extracted from the Patient Health Questionnaire-9 (PHQ-9) and two from the Generalized Anxiety Disorder-7 (GAD-7), which are used worldwide.[16–19] In the present study, we replaced the item of the Patient Health Questionnaire-2 (PHQ-2) "Feeling down, depressed or hopeless" with "Feeling down, depressed, irritable, or hopeless," which is an item of the Patient Health Questionnaire–A (PHQ-A) that was developed to evaluate depressive symptoms of children and adolescents based on the PHQ-9 because the participants of the study were children and adolescents.[20,21] The total PHQ-4 score is a sum of the four items and indicates the overall status of mental health. It classifies the status of mental health problems into four groups: normal (0–2), mild (3–5), moderate (6–8), and severe (9–12). Additionally, the subscales consisted of two items extracted from the PHQ-9 and two from the GAD-7 to assess the severity of depression and anxiety, respectively. Each subscale score of 3 or greater was considered the probability of having a clinical level of depression or anxiety.

Statistical analysis

The frequencies of occurrence were compared among the groups of languages used at home by chi-square tests for the classifications based on the PHQ-4, PHQ-2, and GAD-2 scores. We conducted two-way analysis of variance (ANOVA) to compare the effect of the language group on mental health and how the effect of language use at home differed between elementary and junior high school. Additionally, we employed post hoc Bonferroni tests to follow up on the significant main effect and interaction. We used SPSS ver. 27 (IBM, Armonk, NY, USA) to analyse the data.

RESULTS

Table 1 shows the number of distributions of the classification based on each PHQ-4 score. Chi-square tests show that the frequency of the classification of PHQ-4, PHQ-2, and GAD-2 was significantly different among language groups ($\chi^2 = 222.04$, $P < 0.001$, for PHQ-4; $\chi^2 = 133.03$, $P < 0.001$, for PHQ-2; $\chi^2 = 137.62$, $P < 0.001$, for GAD-2). These results indicate that children in the group of only foreign languages and those in the group of both languages were included in the class of severe mental health problems compared to children in the group that spoke only Japanese.

Table 2 presents the results of two-way ANOVA for the total PHQ-4, PHQ-2, and GAD-2 scores. The total PHQ-4 score showed a significant main effect of language group and the interaction of language group × school type but not a main effect of school type. In the post hoc test for the main effect, children who used only foreign languages and both languages had higher total PHQ-4 scores than those who used only Japanese, indicating that, in general, children who used a language other than Japanese at home tended to have mental health problems compared to those who used only Japanese at home.

The post hoc test for the interaction demonstrated a different pattern of the difference in the PHQ-4 total score between elementary and junior high school students (Figure 1). In elementary school, the groups that spoke only foreign languages and both languages had a higher PHQ-4 total score than the group that spoke only Japanese (both $P < 0.001$), and there was no significant difference in the total score between the groups of only foreign languages and both languages ($P = 0.817$). In junior high school, the group that spoke both languages exhibited a higher PHQ-4 total score than the groups that spoke only Japanese and only foreign languages ($P < 0.001$ and $P = 0.025$, respectively), and there was no significant difference in the total score between the groups that spoke only Japanese and only foreign languages ($P = 0.497$).

In the two-way ANOVA for PHQ-2 and GAD-2 scores (Table 2 and Figure 1), the main effect of the language group and the interaction of language group × school type were significant, but the school-type effects were not. These results were similar to those of the PHQ-4. In the analysis for the PHQ-2, both language groups exhibited a higher PHQ-2 score than the foreign language-only group in junior high school ($P = 0.008$) but not in elementary school ($P = 0.137$). In the analysis for the GAD-2, differences in the scores were not significant between the groups that spoke only foreign languages and both languages in both elementary and junior high

TABLE 1 Distribution of mental health state classifications based on PHQ-4, PHQ-2 and GAD-2.

	PHQ-4				PHQ-2		GAD-2	
	Normal	Mild	Moderate	Severe	Non-depression	Depression	Non-anxiety	Anxiety
Only Japanese	27,595	7657	2226	808	33,399	4887	34,572	3714
n = 38,286	72.1%	20.0%	5.8%	2.1%	87.2%	12.8%	90.3%	9.7%
Only foreign languages	221	92	34	12	297	62	290	69
n = 359	61.6%	25.6%	9.5%	3.3%	82.7%	17.3%	80.8%	19.2%
Both languages	792	396	160	67	1088	327	1160	255
n = 1415	56.0%	28.0%	11.3%	4.7%	76.9%	23.1%	82.0%	18.0%

Abbreviations: GAD-2, Generalized Anxiety Disorder-2; PHQ-2, Patient Health Questionnaire-2; PHQ-4, Patient Health Questionnaire-4.

TABLE 2 Comparison of overall mental health status, depression, and anxiety.

	Elementary school			Junior high school			ANOVA					
	Only Japanese Mean (SD)	Only foreign languages Mean (SD)	Both languages Mean (SD)	Only Japanese Mean (SD)	Only foreign languages Mean (SD)	Both languages Mean (SD)	Language group effect		School type effect		Interaction	
							F	η_p^2	*F*	η_p^2	*F*	η_p^2
Overall mental health (PHQ-4)	1.68 (2.12)	2.53 (2.65)	2.72 (2.63)	2.00 (2.38)	2.26 (2.58)	2.81 (2.83)	121.06**	0.006	0.26	<0.001	4.63**	<0.001
Depression (PHQ-2)	0.96 (1.22)	1.30 (1.48)	1.49 (1.48)	1.08 (1.28)	1.13 (1.38)	1.48 (1.50)	96.73**	0.005	0.19	<0.001	4.18*	<0.001
Anxiety (GAD-2)	0.72 (1.18)	1.23 (1.54)	1.23 (1.49)	0.92 (1.35)	1.13 (1.49)	1.33 (1.60)	98.02**	0.005	1.78	<0.001	3.30*	<0.001

Abbreviations: ANOVA, analysis of variance; GAD-2, Generalized Anxiety Disorder-2; PHQ-4, Patient Health Questionnaire-4; PHQ-2, Patient Health Questionnaire-2; SD, standard deviation.
*$P < 0.05$; **$P < 0.01$.

school ($P = 1.000$ and $P = 0.261$, respectively), and there was no significant difference in the score between the groups that spoke only Japanese and only foreign languages in junior high school ($P = 0.148$). These results indicate that the group that spoke both languages had a higher level of mental health problems than the group that spoke only Japanese and the group that spoke only foreign languages in junior high school.

DISCUSSION

Although the association of children's national roots with their mental health condition may differ by country, little is known about the mental health condition of children who live in Japan but whose roots are in foreign countries. In the present study, we focused on differences in languages that children use every day, which may be a factor that makes it difficult for children with foreign roots to adapt. We therefore examined the mental health status of children who used foreign languages at home with a large cohort sample.

We found that children in Japan who used foreign languages at home had more severe mental health conditions. These results suggest that language difference is one of the factors for adaptation difficulties in children with foreign roots in Japanese society. Regarding this point, we hypothesize that Japan's immigration policy may be a reason behind such problems. The Japanese government does not formally accept immigration and thus has prepared an insufficient system to support and care for children with foreign roots in education and daily life, although support is conducted at the school site level depending on the case. However, there are countries where children whose roots are in foreign countries do not exhibit mental health problems more than native-born children. An example is the United States, which has been relatively active in accepting immigrants and has developed systems for providing educational support, including intensive English language acquisition programs, for children with foreign roots.[22] In the United States, children of immigrants have exhibited better mental health and adaptive behaviour than US-born children.[8,9,23] Based on our assumption, we believe that Japanese society might need to develop a system to support the education of children whose roots are in foreign countries.

Our data demonstrated that children who spoke only non-Japanese languages at home exhibited fewer mental health problems than those who used both languages. These results might be partially explained by a phenomenon called "the immigrant paradox," also known as "the healthy immigrant effect."[7–9] This concept was originally proposed in the United States and means that newcomer children and adolescents have positive developmental outcomes, but their developmental outcomes become less optimal as they acculturate to society. Furthermore, native-born children of immigrant families have been found to have more psychological problems than children of immigrant families who are born in a foreign country.[23,24] One of the factors that can explain the immigrant paradox is ethnic identity, and the stronger ethnic identities of children who used only

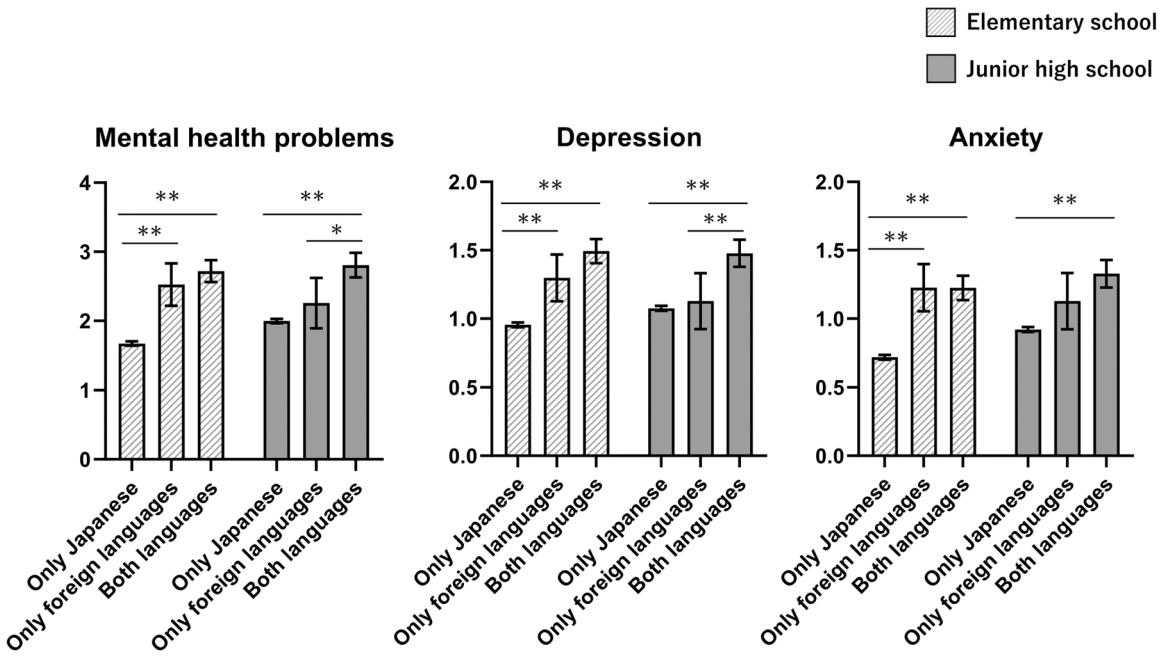

FIGURE 1 Comparison of mental health status between language-at-home groups. Error bars represent a 95% confidence interval of the estimated value. *$P < 0.05$, **$P < 0.01$.

non-Japanese languages at home might have a role of a buffer in the link between acculturation and mental health.[25,26] In general, it seems that a family with children who use only foreign languages at home is not more acculturated to Japanese society compared to a family that uses both Japanese and non-Japanese languages at home, therefore children who use only foreign languages might have a stronger ethnic identity than those who use both languages. In addition, if children do not need to use Japanese in daily life at home, their lifestyle may be based on their roots. In culture-gene coevolutionary theory, it is proposed that a meaningful "inter-dependence" exists between individuals and their culture by emphasizing the "fit" between a population's genetic disposition and the culture within which that particular population resides.[27] That is, the theory presents the notion that the system of a specific culture that has coevolved and coexists with a population tends to be more sensitive and responsive to the psychological needs of that particular population than other populations. However, in the present study, we did not collect data to distinguish whether respondents were newcomers because we only asked children about the languages used at home, and it is not clear whether the immigrant paradox can explain our results. Furthermore, we did not collect data on factors that may influence the use of multiple languages at home, such as length of stay in Japan, the nationality of their parents, their parents and siblings speaking Japanese in the home, the socio-economic status of the family, and the school environment,[28–32] therefore we cannot estimate the actual level of enculturation to Japan of children who use foreign languages at home. Nevertheless, we demonstrated the poorer mental health status of children who used both languages at home. This result may indicate the need to provide more support for these children.

The children's Japanese levels may also play a role in the better mental health of children who speak only non-Japanese at home. The city in which we conducted the present survey provides special Japanese teaching support and special learning support for children who need special teaching support in Japanese as well as in other areas of Japan.[33] Such occasions of special support would lead children to increase the amount of close contact with a teacher and contribute to better mental health even if the special support is not aimed at caring for the mental health of children. Previous studies have reported that interactions between teachers and students are associated with better mental health among children.[34,35] Probably, children who used only non-Japanese at home may have lower Japanese skills than those who use both languages more often, therefore children who speak only foreign languages might have more occasions to receive special support in schools, and these occasions may contribute to the better mental health of the children.

Other possible explanations for this issue are that being a limited bilingual may influence the mental health of children who speak both Japanese and non-Japanese languages at home. The term limited bilingual describes individuals who do not acquire good skills in either the minority or the majority languages due to living in a mixed-language environment.[36,37] A study reported that limited bilingual children exhibit worse mental health and lower academic achievement.[37] This problem can be attributed to various problems that families, including members with foreign roots, have, such as feelings of exclusion, frustration, or lack of communicative involvement regarding their emotions due to family members' different levels of language proficiency.[38,39] However, it has been reported that if children acquire both minority and majority languages well in the country where they live, their bilingualism has a positive effect on

their emotions and well-being,[39] therefore the level of skill acquisition for both minority and majority languages could be associated with mental health status. In the present study, we did not have information on the language skills of the children belonging to the group of both languages used at home and therefore further study will be needed to clarify the relationship in Japan between the state of these children and mental health.

Our results showed differences in the mental health patterns of children who used foreign languages at home by school type. The overall mental health problem was at the same level between the group that spoke only foreign languages and the group that spoke both languages in elementary school, whereas the group that spoke only foreign languages exhibited a lesser level of overall mental health problems than the group that spoke both languages in junior high school. Additionally, the depression and anxiety levels of the group that spoke only foreign languages were comparable with those of the only-Japanese group in junior high school, although the group that spoke only foreign languages exhibited more severe depression and anxiety than the only-Japanese group in elementary school. A possible explanation for these results is the change in peer relationships in the period from childhood to adolescence. As mentioned, the families of children who use only foreign languages may live in a society that has a stronger ethnic identity than children who use both languages. Similarities such as ethnic homogeneity influence peer relationships during the period of adolescence.[13] Children who use only foreign languages may be more likely to make friends with peers who have similar ethnic backgrounds compared to those who use both languages during adolescence. Racial/ethnic homogeneity in peer relationships among adolescents may have a protective role by buffering mental health problems in adolescents.[24,40–42] Additionally, a previous study investigating the effect of ethnic homogeneity on adolescent relationships' continuity and quality demonstrated that ethnically homogeneous friendships were more stable and maintained more positive qualities than interethnic friendships.[43] Together with our results, in the adolescent period (junior high school), children who use only foreign languages may have better mental health status because of the homogeneity of the society they live in. However, it is also possible that adolescents seek racially homogenous friendships if it is difficult to form affirming and supportive relationships in a setting dominated by races different from their own.[44] Additionally, it has been demonstrated that racial/ethnic diversity and its promotion in the school setting could have a positive influence on the competence and academic achievement of adolescents.[45,46] Further study is needed to examine whether the positive role of ethnic/racial identity can work as a protective factor in any setting because this role may vary by the social context.

LIMITATIONS

The present study has several limitations. First, the results of this study might not be generalizable because we collected data in one region of Japan. Second, we did not examine whether children who used foreign languages at home had roots in foreign countries because we only collected data on the language that children used at home. For example, our data on the group of children who used both Japanese and other foreign languages at home might include Japanese children who lived abroad for a long time and used languages other than Japanese at home. Similarly, we did not confirm whether there were any children whose roots were in foreign countries in the group that used only Japanese at home, therefore we cannot conclude that children whose roots are in foreign countries have worse mental health based on our results. In addition, we did not collect data on how many children used each translated paper version in the six languages because of insufficient ability to understand the questionnaire in Japanese, and we cannot present the data on the equivalency among the various language versions, but this might influence the results of the present study. Third, various factors related to children's mental health were not collected. For example, it has been reported that socioeconomic status and parents' education are associated with children's mental health,[47] therefore we need to adjust for these factors if we want to determine whether children's roots are related to their mental health in the Japanese context. Finally, the effect sizes were small in our analyses, although the group differences were significant.

CONCLUSIONS

In the present study, we examined the mental health status of children who use foreign languages at home via a cross-sectional survey in a large cohort. We found that children who used foreign languages at home exhibited worse mental health status. These findings may suggest that differences in the daily use of languages are one of the factors that make adaptation difficult in children whose roots are in foreign countries. We therefore emphasize the importance of realizing a society in Japan in which it is possible to cultivate a good racial/ethnic identity while supporting diversity and ensuring that minorities are not disadvantaged. To realize this society, further studies are required to clarify the factors related to the worse mental health status of children whose roots are in foreign countries.

AUTHOR CONTRIBUTIONS

Michio Takahashi: Conceptualization, methodology, writing – original draft preparation. **Tomoko Nishimura**: Investigation, data curation, formal analysis, writing – review & editing. **Yuko Osuka**: Investigation, writing – review & editing. **Nobuaki Tsukui**: Investigation, writing – review & editing. **Masaki Adachi**: Investigation, writing – review & editing. **Taiichi Katayama**: Project administration, supervision. **Manabu Wakuta**: Conceptualization, project administration, supervision.

ACKNOWLEDGMENTS

We express our gratitude to the students who participated in the present study and the teachers who assisted us in conducting the survey at each school. This research was financially supported by

the Japan Society for the Promotion of Science (JSPS) (grant numbers 21K18546 [M.T.] and 22H01078 [M.T.]) and the Japan Agency for Medical Research and Development (AMED): Project for Baby and Infant in Research of Health and Development to Adolescent and Young Adult (BIRTHDAY) (grant number 18076804 [M.A.]).

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

ETHICS APPROVAL STATEMENT

The protocol of the current study was approved by the Committee on Medical Ethics of Hirosaki University (2019-1123-3).

PATIENT CONSENT STATEMENT

Informed assent and consent were appropriately obtained in the study.

CLINICAL TRIAL REGISTRATION

N/A.

ORCID

Michio Takahashi http://orcid.org/0000-0002-7151-1364

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How to cite this article: Takahashi M, Nishimura T, Osuka Y, Tsukui N, Adachi M, Katayama T, et al. Mental health status of children who use foreign languages at home in Japan. Psychiatry Clin Neurosci Rep. 2023;2:e115. https://doi.org/10.1002/pcn5.115