Economics

Effects of social support on suicidal ideation among children of cross-border married couples

--Manuscript Draft--

Manuscript Number:	ECONJOURNAL-D-23-00173
Full Title:	Effects of social support on suicidal ideation among children of cross-border married couples
Article Type:	Research Article
Keywords:	Cross-Border Marriage, Marriage Migration, Social Support, Suicidal Ideation
Manuscript Region of Origin:	KOREA, REPUBLIC OF
Abstract:	Marriage-related migration by women from less developed to high-income nations has been increasing rapidly in Asia, and the proportion of children born to these foreign-born women is increasing as well. Using a unique dataset based on the Korean Youth Risk Behavior Survey, we examine the effects of social support on suicidal ideation among children with foreign-born mothers. We find that the advice of mothers (teachers) is 3.2 (4.9) percentage points more effective in reducing suicidal ideation among these children than among children with native Korean mothers. These findings imply that more government attention should be focused on educating and training foreign-born mothers and schoolteachers to improve their capacity to advise these children.
Manuscript Classifications:	10.1: General; 10.4: Demographic Economics; 20.2: Cultural Economics • Economic Sociology • Economic Anthropology

Effects of social support on suicidal ideation among children of cross-border married couples

Shinyoung Lee[a], Seul-Ki Kim[b], Young-Chul Kim[c,*], Doojin Ryu[d,*]

[a] Cornerstone Research, 699 Boylston Street, Boston, MA 02116, USA, E-mail: shinyoung_lee@alumni.brown.edu

[b] Graduate School of Education, University at Buffalo (SUNY), Buffalo, NY 14260-1000, USA, E-mail: seulkiki@buffalo.edu

[c] Department of Economics, Sogang University, 35, Baekbeom-ro, Mapogu, Seoul 04107, Korea, E-mail: yckim@sogang.ac.kr

[d] Department of Economics, Sungkyunkwan University, 25-2, Sungkyunkwan-ro, Jongno-gu, Seoul 03063, Korea, E-mail: sharpjin@skku.edu
https://sites.google.com/view/doojin/home/research

*Corresponding Authors (Webpages)
https://sites.google.com/site/youngchulkimhomepage
https://sites.google.com/view/doojin/home/research

ORCID
Shinyoung Lee: https://orcid.org/0000-0002-9794-6817
Seul-Ki Kim: https://orcid.org/0000-0001-5527-0241
Young-Chul Kim: https//orcid.org/0000-0001-9461-9514
Doojin Ryu: https://orcid.org/0000-0002-0059-4887

Highlights

•We estimate the effects of social support on suicidal ideation among second-generation children of cross-border married couples.
•We compare the suicidal risk of adolescents with foreign- and domestic-born mothers.
•Access to their mothers' advice leads to a greater decrease in suicidal ideation among adolescents with foreign-born mothers.
•Effect of teachers' advice on reducing suicidal ideation is stronger for adolescents with foreign-born mothers.

Abstract

Marriage-related migration by women from less developed to high-income nations has been increasing rapidly in Asia, and the proportion of children born to these foreign-born women is increasing as well. Using a unique dataset based on the Korean Youth Risk Behavior Survey, we examine the effects of social support on suicidal ideation among children with foreign-born mothers. We find that the advice of mothers (teachers) is 3.2 (4.9) percentage points more effective in reducing suicidal ideation among these children than among children with native Korean mothers. These findings imply that more government attention should be focused on educating and training foreign-born mothers and schoolteachers to improve their capacity to advise these children.

JEL Codes: I19, J12, J13, J15

Keywords: Cross-Border Marriage, Marriage Migration, Social Support, Suicidal Ideation

1. Introduction

Many high-income Asian nations, such as Taiwan, Singapore, Hong Kong, and Japan, have experienced a rise in cross-border marriages, wherein female migrants from less-developed Asian nations settle and marry locally-born partners. The intensive economic growth in the late 20th century transformed these high-income nations into some of today's richest nations. However, this growth was accompanied by decreases in marriage and fertility rates, creating an urgency to recover these rates through immigration. Urbanization and the migration of domestic women from rural areas to cities have left rural men with a low supply of brides. In addition, the drastic improvement in women's labor market opportunities is not cohesive with the cultural norms related to household sharing and marriage, leading to a low net surplus of marriage among educated women (Kawaguchi and Lee, 2017). The rise in economic and educational alternatives to marriage among women has continued to contribute to nationwide shortages of brides and a greater demand for foreign brides in high-income Asian nations. The South Korean and Japanese governments have encouraged marriage brokers who facilitate cross-border marriages (Jones and Shen, 2008). In Singapore, one of every four marriages is an international marriage, and in Taiwan and South Korea, the cross-border marriage rate remains at 10%.[1]

In Taiwan, the proportion of schoolchildren whose parents are cross-border married couples has risen to 10.5% (Li, 2020). In South Korea, the number of these schoolchildren has increased 3.4 times since 2012, amounting to 2.2% of all schoolchildren according to data from the Korean Ministry of Education collected in 2021. The presence of these children is increasing, whereas fewer children of

[1] These statistics were released by the Ministry of Social and Family Development of Singapore on April 22, 2011; the Ministry of the Interior of Taiwan on February 20, 2021; and Statistics Korea on March 19, 2020.

native-born parents are attending school because of these countries' low national fertility rates.[2] Despite East Asian governments' aims of recovering from population declines through cross-border married couples and their children, this specific group of children may struggle more than average native children (Yang and Lu, 2010). According to a biennial survey conducted by the Ministry of Gender Equality and Family in 2018, 67.6% of South Korean high-school students are enrolled in post-secondary education, whereas only 49.6% of students from cross-border marriages or with foreign parents are enrolled in post-secondary education. In addition, the dropout rates of middle- and high-school students from cross-border marriages or with foreign parents are almost twice as high as the national average rates.[3] Studies in Taiwan suggest that children of cross-border married couples tend to have lower levels of language and cognitive development (Chen, Hsu, Chu, Han, and Chien, 2012; Wu, Bradley, and Chiang, 2012) and poor educational performances (Jhang and Lee, 2018; Li, 2020). Moreover, these children often experience discrimination and bullying by their peers and teachers in school, especially when one of their parents is from a Southeast Asian nation (Park, 2021; Yeh, 2010). Many educational and emotional indicators affirm that children of immigrants face greater challenges to assimilation and, thus, impediments to achieving higher socioeconomic statuses (Djajić, 2003; Lüdemann and Schwerdt, 2013). Along similar lines, psychological stress, mental health conditions, and the increasingly concerning issue of youth suicidal behaviors may be in worse condition for this group of students; however, few studies report findings on this crucial aspect of immigrant youth, especially in ways that are informative for policymaking.

Studies conducted in Western nations extensively consider the mental health and suicidal behaviors of immigrant youth who are second generation or beyond, and they compare the mental health symptoms of youth with immigrant parents to those of youth with domestic-born parents. In the United States and Canada, for example, some studies identify no statistically significant differences between immigrant and non-immigrant groups (Degboe, BeLue, and Hillemeier, 2012), whereas others find that youth with Latin- and Asian-born parents have increased risks of mental disorders (Belhanj Kouider, Koglin and Petermann, 2015; Mikolajczyk, Bredehorst, Khelaifat, Maier, and Maxwell, 2007). Even in Sweden and Finland, whose large immigrant populations are relatively new, the volume of these types

[2] The fertility rate required to maintain the current population size is 2.1. In contrast, the fertility rates of Japan and Singapore are nearing one, and those of South Korea and Hong Kong are below one. See the World Bank statistics at https://data.worldbank.org/indicator/SP.DYN.TFRT.IN for more details.

[3] The only available data about dropout rates aggregates information about children from cross-border families with information about children whose parents are both foreign-born. However, children of cross-border marriages comprise 87.2% of this larger group, and thus, these statistics are still informative about children of cross-border marriages. In 2018, the dropout rates among all South Korean middle-school and high-school students were 0.7% and 1.1%, respectively, whereas those of middle- and high-school students with foreign-born mothers were 1.34% and 1.91%, respectively. These statistics are provided by the Korean Educational Statistics Service and the Central Multicultural Education Center.

of studies is increasing. Some of these studies focus specifically on youth and young adults from cross-border marriages and indicate that the mental health of children with one native parent and one foreign-born parent tends to be worse than that of children with two native parents (Ceri, Özlü-Erkilic, Özer, Kadak, Winkler, Dogangün, and Akkaya-Kalayci, 2017; Di Thiene, Alexanderson, Tinghög, La Torre, and Mittendorfer-Rutz, 2015; Loi, Pitkänen, Moustgaard, Myrskylä, and Martikainen, 2021). It is crucial to expand research on the mental health of children of cross-border couples in the context of marriage migration in Asia because it is vastly different from marriage migration in Western contexts.

Furthermore, suicidal behaviors among youth and the mental health conditions that are likely to lead to those behaviors have become major concerns in many advanced societies, including Japan and Korea, as suicide has become the leading cause of death among teenagers and young adults (Park, 2021).[4] In developed Asian nations, where population declines and low fertility rates are grave concerns, deaths by suicide have widespread societal implications. Notably, suicidal behaviors, such as suicidal ideation and attempting suicide, are found to be more prevalent among children with foreign-born mothers, even after adjusting for socioeconomic factors (Bahk, Kim, and Khang, 2017; Lee, Kim, Han, and Kim, 2017).[5] This prevalence has a lasting impact because suicidal ideation and suicide attempts among teenagers and young adults are important predictors of socioeconomic outcomes and mental health conditions during adulthood (Goldman-Mellor, 2014; Reinherz, Tanner, Berger, Beardslee, and Fitzmaurice, 2006).

In response to these issues, we focus on the children of foreign-born mothers and domestic-born fathers in South Korea as a specific type of cross-border marriage.[6] We seek to provide evidence to support potential strategies to prevent mental health issues from turning into suicidal behaviors. According to previous research, the availability of social support is a known preventative and mediating factor in suicidal ideation (Fredrick, Demaray, Malecki, and Dorio, 2018; Mackin, Perlman, Davila, Kotov, and Klein, 2017), especially for adolescents (Cho and Haslam, 2010; King and Merchant, 2008; Miller, Esposito-Smythers, and Leichtweis, 2015). Prior studies define social support as access to care

[4] For more statistics, refer to the *Japan Today* article titled "Suicide Leading Cause of Death among Young People in Japan, Statistics Show" (November 1, 2020) and *The Economist* article titled "Young Americans Increasingly End Their Own Lives" (December 3, 2022).

[5] Another reason mental health conditions are concerning is that foreign-born mothers are prone to mental health risks. Research shows that their psychological well-being worsens with the length of their stay in their new country (Li and Yang, 2020), and they are more vulnerable to human rights abuses, such as domestic violence (Choi, Cheung, and Cheung, 2012; Kim D., 2017).

[6] According to marriage statistics for Korea from 2014 to 2022 provided by Korean Statistical Information Services, 68% to 75% of cross-border marriages are between foreign-born women and native-born men. When we limit the comparison groups to students with native-born fathers and mothers from various immigrant backgrounds, we can account for the omitted variable bias that comes from fathers from different immigrant backgrounds, and we can focus on the effects of mothers' immigrant backgrounds.

from social networks, such as friends and family, which often appears in the form of emotional, instrumental, and informational support (House, Umberson, and Landis, 1988; Muñoz-Laboy, 2014). These studies often measure the availability of social support through such questions as, "Is there someone you can talk to about important decisions or your worries?" (Kleiman and Liu, 2013; Scardera et al., 2020). When stressful life events or discontinuities, such as moving, parental unemployment, or parental divorce, occur, social support buffers the effects of these events on adolescents' mental health (de Wilde, Kienhorst, Diekstra, and Wolters, 1992; Kaltialia-Heino, Rimpelä, Rantanen, and Laippala, 2001; Rubin, Rubenstein, Stechler, Heeren, Halton, Housman, and Kasten, 1992). Immigrant mothers in cross-border marriages are known to be lacking such social support (Kim, 2017), but little is known about social support for their children, especially in relation to their mental health and suicidal risks.

We utilize the concept of social support to identify effective methods to reduce suicidal behavior among adolescents with foreign-born mothers compared with adolescents with native-born mothers. To measure social support, we use data on whether adolescents have access to the advice of supportive adults (i.e., parents and teachers), siblings, friends, and other individuals, referred to as "advising figures." We analyze a unique dataset, the 2014 to 2017 Korea Youth Risk Behavior Survey (YRBS), which is a large nationwide cross-sectional survey of the health-risk behaviors of middle and high school students. We first identify students with foreign-born and native-born mothers based on demographic and background information, and we identify their fathers' countries of origin as well. Using this categorization, we can compare students with foreign-born mothers and native-born fathers to students with native-born mothers and fathers. The dependent variable reflects whether the student experienced suicidal ideation in the past year, and we use a dummy variable for having a foreign-born mother, advice received from advising figures, and their interaction terms as independent variables. The interaction terms allow us to analyze the differences in the effects of advice across students with foreign-born mothers and those with native-born mothers. In addition, we test the effects of the independent variables on two other dependent variables relevant to mental health conditions, excessive stress, and despair, with the same specifications. The results provide insights into how government interventions can improve the mental health of children with immigrant mothers.

We find that mothers' advice is 3.2 percentage points more effective in reducing suicidal ideation among students with foreign-born mothers than among those with native-born mothers. Furthermore, advice from teachers is 4.9 percentage points more effective in reducing suicidal ideation among students with foreign-born mothers than among those with native-born mothers. Considering that the average rate of suicidal ideation is around 12%, a reduction in suicidal ideation of 3.2 to 4.9 percentage points among students with foreign-born mothers means that at least a quarter of students who would otherwise have experienced suicidal ideation do not experience it, and do not have to suffer from its consequences. The effects of advice from other figures in students' lives, such as fathers, siblings, and friends, are similar in magnitude across both groups of students. Additionally, we do not

find statistically significant differential effects of mothers' and teachers' advice on excessive stress and despair between the two student groups. These findings suggest that advice provided by mothers and teachers is especially effective when students with foreign-born mothers suffer from severe mental distress and have suicidal thoughts. Policy efforts to provide resources to foreign-born mothers and teachers to support these adolescents can help prevent mild mental distress from progressing to suicidal ideation and can reduce the potential gap in adult socioeconomic outcomes and mental health conditions.

Additionally, we find that policy efforts to encourage advising by foreign-born mothers should be directed preferentially toward mothers of female students because advice from mothers appears to be about 3 percentage points more effective in reducing suicidal ideation for female students than for the full sample. When we limit our analysis to students from less affluent family backgrounds, advice from teachers is approximately 2 percentage points more effective in lowering suicidal ideation than it is for the full sample. This result suggests that more marginalized students, such as those in less affluent households, should have more access to care and counseling from their schoolteachers.

We expect the results of our study to provide guidance for policymakers to help alleviate the gap between adolescents from cross-border families and native-born adolescents. Despite the declines in population and fertility rates, developed Asian societies can rely on the growing generation of children from cross-border marriages, who will hopefully become healthy adults and contribute to their host countries' societies. The results of our study not only broaden the research on mental health in the cross-border marriage context but also introduce social support and advice as potential solutions to the issue of suicidal behaviors among children from cross-border families.

The remainder of this paper is organized as follows. Section 2 presents the relevant literature on suicidal behavior, mental health, and social support. Section 3 describes our sample data. Section 4 illustrates the empirical specifications and presents the main results, and Section 5 discusses the results of a heterogeneity analysis. Finally, Section 6 presents the conclusions of this study.

2. Literature on Suicidal Behavior, Mental Health Indicators, and Social Support

Suicidal behavior in youth can be described using three indicators: suicidal ideation, suicidal planning, and suicide attempts, and many studies use at least one of these indicators to measure suicidal behavior (Nock, Borges, Bromet, Cha, Kessler, and Lee, 2008). Owing to the limited number of observations of suicidal planning and attempts in our database, this study focuses on suicidal ideation. Suicidal ideation, the thought of engaging in a suicidal action, can be interpreted in two ways, as it lies between psychological strain and lethal suicidal behavior.

The first explanation of suicidal ideation is that it is a stage that is reached during or after intensified depressive symptoms. Gijzen, Rasing, Creemers, Smit, Engels, and De Beurs (2021) suggest that suicidal ideation may be a symptom of depression or even a severe depressive condition. Several studies, including those of Nock, Hwang, Sampson, Kessler, ... and Williams (2009) and Borges, Angst,

Nock, Ruscio, and Kessler (2008), state that mood disorders, such as major depression, have direct predictive power for suicidal ideation but not for planning or attempting suicide. In addition, mental stressors from a wide range of sources, including interpersonal, acculturative, and minority stressors, have been known to increase the chances of suicidal ideation through feelings of lack of belongingness and perceived burdensomeness to other people (Buitron, Hill, Pettit, Green, Hatkevich, and Sharp, 2016; Haboush-Deloye, Oliver, Parker, and Billings, 2015).

Second, suicidal ideation is a significant contributor to future suicide attempts. Not everyone who experiences suicidal ideation commits suicide. Previous studies report that transitions from suicidal ideation to planning or attempting suicide are associated with reductions in the fear of pain, the fear of death, and impulsivity, all of which increase one's capability to attempt suicide (Javdani, Sadeh, and Verona, 2011; Klonsky, Qiu, and Saffer, 2017). However, suicidal ideation in adolescence may increase the chance of attempting suicide in adulthood. Studies show that frequency of thought of suicide is strongly associated with future suicide attempts (Miranda, Ortin, Scott, and Shaffer, 2014).

In this study, we highlight the role of social support in buffering the progression of stress and depression to suicidal ideation. Fredrick, Demaray, Malecki, and Dorio (2018) find that parental support, classmates, and close friends are effective in buffering depression and suicidal ideation for both sexes, and Mackin, Perlman, Davila, Kotov, and Klein (2017) underscore the importance of parental support in protecting adolescent girls from developing suicidal symptoms from external stressors. Parental support has also been proven to be more effective among vulnerable groups and those with more severe depressive symptoms (Scardera, Perret, Ouellet-Morin,... and Geoffroy, 2020). Especially for bullied youth and immigrant youth experiencing acculturative stress, this social support protects against developing thoughts of suicide (Baiden, Kuuire, Shrestha, Tonui, Dako-Gyeke, and Peters, 2019; Hovey, 1999).

3. Sample Data

For our analysis, we utilize Korea's YRBS, a large nationwide cross-sectional survey of the health-risk behaviors of middle and high school students conducted annually by the Korean Centers for Disease Control and Prevention in cooperation with the Ministry of Education. Since the first round of surveys in 2005, the YRBS has gathered information annually from approximately 70,000 students from 400 middle schools and 400 high schools. The YRBS uses stratified sampling and proportional allocation data collection methods to obtain a fair representation of the entire nation. The survey uses a three-stage cluster sampling design that considers (1) county size; (2) geographic accessibility, the number of schools, and county population; and (3) random sampling of homerooms for each grade.[7] Students participate via anonymous online surveys that they are required to complete in their school computer

[7] In South Korea, middle- and high-school students stay almost exclusively in their homerooms and identify as belonging to a numbered homeroom.

labs.

Using this dataset is important because the YRBS includes information about the countries of origin of the mothers and fathers of the surveyed students. The YRBS is the only student or adolescent dataset in South Korea that annually investigates children from both native and immigrant families. For this study, we narrowed the sample to students with native-born fathers and selected observations for the period from 2014 to 2017, during which the survey collected information on students' access to social support, that is, individuals they could talk to in times of difficulty. Thus, the final refined sample used in our analysis comprises 236,849 observations. The data on parents' immigrant backgrounds come from the question, "Was your mother/father born in Korea?" and the available answer choices are "Yes" and "No." In our sample, 23,604 students have two native-born parents (99.05%), and 2,245 students have a foreign-born mother and a Korean father (0.95%).

Table 1 presents the summary statistics of our sample. We look at summary statistics for the full sample, the sample of students with native-born mothers, and the sample of students with foreign-born mothers. The dataset provides a few mental health- and suicide-related variables, including excessive stress, despair, suicidal ideation, suicide planning, and suicide attempt. The suicidal ideation, suicide planning, and suicide attempt variables indicate whether a student has experienced suicidal ideation or thoughts, planned to commit suicide, or attempted suicide in the past 12 months. However, as Table 1 shows, only 4% of students or fewer responded that they had planned or attempted suicide, and fewer than 100 students with foreign-born mothers responded positively to both variables. Thus, we limit our analysis to three dependent variables: excessive stress, despair, and suicidal ideation.

Excessive stress equals one for students who indicate that they had "a lot" or an "extreme amount" of stress and zero for students who respond that they had "none," "little," or a "moderate amount" of stress. Despair is set equal to one when the student responds "yes" to the question, "In the past 12 months, have you ever felt so sad or hopeless that you couldn't participate in daily life activities for the entire two weeks?" and zero otherwise. Note we label this variable as "despair" instead of "depression," which usually implies a clinical diagnosis of depressive symptoms. Clearly, a yes-or-no question about experiencing despair cannot lead to a clinical diagnosis of depression.[8] The final dependent variable, suicidal ideation, equals one for students who respond "yes" to the question "Have you ever seriously thought about suicide over the last 12 months?" and zero otherwise. Suicidal ideation has a high probability of preceding planning or attempting suicide. Each of these dependent variables is a dummy variable for the relevant outcome; that is, they equal one if the individual agrees with the given statement and zero otherwise.

[8] Depressive symptoms in youths are mostly measured using their interview responses or those of their parents, including self-reported responses to at least nine different items (Borges, Angst, Nock, Ruscio, and Kessler, 2008; Javdani, Sadeh, and Verona, 2011; Polanco-Roman and Miranda, 2013).

The control variables are sex, height, weight, self-perceived health status, frequency of intense exercise, average hours spent using the Internet on weekdays and weekends, parents' education (i.e., middle-school graduate, high-school graduate, or college or higher), household economic status (i.e., very low, low, middle, high, or very high), the presence of siblings, a dummy variable for living without one's biological father, a dummy variable for living without one's biological mother, a dummy variable for living without both parents, and residential status (i.e., with family, with relatives, alone, or in an orphanage).

We observe some differences between students with native and foreign-born mothers in terms of their parents' education levels and household economic statuses.[9] Children with foreign-born mothers have worse health factors (i.e., height, weight, and self-perceived health), their fathers' and mothers' education levels are lower, and they are more likely to have lower household incomes and live apart from their mothers.

[Table 1 about here]

In our dataset, we use responses to the survey question "Who do you usually talk to when you are concerned about something or are sad?" to represent students' access to social support (i.e., advice). The possible responses are father, mother, sibling, friend, teacher, others, or nobody. Each student can choose only one option. In our analysis, we refer to each of these responses as the "advising figure," as shown in Table 2. More students with foreign-born mothers seek out their fathers' advice rather than their mothers' advice compared to students with native-born mothers. Students with foreign-born mothers tend to talk to their teachers more than to their friends, relative to students with native-born mothers. Finally, more students with foreign-born mothers report that they do not discuss their worries or sadness with others.

[Table 2 about here]

4. Empirical Method and Results

In our main analysis, we employ a probit model, which is commonly used for binary outcome variables,

[9] The YRBS dataset does not record information about parents' education for students who do not live with their biological parents. To mitigate the potential loss of statistical power and inefficiency caused by these missing data, we utilize a conditional replacement approach to approximate the missing values. Following Lavy and Schlosser (2011), we replace these missing values with sample mean values for groups stratified by year, grade, and district. Additionally, data on heights and weights are missing for approximately 3% of the sample. We replace these missing values with sample mean values calculated based on year, grade, and sex. We also incorporate indicators for missing values of these covariates as control variables.

to estimate the impacts of mothers' immigration backgrounds on the effectiveness of social support in reducing excessive stress, despair, and suicidal ideation among students. In Equation (1), $MH_{i,g,t}$ is a binary dependent variable indicating whether individual i in grade g at time t experienced excessive stress, despair, or suicidal ideation in the past year. $IM_{i,g,t}$ is a dummy variable denoting whether the student has a foreign-born mother, where one represents having a foreign-born mother, and zero represents having a native-born mother.

$$MH_{i,g,t} = \beta_0 + \beta_1 IM_{i,g,t} + \sum_{k=1}^{6} \theta_k ADV_{k,i,g,t} + \sum_{k=1}^{6} \lambda_k * ADV_{k,i,g,t} * IM_{i,g,t} + X'_{i,g,t} + \delta_g + \pi_s + a_t + \tau_g T_{g,t} + \varepsilon_{i,g,t}, \quad (1)$$

where ADV is a dummy variable for access to social support (i.e., advice). k takes values of one through six to represent the different potential social support providers. In other words, $ADV_{1,i,g,t}$, $ADV_{2,i,g,t}$, $ADV_{3,i,g,t}$, $ADV_{4,i,g,t}$, $ADV_{5,i,g,t}$, and $ADV_{6,i,g,t}$ represent receiving social support from a father, mother, sibling, friend, teacher, or other figure, respectively. We use the interaction term $ADV_{k,i,g,t} * IM_{i,g,t}$, to represent the differences in the effects of advice from each potential social support provider on $MH_{i,g,t}$ for students with foreign-born mothers and those with native-born mothers. $X'_{i,g,t}$ is a vector of student, parent, and household covariates; δ_g is the effect of the student's grade; π_s is the school-area fixed effect; and α_t represents time effects. $\tau_g T_{g,t}$ represents grade-specific linear time trends, which accounts for time-varying unobserved factors among different grade groups, and $\varepsilon_{i,g,t}$ is the error term. We cluster the standard errors at the region–year level.

Table 3 captures the estimated effects of advice from each potential social support provider on the three mental health indicators and the differential effects between students with native and foreign-born mothers. In our analysis, $MH_{i,g,t}$ is a dummy variable; hence, we present marginal effects in Table 3. As we have six different advising variables ($ADV_{k,i,g,t}$), that is, the advice provided by a father, a mother, siblings, friends, teachers, and others, we have six terms representing the interactions between each of the advising variables and the dummy variable for having a foreign-born mother. These interaction terms are represented as $ADV_{k,i,g,t} * IM_{i,g,t}$. More precisely, the estimated effects of the interaction terms in Table 3 represent the difference between the estimated effect of the given form of advice on the mental health outcomes of students with foreign- and native-born mothers. When this effect is significant, we observe a noteworthy difference in the effects of advice across the two groups. When the interaction term's effect is not statistically significant, but the variable representing the given

type of advice is significant, that type of advice has similar effects on both groups.[10]

[Table 3 about here]

In Table 3, we show the results for the three dependent variables (i.e., excessive stress, despair, and suicidal ideation). The estimations in the first columns for each dependent variable (i.e., Columns 1, 3, and 5) include student characteristics, such as sex, weight, height, self-perceived health, Internet usage, and physical activity, as control variables. They also include grade, time, and school area controls. The estimations in the second columns for each dependent variable (i.e., Columns 2, 4, and 6) also include parental (i.e., father's and mother's educational background) and household characteristics (i.e., household income level; the existence of one or more siblings; living with a mother, father, or neither; and residential status) in addition to the covariates in the first columns.

For all specifications and dependent variables, we find that the differential effects of advice from fathers, siblings, friends, and others on youths with foreign-born mothers are not statistically significant.

However, the estimated differential effect of mothers' advice on suicidal ideation among students with foreign-born mothers appears to be significantly negative (see Columns 5–6). For adolescents who mainly talk to their mothers about their concerns and have immigrant mothers, the reduction in suicidal ideation is approximately 3 percentage points more than for adolescents who primarily discuss their concerns with their mothers but have native-born mothers. We obtain comparable results for adolescents with immigrant mothers who receive regular counseling from their teachers; teachers' advice reduces suicidal ideation by approximately 5 percentage points more among adolescents with foreign-born mothers than among those with native-born mothers.

Conversely, we do not find any significant differential effects of mothers' and teachers' advice on excessive stress or despair among students with foreign-born mothers, as the coefficients of the interaction terms, *IM*mother's advice* and *IM*teacher's advice*, are not statistically significant (see Columns 1–4). These results suggest that maternal and teacher advising may be more effective for mitigating suicidal ideation, a concerning symptom of mental health conditions and suicidal risk, among students with foreign-born mothers than among those with native-born mothers. However, students with foreign-born mothers do not benefit more from these types of social support than students with native-born mothers do when it comes to reducing excessive stress or despair.

The results for all three dependent variables suggest that support from mothers and teachers is

[10] As part of the robustness check, we conducted the same analysis for the same specifications but included variables representing the interactions of having a foreign-born mother with physical activity, non-academic internet usage on weekdays, and non-academic internet usage on weekends. The significance and directions of the coefficients of the immigrant status (*IM*) and social support provider variables (*ADV*) and their interactions were unchanged in these adjusted specifications.

more effective in alleviating severe mental health conditions, such as suicidal ideation, for more vulnerable students, such as children of cross-border marriages. A few factors lead us to this conclusion.

First, excessive stress is common among adolescents attending public or private schools in Korea. The intense competition to enter one of a few renowned universities, which is usually perceived as the only opportunity to rise in the socioeconomic ranks, places considerable academic pressure on young students. Stress levels are high on average owing to environmental factors that are common among both groups. We do not expect social support to play different roles in this context depending on the immigrant background of a student's mother.

Second, despair is not a good representation of any severe mental health condition, including depression, which is the most relevant mental disorder to this variable. Depressive symptoms are measured using responses to at least nine questions (Javdani, Sadeh, and Verona, 2011; Polanco-Roman and Miranda, 2013). A yes-or-no question asking whether the student has felt despair for two consecutive weeks suggests a definitive problem with feelings of unhappiness but may encompass students with only temporary sadness or hopelessness. The regression results demonstrate that the effect of social support on reducing despair is not significantly different between the two student groups, which supports the argument that social support differs in effectiveness across the two groups only for more severe mental health conditions. In conclusion, the effect of advice differs significantly for students with foreign- and native-born mothers only in the case of suicidal ideation.

One limitation of our study is that we use a repeated cross-sectional dataset, meaning that the impacts of social support and outreach by suicidal students to specific people, or vice versa, are often combined. The positive association observed between teachers' advice and suicidal ideation reflects the latter impact (Columns 5–6 in Table 3). In particular, official suicide prevention programs are implemented at South Korean schools, which require a mental health screening called the Students' Emotional and Behavioral Screening Test (SEBT). Compulsory meetings and counseling sessions are scheduled if a student's screening conveys a risk of suicide.[11] Schoolteachers have access to screening test outcomes and often talk to those with suicidal outcomes, which may explain the significantly positive coefficients (Kim, Bang, Kim, and Hong, 2017).

We still consider the coefficient of the interaction term *IM*teacher's advice* to be meaningfully informative. The coefficients in Columns 5–6 of Table 3 are significantly negative and demonstrate that

[11] The SEBT has been conducted nationwide annually since 2013 for all first and fourth graders in elementary school, for all students in the first year of middle school (i.e., seventh graders), and for all students in the first year of high school (i.e., tenth graders). This screening test is mandatory unless certain legitimate exceptions, such as physical or cognitive limitations, prevent the student from taking the test. Students with greater mental health risks are monitored, administered additional follow-up tests, regularly counseled while they remain at the institution, and given professional medical resources. For more information, refer to the official website: https://www.smhrc.kr/business/emotiveTest2.

despite the baseline positive association between teachers' advice and suicidal ideation due to the SEBT program, students with foreign-born mothers experience less suicidal ideation when they regularly speak to their schoolteachers. Furthermore, the sum of the coefficients of *teacher's advice* and the interaction term *IM*teacher's advice* is negative overall (-0.038 in Column 6), clearly indicating that teachers' advice and suicidal ideation have a negative association with children of cross-border marriages.

5. Heterogeneity Analysis

After confirming the significant results for suicidal ideation, we further examine how the relationship between adolescents' suicidal ideation and the social support provided by mothers and teachers may depend on students' characteristics. We group the dataset into panels, as shown in Tables 4 and 5. Table 4 classifies the dataset into male and female student panels, and Table 5 divides the dataset according to household income level.

In the suicide ideation panel (Columns 7–9) in Table 4, the estimated differential effect of mothers' advice on suicidal ideation for female students with foreign-born mothers appears to be more significant than the same effect for students of all sexes. The effect is amplified to 6% for female students (Column 9), which is almost twice the effect for the entire sample, that is, 3% (Column 7). In Column 8, which represents male students, the differential effect is close to zero, signifying that the effect of mothers' advice on suicidal ideation is not significantly greater for male students with foreign-born mothers than for male students with native-born mothers.

We observe similar trends in the relationship between teacher support and suicidal ideation among students with foreign-born mothers. Compared to the differential effect for the total sample (5%, as shown in Column 7), the differential effect for female students with foreign-born mothers is approximately 2 percentage points greater (7%, as shown in Column 9), whereas it is approximately 2 percentage points less for male students with foreign-born mothers (3%, as shown in Column 8), although the coefficients of the interaction terms are not statistically significant in the male and female samples. The differences in effect size by sex suggest that policy efforts to encourage advice from foreign-born mothers and teachers should be directed preferentially toward female students.

[Table 4 about here]

In the suicide ideation panel (Columns 7–9) in Table 5, we estimate the effects of advice by household income level (i.e., less affluent households and affluent households). The interaction between foreign-born mothers' advice and suicidal ideation has no significant effect for both less affluent and affluent households (Columns 8–9). However, the differential effect of teachers' advice on suicidal ideation (7%) remains significant even after selecting only students from less affluent households

(Column 8). This coefficient is approximately 2 percentage points greater than the estimate for the full sample of 5% (Column 7). The findings confirm that teachers' advice plays a more important role in lowering suicidal risk for more underprivileged and vulnerable students.

[Table 5 about here]

Tables 4 and 5 also report the results of heterogeneity analyses for the other two dependent variables, excessive stress (Columns 1–3) and despair (Columns 4–6). However, we observe no differential effects of foreign-born mothers' and teachers' advice on these mental health conditions for students from cross-border marriages, even when we define the sample based on sex or household income level.

6. Conclusion

The findings of this study show that regular advice from one's mother is 3.2 percentage points more effective in reducing suicidal ideation among students with foreign-born mothers than among those with native-born mothers. Similarly, we find that regular advice from teachers is 4.9 percentage points more effective in reducing suicidal ideation among students with foreign-born mothers than among those with native-born mothers. However, we do not find any other significant differential effects of social support on less severe mental health conditions such as excessive stress and despair. These results reflect the general findings of previous research that social support plays an important role in reducing suicidal behavior (Clara, Cox, Enns, Murray, and Torgrudc, 2003). In this study, however, we identify the additional effects of social support on the children of cross-border families in Asia, providing implications for the cross-border marriage literature and the larger literature on immigrant children.

We find that among students with foreign-born mothers, female students are even more responsive to receiving regular advice from their teachers and mothers. These results are aligned with previous findings that social support is perceived differently based on sex; that is, female adolescents have higher interpersonal stress levels, and, thus, social support is both more important to and generally more sought out by girls (Camara, Bacigalupe, and Padilla, 2017). Finally, our research finds that among students with foreign-born mothers, regular counseling from teachers is more effective in reducing suicidal ideation for students from less affluent family backgrounds.

According to our findings, students whose parents are in cross-border marriages may require a more consistent and involved approach from individuals in their lives, such as family members and teachers, who may provide advice or mentoring as a form of social support to improve their mental health. In this respect, our research provides a basis for policy efforts to educate and train teachers at schools with a sizeable cross-border marriage children and foreign-born mothers whose children are approaching adolescence to help them provide better mentoring and advising. As mothers are very important to raising children who perform well in school and eventually attend college, which is clearly

a way to ascend the socioeconomic ladder in developed Asian societies, it is crucial to help foreign-born mothers understand aspects of student life, of which they may be unaware because of language barriers and their lack of experience in their new society (Li, 2020). Because teachers are closely present in students' school lives, they can provide academic, social, and mental health interventions. With more government resources and support, these effects may be amplified to address the concerns of more students with indirect immigrant backgrounds.

Further research on the mental health of children from cross-border marriages can potentially study children who have dropped out of school, as dropping out is more common among children of cross-border marriages, and very little is known about this group. If a more recent survey on student health that includes social support information becomes available, the same analysis may be conducted using a larger sample, as the population of middle- and high-school students with foreign-born mothers has grown over the past few years.

References

Bahk, J., Kim, A. M. and Khang, Y. H., 2017, Associations of Multicultural Status with Depressive Mood and Suicidality among Korean Adolescents: The Roles of Parental Country of Birth and Socioeconomic Position. *BMC Public Health*, 17, pp. 1–12.

Baiden, P., Kuuire, V. Z., Shrestha, N., Tonui, B. C., Dako-Gyeke, M., and Peters, K. K, 2019, Bullying Victimization as A Predictor of Suicidal Ideation and Suicide Attempt Among Senior High School Students In Ghana: Results From The 2012 Ghana Global School-Based Health Survey. *Journal of School Violence*, *18*(2), pp. 300–317.

Belhadj Kouider, E., Koglin, U., and Petermann, F, 2015, Emotional and Behavioral Problems in Migrant Children and Adolescents in American Countries: A Systematic Review. *Journal of Immigrant and Minority Health*, *17*(4), pp. 1240–1258.

Borges, G., Angst, J., Nock, M. K., Ruscio, A. M., and Kessler, R. C, 2008, Risk factors for the incidence and persistence of suicide-related outcomes: A 10-year follow-up study using the National Comorbidity Surveys. *Journal of Affective Disorders*, *105*(1–3), pp. 25–33.

Buitron, V., Hill, R. M., Pettit, J. W., Green, K. L., Hatkevich, C., and Sharp, C, 2016, Interpersonal stress and suicidal ideation in adolescence: An indirect association through perceived burdensomeness toward others. *Journal of Affective Disorders*, *190*, pp. 143–149.

Camara, M., Bacigalupe G. and Padilla P., 2017, The Role of Social Support in Adolescents: Are You Helping Me or Stressing Me Out? *International Journal of Adolescence and Youth*, 22, pp. 123–136.

Ceri, V., Özlü-Erkilic, Z., Özer, Ü., Kadak, T., Winkler, D., Dogangün, B. and Akkaya-Kalayci, T., 2017, Mental Health Problems of Second-Generation Children and Adolescents with Migration Background. *International Journal of Psychiatry in Clinical Practice*, 21, pp. 142–147.

Chen, C. J., Hsu, C. W., Chu, Y. R., Han, K. C. and Chien, L. Y., 2012, Developmental Status and Home Environment among Children Born to Immigrant Women Married to Taiwanese Men. *Research in Nursing & Health*, 35, pp. 121–131.

Cho, Y. B. and Haslam, N., 2010, Suicidal Ideation and Distress among Immigrant Adolescents: The Role of Acculturation, Life Stress, and Social Support. *Journal of Youth and Adolescence*, 39, pp. 370–379.

Choi, S. Y. P., Cheung, Y. W., and Cheung, A. K. L, 2012, Social Isolation and Spousal Violence: Comparing Female Marriage Migrants With Local Women. *Journal of Marriage and Family*, *74*(3), pp. 444–461.

Clara, I. P., Cox, B. J., Enns, M. W., Murray, L. T. and Torgrudc, L. J., 2003, Confirmatory Factor Analysis of the Multidimensional Scale of Perceived Social Support in Clinically Distressed and Student Samples. *Journal of Personality Assessment*, 81, pp. 265–270.

De Wilde, E. J., Kienhorst, I. C., Diekstra, R. F. and Wolters, W. H., 1992, The Relationship between adolescent suicidal behavior and life events in childhood and adolescence. *American Journal of Psychiatry*, 149, pp. 45–51.

Degboe, A., BeLue, R., and Hillemeier, M, 2012, Parental immigrant status and adolescent mental health in the United States: Do racial/ethnic differences exist? *Child and Adolescent Mental Health*, *17*(4), pp. 209–215.

Di Thiene, D., Alexanderson, K., Tinghög, P., La Torre, G. and Mittendorfer-Rutz, E., 2015, Suicide among First-Generation and Second-Generation Immigrants in Sweden: Association with Labour Market Marginalisation and Morbidity. *Journal of Epidemiology and Community Health*, 69, pp. 467–473.

Djajić, S., 2003, Assimilation of Immigrants: Implications for Human Capital Accumulation of the Second Generation. *Journal of Population Economics*, 16, pp. 831–845.

Fredrick, S. S., Demaray, M. K., Malecki, C. K., and Dorio, N. B, 2018, Can social support buffer the association between depression and suicidal ideation in adolescent boys and girls? *Psychology in the Schools*, *55*(5), pp. 490–505.

Gijzen, M. W. M., Rasing, S. P. A., Creemers, D. H. M., Smit, F., Engels, R. C. M. E., and De Beurs, D, 2021, Suicide ideation as a symptom of adolescent depression. A network analysis. *Journal of Affective Disorders*, *278*, pp. 68–77.

Goldman-Mellor, S. J., Caspi, A., Harrington, H., Hogan, S., Nada-Raja, S., Poulton, R., and Moffitt, T. E, 2014, Suicide Attempt in Young People: A Signal for Long-term Health Care and Social Needs. *JAMA Psychiatry*, *71*(2), pp. 127.

Haboush-Deloye, A. L., Oliver, T. L., Parker, A., and Billings, H. N, 2015, Acculturative Stress in Suicidal Youth. *Journal of Community Psychology*, *43*(5), pp. 611–618.

House, J. S., Umberson, D. and Landis, K. R., 1988, Structures and Processes of Social Support. *Annual Review of Sociology*, 14, pp. 293–318.

Hovey, J. D, 1999, Moderating Influence of Social Support on Suicidal Ideation in a Sample of Mexican Immigrants. *Psychological Reports*, *85*(1), pp. 78–79.

Javdani, S., Sadeh, N., and Verona, E, 2011, Suicidality as a function of impulsivity, callous-unemotional traits, and depressive symptoms in youth. *Journal of Abnormal Psychology*, *120*(2), pp. 400–413.

Jhang, F. H. and Lee, Y. T., 2018, The Role of Parental Involvement in Academic Achievement Trajectories of Elementary School Children with Southeast Asian and Taiwanese Mothers. *International Journal of Educational Research*, 89, pp. 68–79.

Jones, G., and Shen, H, 2008, International marriage in East and Southeast Asia: Trends and research emphases. *Citizenship Studies*, *12*(1), pp. 9–25.

Kaltiala-Heino, R., Rimpelä, M., Rantanen, P. and Laippala, P., 2001, Adolescent depression: the role of discontinuities in life course and social support. *Journal of Affective Disorders*, 64, pp. 155–166.

Kawaguchi, D. and Lee, S., 2017, Brides for Sale: Cross-Border Marriages and Female Immigration. *Economic Inquiry*, 55, pp. 633–654.

Kim, D. Y, 2017, Resisting migrant precarity: A critique of human rights advocacy for marriage migrants in South Korea. *Critical Asian Studies*, *49*(1), pp. 1–17.

Kim, I. T., Bang E. J., Kim G. G., and Hong H. J., 2017, Awareness of Students' Emotional and Behavioral Screening Test based on Parental and Teacher Ratings, J Korean Acad Child Adolesc Psychiatry, 28(4), pp. 260–267.

Kim, K, 2017, Cross-Border Marriages in South Korea and the Challenges of Rising Multiculturalism. *International Migration*, *55*(3), pp. 74–88.

King, C. A. and Merchant, C. R., 2008, Social and Interpersonal Factors Relating to Adolescent Suicidality: A Review of the Literature. *Archives of Suicide Research*, 12, pp. 181–196.

Kleiman, E. M. and Liu, R. T., 2013, Social Support as a Protective Factor in Suicide: Findings from Two Nationally Representative Samples. *Journal of Affective Disorders*, 150, pp. 540–545.

Klonsky, E. D., Qiu, T., and Saffer, B. Y, 2017, Recent advances in differentiating suicide attempters from suicide ideators. *Current Opinion in Psychiatry*, *30*(1), pp. 15-20.

Lavy, V., and Schlosser, A, 2011. Mechanisms and impacts of gender peer effects at school. *American Economic Journal: Applied Economics*, 3(2), pp. 1-33.

Lee, H. J., Kim, C. H., Han, I., and Kim, S. H, 2017, Comparative Study of Mental Health States Among Adolescents in Multicultural Versus Monocultural Families, Using the 13th Korean Youth Risk Behavior Web-Based Survey, *Iranian Journal of Pediatrics*, *29*(5).

Li, C. H., 2020, School Performance of Children of Cross-Border Marriages: Effects of Within-Family Social Capital and Community Contextual Factors. *Sociological Research Online*, 25, pp. 661–681.

Li, C.-H., and Yang, W, 2020, Happiness of female immigrants in cross-border marriages in Taiwan. *Journal of Ethnic and Migration Studies*, *46*(14), pp. 2956–2976.

Loi, S., Pitkänen, J., Moustgaard, H., Myrskylä, M. and Martikainen, P., 2021, Health of Immigrant Children: The Role of Immigrant Generation, Exogamous Family Setting, and Family Material and Social Resources. *Demography*, 58, pp. 1655–1685.

Lüdemann, E. and Schwerdt, G., 2013, Migration Background and Educational Tracking. *Journal of Population Economics*, 26, pp. 455–481.

Mackin, D. M., Perlman, G., Davila, J., Kotov, R., and Klein, D. N, 2017, Social support buffers the effect of interpersonal life stress on suicidal ideation and self-injury during adolescence. *Psychological Medicine*, *47*(6), pp. 1149–1161.

Mikolajczyk, R. T., Bredehorst, M., Khelaifat, N., Maier, C., and Maxwell, A. E, 2007, Correlates of depressive symptoms among Latino and Non-Latino White adolescents: Findings from the 2003 California Health Interview Survey. *BMC Public Health*, *7*, pp. 1-9.

Miller, A. B., Esposito-Smythers, C. and Leichtweis, R. N., 2015, Role of Social Support in Adolescent Suicidal Ideation and Suicide Attempts. *Journal of Adolescent Health*, 56, pp. 286–292.

Miranda, R., Ortin, A., Scott, M., and Shaffer, D, 2014, Characteristics of suicidal ideation that predict the transition to future suicide attempts in adolescents. *Journal of Child Psychology and Psychiatry*, *55*(11), pp. 1288–1296.

Muñoz-Laboy, M, Severson, N., Perry, A. and Guilamo-Ramos, V., 2014, Differential impact of types of social support in the mental health of formerly incarcerated Latino men. *American Journal of Men's Health*, 8, pp. 226–239.

Nock, M. K., Borges, G., Bromet, E. J., Cha, C. B., Kessler, R. C., and Lee, S, 2008, Suicide and Suicidal Behavior. *Epidemiologic Reviews*, *30*(1), pp. 133–154.

Nock, M. K., Hwang, I., Sampson, N., Kessler, R. C., Angermeyer, M., Beautrais, A., ... and Williams, D. R., 2009, Cross-national analysis of the associations among mental disorders and suicidal behavior: findings from the WHO World Mental Health Surveys. *PLoS medicine*, *6*(8), e1000123.

Park, K, 2021, November 5, South Korea Is No Country for Young People. *Foreign Policy*. https://foreignpolicy.com/2021/11/05/south-korea-suicide-rates-mental-illness-squid-game/

Polanco-Roman, L., and Miranda, R, 2013, Culturally Related Stress, Hopelessness, and Vulnerability to Depressive Symptoms and Suicidal Ideation in Emerging Adulthood. *Behavior Therapy*, *44*(1), pp. 75–87.

Reinherz, H. Z., Tanner, J. L., Berger, S. R., Beardslee, W. R., and Fitzmaurice, G. M, 2006, Adolescent Suicidal Ideation as Predictive of Psychopathology, Suicidal Behavior, and Compromised Functioning at Age 30. *American Journal of Psychiatry*, *163*(7), pp. 1226–1232.

Rubin, C., Rubenstein, J. L., Stechler, G., Heeren, T., Halton, A., Housman, D. and Kasten, L., 1992, Depressive affect in "normal" adolescents: Relationship to life stress, family, and friends. *American Journal of Orthopsychiatry*, 62, pp. 430–441.

Scardera, S., Perret, L. C., Ouellet-Morin, I., Gariépy, G., Juster, R. P., Boivin, M., ... & Geoffroy, M. C., 2020, Association of social support during adolescence with depression, anxiety, and suicidal ideation in young adults. *JAMA network open*, *3*(12), e2027491-e2027491.

Wu, J. L., Bradley, R. H. and Chiang, T. L., 2012, Cross-Border Marriage and Disparities in Early Childhood Development in a Population-Based Birth Cohort Study: The Mediation of the Home Environment. *Child: Care, Health and Development*, 38, pp. 595–603.

Yang, W. S. and Lu, M. C. W., 2010, Introduction. In: *Asian Cross-Border Marriage Migration: Demographic Patterns and Social Issues* (eds Yang, W. S. and Lu, M. C. W.), pp. 15–30, Amsterdam University Press.

Yeh, Y. C., 2010, Foreign Spouses' Acculturation in Taiwan: A Comparison of Their Countries of Origin, Gender, and Education Degrees. In: *Asian Cross-Border Marriage Migration: Demographic Patterns and Social Issues* (eds Yang, W. S. and Lu, M. C. W.), pp. 201–220, Amsterdam University Press.

Table 1. Sample Means

	All	Native Mother	Foreign-born Mother
Key Variables			
Excessive Stress	0.363 (0.48)	0.363 (0.48)	0.380 (0.49)
Despair	0.246 (0.43)	0.246 (0.43)	0.252 (0.43)
Suicidal Ideation	0.118 (0.32)	0.118 (0.32)	0.123 (0.33)
Suicide Planning	0.038 (0.19)	0.038 (0.19)	0.044 (0.21)
Suicide Attempt	0.024 (0.15)	0.023 (0.15)	0.033 (0.18)
Student Characteristics			
Male	0.510 (0.50)	0.510 (0.50)	0.480 (0.50)
Middle School	0.502 (0.50)	0.501 (0.50)	0.607 (0.49)
High School	0.498 (0.50)	0.499 (0.50)	0.393 (0.49)
Height (cm)	164.96 (8.44)	164.99 (8.43)	162.16 (8.27)
Weight (kg)	57.33 (11.67)	57.35 (11.67)	54.95 (11.72)
Self-Perceived Health Status	0.72 (0.45)	0.72 (0.45)	0.69 (0.46)
Frequency of Intense Exercise in the Past Week	2.11 (1.72)	2.11 (1.72)	2.03 (1.70)
Average Hours Spent on Non-academic Internet Use (Weekday)	56.00 (95.8)	55.93 (95.7)	63.00 (108.6)
Average Hours Spent on Non-academic Internet Use (Weekend)	104.41 (143.3)	104.33 (143.1)	113.01 (162.8)
Characteristics of Parents			
Father's Education (years)	13.79 (1.49)	13.80 (1.48)	12.67 (1.91)
Mother's Education (years)	13.58 (1.50)	13.58 (1.50)	13.45 (1.55)
Household Characteristics			
Household Income: Very Low	0.024 (0.15)	0.024 (0.15)	0.057 (0.23)
Household Income: Low	0.121 (0.33)	0.121 (0.33)	0.231 (0.42)
Household Income: Middle	0.477 (0.50)	0.477 (0.50)	0.503 (0.50)
Household Income: High	0.283 (0.45)	0.284 (0.45)	0.166 (0.37)
Household Income: Very High	0.094 (0.29)	0.094 (0.29)	0.043 (0.20)
Has at Least One Sibling	0.890 (0.32)	0.888 (0.32)	0.844 (0.36)
Not Living with Mother	0.042 (0.20)	0.041 (0.20)	0.082 (0.27)
Not Living with Father	0.090 (0.29)	0.090 (0.29)	0.096 (0.29)
Not Living with Both Parents	0.014 (0.12)	0.014 (0.12)	0.021 (0.14)
Residential Status: with Family	0.959 (0.20)	0.960 (0.20)	0.949 (0.22)
Residential Status: with Relatives	0.006 (0.07)	0.006 (0.07)	0.007 (0.08)
Residential Status: Alone	0.033 (0.18)	0.033 (0.18)	0.040 (0.20)
Residential Status: in Orphanage	0.002 (0.04)	0.002 (0.04)	0.005 (0.07)
Observations	236,849	234,604	2,245

Notes: This table comprises summary statistics of the YRBS dataset for the period 2014–2017. We consider the full sample, the sample of students with Korean mothers, and the sample of students with foreign-born mothers. We limit the sample to students with Korean fathers. Standard deviations are presented in parentheses.

Table 2. Distribution of Students' Access to Social Support

Surveyed Question: Who do you talk to when you are concerned about something or feeling sad?						
	Total Sample		Native-born Mother		Foreign-born Mother	
	Number	Percent	Number	Percent	Number	Percent
Advising Figure						
Father	11,366	4.80	11,223	4.78	143	6.37
Mother	66,365	28.02	65,863	28.07	502	22.36
Sibling	13,587	5.74	13,437	5.73	150	6.68
Friend	85,233	35.99	84,518	36.03	715	31.85
Teacher	4,147	1.75	4,082	1.74	65	2.90
Others	6,135	2.59	6,062	2.58	73	3.25
Nobody	50,016	21.12	49,419	21.06	597	26.59
Total	236,849	100.00	234,604	100.00	2,245	100.00

Notes: This table displays the distribution of advising figures in the full sample, the sample of students with Korean mothers, and the sample of students with foreign-born mothers.

Table 3. Effects of Advice on Excessive Stress, Despair, and Suicidal Ideation

	Excessive Stress		Despair		Suicidal Ideation	
	1	2	3	4	5	6
Immigrant Mother (IM)	-0.004	-0.012	0.015	0.014	0.007	0.006
	(0.019)	(0.020)	(0.018)	(0.018)	(0.012)	(0.012)
Father's Advice	-0.111***	-0.107***	-0.047***	-0.049***	-0.048***	-0.048***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.002)	(0.002)
IM * Father's Advice	0.069	0.078	0.001	0.006	-0.034	-0.030
	(0.050)	(0.051)	(0.040)	(0.041)	(0.026)	(0.027)
Mother's Advice	-0.147***	-0.140***	-0.076***	-0.075***	-0.072***	-0.070***
	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
IM * Mother's Advice	0.026	0.021	-0.021	-0.026	**-0.029****	**-0.032****
	(0.030)	(0.030)	(0.024)	(0.023)	**(0.015)**	**(0.014)**
Sibling's Advice	-0.113***	-0.108***	-0.043***	-0.040***	-0.049***	-0.047***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.002)	(0.002)
IM * Sibling's Advice	0.029	0.025	-0.046	-0.051	-0.010	-0.014
	(0.046)	(0.047)	(0.034)	(0.034)	(0.026)	(0.026)
Friend's Advice	-0.065***	-0.060***	0.004*	0.006***	-0.033***	-0.032***
	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
IM * Friend's Advice	-0.008	-0.011	-0.015	-0.018	-0.016	-0.018
	(0.026)	(0.026)	(0.021)	(0.021)	(0.014)	(0.014)
Teacher's Advice	-0.005	-0.005	0.061***	0.059***	0.012**	0.011**
	(0.008)	(0.008)	(0.008)	(0.008)	(0.005)	(0.005)
IM * Teacher's Advice	-0.034	-0.042	-0.036	-0.042	**-0.046***	**-0.049****
	(0.067)	(0.067)	(0.050)	(0.049)	**(0.027)**	**(0.025)**
Others' Advice	-0.035***	-0.036***	0.043***	0.042***	-0.000	-0.001
	(0.007)	(0.007)	(0.006)	(0.006)	(0.004)	(0.004)
IM * Others' Advice	0.009	0.003	0.016	0.011	0.027	0.025
	(0.059)	(0.060)	(0.048)	(0.047)	(0.036)	(0.035)
Time and District Controls	✔	✔	✔	✔	✔	✔
Student Characteristics	✔	✔	✔	✔	✔	✔
Parent Background Controls		✔		✔		✔
Household Characteristic Controls		✔		✔		✔
Observations	236,849	236,849	236,849	236,849	236,849	236,849

Notes: The dependent variables are excessive stress, despair, and suicidal ideation among adolescents. We report marginal effects for the average values of the covariates using a probit model. The standard errors, given in parentheses, are clustered at the region–year level. The estimations in Columns 1, 3, and 5 include only time and district controls and student chracteristics, whereas the estimations in Columns 2, 4, and 6 include more control variables. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 4. Heterogeneity Analysis by Sex

	Excessive Stress			Despair			Suicidal Ideation		
	All	Male	Female	All	Male	Female	All	Male	Female
	1	2	3	4	5	6	7	8	9
Immigrant Mother (IM)	-0.01	-0.02	-0.02	0.01	-0.005	0.02	0.01	-0.004	0.01
	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.03)	(0.01)	(0.01)	(0.02)
Father's Advice	-0.11***	-0.08***	-0.15***	-0.05***	-0.04***	-0.07***	-0.05***	-0.03***	-0.07***
	(0.004)	(0.01)	(0.01)	(0.004)	(0.004)	(0.009)	(0.002)	(0.003)	(0.01)
IM * Father's Advice	0.08	0.04	0.19**	0.006	-0.01	0.05	-0.03	-0.03	-0.01
	(0.05)	(0.06)	(0.09)	(0.04)	(0.04)	(0.09)	(0.03)	(0.03)	(0.06)
Mother's Advice	-0.14***	-0.10***	-0.20***	-0.08***	-0.05***	-0.13***	-0.07***	-0.05***	-0.11***
	(0.003)	(0.003)	(0.005)	(0.002)	(0.003)	(0.004)	(0.002)	(0.002)	(0.003)
IM * Mother's Advice	0.02	0.03	0.02	-0.03	-0.02	-0.03	**-0.03****	-0.001	**-0.06*****
	(0.03)	(0.04)	(0.05)	(0.02)	(0.03)	(0.04)	**(0.01)**	(0.02)	**(0.02)**
Sibling's Advice	-0.11***	-0.08***	-0.16***	-0.04***	-0.01**	-0.09***	-0.05***	-0.02***	-0.08***
	(0.004)	(0.006)	(0.01)	(0.004)	(0.01)	(0.01)	(0.002)	(0.003)	(0.003)
IM * Sibling's Advice	0.03	0.09	-0.00	-0.05	-0.04	-0.06	-0.01	-0.04	0.001
	(0.05)	(0.08)	(0.06)	(0.03)	(0.06)	(0.05)	(0.03)	(0.03)	(0.04)
Friend's Advice	-0.06***	-0.03***	-0.12***	0.006***	0.04***	-0.05***	-0.03***	-0.01***	-0.07***
	(0.003)	(0.003)	(0.01)	(0.003)	(0.004)	(0.004)	(0.002)	(0.002)	(0.003)
IM * Friend's Advice	-0.01	0.03	-0.03	-0.02	0.02	-0.04	-0.02	-0.01	-0.02
	(0.03)	(0.04)	(0.04)	(0.02)	(0.03)	(0.03)	(0.01)	(0.02)	(0.02)
Teacher's Advice	-0.01	0.01	-0.04**	0.06***	0.05***	0.07***	0.01**	0.01**	0.01
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
IM * Teacher's Advice	-0.04	0.03	-0.17	-0.04	-0.02	-0.07	**-0.05****	-0.03	-0.07
	(0.07)	(0.08)	(0.11)	(0.05)	(0.06)	(0.09)	**(0.03)**	(0.03)	(0.05)
Others' Advice	-0.04***	-0.02***	-0.08***	0.04***	0.04***	0.02*	-0.001	0.01	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.004)	(0.01)	(0.01)
IM * Others' Advice	0.003	0.06	-0.04	0.02	0.03	-0.004	0.03	-0.01	0.06
	(0.06)	(0.09)	(0.09)	(0.03)	(0.08)	(0.07)	(0.04)	(0.04)	(0.06)
Time and District Controls	✓□	✓□	✓□	✓□	✓□	✓□	✓□	✓□	✓□
Student Characteristics	✓□	✓□	✓□	✓□	✓□	✓□	✓□	✓□	✓□
Parent Background Controls	✓□	✓□	✓□	✓□	✓□	✓□	✓□	✓□	✓□
Household Characteristic Controls	✓□	✓□	✓□	✓□	✓□	✓□	✓□	✓□	✓□
Observations	236,849	120,779	116,070	236,849	120,779	116,070	236,849	120,779	116,070

Notes: The dependent variables are excessive stress, despair, and suicidal ideation among adolescents. We report the marginal effects for the average values of the covariates using a probit model. Standard errors are shown in parentheses and are clustered at the region-year level. For all samples, the results shown in Columns 1, 4, and 7 are identical to the main results shown in Columns 2, 4, and 6 of Table 3. Columns 2, 5, and 8 shows the results

for the sample of male students, and Columns 3, 6, and 9 shows the results for the sample of female students. * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 5. Heterogeneity Analysis by Household Income Level

	Excessive Stress			Despair			Suicidal Ideation		
	All	Less Affluent	Affluent	All	Less Affluent	Affluent	All	Less Affluent	Affluent
	1	2	3	4	5	6	7	8	9
Immigrant Mother (IM)	-0.01	-0.01	0.01	0.01	0.02	-0.01	0.01	0.01	-0.01
	(0.02)	(0.02)	(0.04)	(0.018)	(0.02)	(0.04)	(0.01)	(0.01)	(0.025)
Father's Advice	-0.11***	-0.13***	-0.09***	-0.05***	-0.06***	-0.04***	-0.05***	-0.06***	-0.04***
	(0.004)	(0.01)	(0.01)	(0.004)	(0.01)	(0.01)	(0.002)	(0.003)	(0.003)
IM * Father's Advice	0.08	0.08	0.06	0.006	0.01	0.009	-0.03	-0.02	-0.04
	(0.05)	(0.06)	(0.08)	(0.04)	(0.05)	(0.07)	(0.03)	(0.04)	(0.04)
Mother's Advice	-0.14***	-0.15***	-0.14***	-0.08***	-0.09***	-0.07***	-0.07***	-0.08***	-0.07***
	(0.003)	(0.004)	(0.01)	(0.002)	(0.003)	(0.004)	(0.002)	(0.002)	(0.002)
IM * Mother's Advice	0.02	0.03	0.01	-0.03	-0.03	0.001	**-0.03****	-0.03	-0.04
	(0.03)	(0.04)	(0.06)	(0.02)	(0.03)	(0.06)	**(0.01)**	(0.02)	(0.03)
Sibling's Advice	-0.11***	-0.12***	-0.10***	-0.04***	-0.05***	-0.03***	-0.05***	-0.05***	-0.04***
	(0.004)	(0.005)	(0.01)	(0.004)	(0.01)	(0.01)	(0.002)	(0.003)	(0.003)
IM * Sibling's Advice	0.03	-0.01	0.18	-0.05	-0.04	-0.10	-0.01	0.01	
	(0.05)	(0.05)	(0.11)	(0.03)	(0.04)	(0.07)	(0.03)	(0.03)	
Friend's Advice	-0.06***	-0.07***	-0.06***	0.006***	-0.001	0.01	-0.03***	-0.04***	-0.03***
	(0.003)	(0.003)	(0.01)	(0.002)	(0.003)	(0.004)	(0.002)	(0.002)	(0.003)
IM * Friend's Advice	-0.01	-0.01	-0.00	-0.02	**-0.04***	0.09	-0.02	-0.02	-0.003
	(0.03)	(0.03)	(0.06)	(0.02)	**(0.02)**	(0.06)	(0.01)	(0.02)	(0.04)
Teacher's Advice	-0.01	0.001	-0.01	0.06***	0.06***	0.05***	0.01**	0.02***	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
IM * Teacher's Advice	-0.04	-0.03	-0.08	-0.04	-0.035	-0.06	**-0.05****	**-0.07****	0.01
	(0.07)	(0.08)	(0.13)	(0.05)	(0.06)	(0.10)	**(0.03)**	**(0.03)**	(0.08)
Others' Advice	-0.04***	-0.03***	-0.04***	0.04***	0.04***	0.03***	-0.001	0.001	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.004)	(0.01)	(0.01)
IM * Others' Advice	0.003	-0.04	0.26	0.02	0.02	-0.04	0.03	0.03	-0.02
	(0.06)	(0.06)	(0.17)	(0.05)	(0.05)	(0.13)	(0.04)	(0.04)	(0.09)
Time and District Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Student Characteristics	✓	✓	✓	✓	✓	✓	✓	✓	✓
Parent Background Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Household Characteristic controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	236849	147650	89199	236849	147650	89199	236820	147650	89170

Notes: The dependent variables are excessive stress, despair, and suicidal ideation among adolescents. We report the marginal effects for the average values of the covariates using a probit model. Standard errors are shown in parentheses and are clustered at the region-year level. For all samples, the results shown in Columns 1, 4, and 7

are identical to the main results shown in Columns 2, 4, and 6 of Table 3. Columns 2, 5, and 8 shows the results for the sample of male students, and Columns 3, 6, and 9 shows the results for the sample of female students. Note that the coefficients of the interactions between immigrant mothers and siblings' advice are not reported because the number of observations for which the interaction term equals one is very small (n=29). * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.