2023 Annual Conference & Exposition
Baltimore Convention Center, MD | June 25 - 28, 2023

The Harbor of Engineering
Education for 130 Years

ASEE

Paper ID #39035

Native and Immigrant Students: An Analysis of Well-being Using PISA 2018

Mr. Syed Ali Kamal, University at Buffalo, The State University of New York

Syed Ali Kamal is a doctoral student in the Department of Engineering Education at University at Buffalo. His research interests lie in the area of social justice and issues related to diversity, equity and Inclusion. Before doctoral studies he worked in the higher education sector of Pakistan. He holds a masters degree in economics and is passionate about institutional and policy issues in the education sector. He has previously worked in projects aimed at promoting institutional adaptation to climate change in Pakistan.

Matilde Luz Sánchez-Peña, University at Buffalo, The State University of New York

Dr. Matilde Sánchez-Peña is an assistant professor of Engineering Education at the University at Buffalo – SUNY where she leads the Diversity Assessment Research in Engineering to Catalyze the Advancement of Respect and Equity (DAREtoCARE) Lab. Her research focuses on the development of cultures of care and well-being in engineering education spaces, assessing gains in institutional efforts to advance equity and inclusion, and the use of data science for training socially responsible engineers.

Mr. Ahmed Ashraf Butt, Campbell University

Ahmed Ashraf Butt is a doctoral candidate in the school of engineering education at Purdue University with a multidisciplinary research focus that combines theory and practice in the area of learning science, Human-computer interaction (HCI), and engineering education. His primary research focuses on the design and development of educational technologies that can facilitate different aspects (e.g., engagement) of the students' learning and provide an engaging experience for the students. Further, he is interested in designing instructional interventions and exploring their relationship with different aspects of first-year engineering (FYE) students' learning (e.g., motivation and learning strategies). Before Purdue University, he worked as a lecturer for two years at the University of Lahore, Pakistan. Additionally, he has been associated with the software industry in various capacities, from developer to consultant.

Native and Immigrant students: An Analysis of Wellbeing using PISA 2018

Introduction

The United States of America currently hosts the largest immigrant population in the world with almost 46.6 million people who were not born in the country [1]. Moreover, the immigrant population in the USA is also very diverse with people belonging to almost all countries of the world. In recent years due to the global political climate and regional conflicts in many parts of the world, there has been an influx of immigrants to the US. This has brought in further diversity along cultural, religious, linguistic, and socioeconomic lines. This means that schools are becoming a center of diverse students including first generation and second-generation immigrant students. According to estimates first and second-generation immigrant children make up 25% of all children in the United States and are expected to make up one third of the total children's population by 2050 [2].

While immigration itself can have varied impacts on the lives of immigrants, it is thought that the cultural, economic, and emotional changes associated with immigration can prove to be challenging for adolescents. The American education system is not prepared to serve the unique needs of immigrant students. Research suggests that immigrant students in the US have a lower level of educational attainment at high school level compared to native population. For instance, in a study shared by The Pew Research Center, [1] it was found that immigrants were almost three times as probable as the natives to have not finished high school (27% vs. 8%). It is therefore critical to explore the difficulties faced by immigrant students in schools. Immigrant students' adaptation with the educational system can be assessed by looking at their wellbeing, which in turn can impact their academic performance.

Given the challenges faced by adolescent immigrant students in the US schools, it is important to explore how the immigration status is associated with wellbeing. This study explores the multi-dimensional construct of wellbeing encompassing subjective, eudaimonic and psychological wellbeing on a nationally representative sample of American students from the PISA 2018 assessment. More specifically, this study is guided by the research questions, 1) what is the association between student wellbeing, and immigration status for adolescents in the USA? Does socioeconomic status moderate the relationship between wellbeing and immigration status? The findings of the study provide insights about immigrant students' state of wellbeing in the American school system. It is expected that the results of this study would prove useful for supporting efforts of policy evaluation and policy making in the US education system.

Literature Review

Wellbeing

The exploration of wellbeing is a primary topic of interest in studies based in positive psychology [3]. Wellbeing refers to one' emotions of happiness and satisfaction with life. It also involves feeling capable to complete one's tasks and have a sense of general purpose or meaningfulness in life. [4] described three different types of wellbeing i.e., subjective wellbeing, psychological wellbeing and eudaemonic wellbeing. All of which have been explored in scientific studies in Europe, Australia, and other parts of the world. Subjective wellbeing is

considered as a sense of satisfaction with one's own life over time [4]. Similarly, eudaimonic wellbeing is considered as an individual's self-realization and the ability to undertake difficult tasks in order to improve oneself [5]. Lastly, psychological wellbeing refers to an all-encompassing feeling of competence, decision making, life purpose, satisfying relationships and self-acceptance [6].

Subjective well-being refers to a general sense of contentment with how one's life has proceeded thus far, and to a predominance of positive versus negative emotions [4]. Psychological well-being refers to a nomological net of constructs referring to flourishing and feeling competent, that one is able to meet the demands offered by one's social environment (e.g., school or work), self-determined decision making, satisfying interpersonal relationships, purpose in life, and self-acceptance [6], [7]. Eudaimonic well-being refers to self-realization, choosing to engage in challenging activities and continuously seeking opportunities for personal growth [5]. These three forms of well-being have been shown to correlate highly with one another [8] and cluster onto a higher order latent construct. Based on the literature, this study considers the full extent of wellbeing by creating a composite measure that consists of constructs such as satisfaction with life, positive affect, and self-efficacy-resilience.

PISA evaluation considers wellbeing as a multidimensional construct consisting of subjective as well as material components that should reflect students' lifestyle and quality of life [9]. This study specifically focuses on three main elements in PISA assessment 2018 to evaluate students' wellbeing. These three elements include life satisfaction, self-efficacy-resilience, and positive effect. Satisfaction with life is considered as a subjective measure of wellbeing in PISA [10] and is thought to be lower among immigrant students[11]. Along the same lines, this study hypothesizes that among immigrant students the first-generation students would have a lower life satisfaction compared to second-generation immigrant students.

Self-Efficacy-Resilience is another measure of wellbeing used in PISA [10, p. 201] which refers to students' ability in themselves in face of challenging situations. Since immigrant students face significant socioeconomic and cultural challenges, it is hypothesized that they may have a greater sense of efficacy in themselves [9]. Similarly, positive affect another subjective wellbeing measure refers to students' sense of happiness and personal engagement that enables a student to grow, explore new things in life and push boundaries [9]. it is hypothesized that first generation students would have a lower sense of positive affect in comparison to their second generation and native peers.

Immigrant Students and Wellbeing

The concept of wellbeing has multiple dimensions such as psychological wellbeing [12] subjective wellbeing [4] and emotional wellbeing [13]. Due to diverse interpretations of the concept, the literature on immigrant students' wellbeing is quite extensive. However, there is a consensus that immigrant students exhibit lower levels of wellbeing in comparison to native students and second-generation students exhibit an even lower level of wellbeing in comparison to first generation immigrants [14], [15].

The experiences of low psychological wellbeing are common among immigrant students. For instance, [12] explored the relationship between immigrant students' psychological wellbeing and teacher support and found that when teachers were perceived as adopting, immigrant

adolescents reported higher levels of psychological wellbeing. Among the background factors the study considered socioeconomic status, gender, immigrant generation and previous school achievement where gender was found to be the most relevant of all. Similarly, in another study [16] explored the association between individual characteristics such as gender, socioeconomic status, immigration status and achievement with students' psychological wellbeing. This time the results revealed that students from low SES, females, immigrants, and low achievers were more likely to experience psychological distress. Psychological health and wellbeing are also associated with students' ethnic backgrounds. In a study conducted by [17] it was found that that adolescent students of all ethnic backgrounds who spoke languages other than English at home were at a higher risk of alienation, bullying and parental risk factors. Therefore, it can be established that immigrant students who often tend to be multilingual are at a higher risk of poor psychological wellbeing.

While the importance of gender has been established for psychological wellbeing, studies indicate gender to be also an important predictor of emotional wellbeing. For instance, [13] investigated and compared the social and emotional wellbeing of three distinct groups of students i.e., Romanian, Moroccan and Spanish youth residing in Spain. Besides finding a co linear relationship between emotional wellbeing and school wellbeing, gender gap and origin inequalities were found to be significant predictors of emotional wellbeing among immigrant adolescents. Similarly, ethnic background was considered to be an important predictor for perceived wellbeing in a study conducted by [14]. The study investigated whether perceived well-being varied between first- and second-generation immigrants in comparison to the native population in Italy. The results revealed that immigrant students from eastern European and non-western group had higher occurrence of health complaints as well as highest risk of low life satisfaction. The risk became even greater among the second generation of immigrant students.

The literature suggests that lower levels of wellbeing are associated with a lower academic performance. For instance, Rodríguez et al. [15]examined the academic performance in math and science along with well-being among native and immigrant adolescent students in Spain by using the PISA data set 2018. The results revealed that native students had a higher-level skill in math and science in comparison to first as well as second generation students. Similarly native students as well as second generation immigrants had a higher level of positive affect and sense of belonging compared to first generation students. In another study, [18] explored whether social recognition from the society predicted students' different types of participation and life satisfaction (wellbeing). The results of the study found that social recognition and experiences of positive esteem increased students' participation and their satisfaction with life.

The literature on immigrant students' wellbeing is mostly situated outside of the USA. However, immigrant students' wellbeing is a challenge that adversely impacts a huge population of adolescent students in the USA. In addition, while the existing literature considers gender and ethnic background to be important predictors of wellbeing among immigrant students, it largely ignores the effect of sociodemographic variables on wellbeing. This study considers the importance of socioeconomic factors and explores the association of socioeconomic factors with wellbeing along with other important variables.

Methods

Data

The Program for International Student Assessment (PISA) is an international assessment initiative that aims to measure the reading, math, and science literacy of 15-year-old students across OECD countries every three years. Coordinated by the Organization for Economic Cooperation and Development (OECD), its focus is on the assessment of functional skills acquired at the end of schooling. In this study, the seventh round PISA triennial assessment conducted in 2018 has been used.

The participating target population of the PISA 2018 assessment consists of 15-year-old (adolescent) students enrolled in different school types. The focus of this study is the United States and therefore a sample of students from the USA has been considered for this study. A total of 4838 students enrolled in public and private schools, participated in PISA 2018 assessment. PISA sample in the US just like other countries, employs a two-stage sampling design, stratified in the first stage, in which schools are the sampling units with 15-year-old enrolled students at the time of assessment. The selection of schools is made via systematic sampling from a list of eligible schools where the probability of choice for each school is proportional to the size of the school. In the second stage of the sampling, students are selected from a list of students via random sampling in which the probability of getting chosen is the same for all students [10].

This study uses two immigrant students' samples based on the PISA criteria. The first-generation immigrants include students whose parents and they were born in a country other than the United States (the country where they took the test) (n= 244). Second generation immigrants include students whose parents were born outside the United States, but the students were born in the USA (n=746). The overall sample consists of 2462 male students and 2376 female students. 86.9% (n=4206) students attended public schools while 3.6% (n= 176) attended private schools.

PISA2018 is a large database that provides nationally representative sample for conducting policy-based studies. In this study we found that the US dataset was missing 12% of the data at completely random. Therefore, we performed 5 rounds of multiple imputation using SPSS professional edition to produce more robust estimates. Moreover, bivariate correlations (Appendix 1) were calculated to see the relation between different independent variables.

Variables and Measures

Dependent Variable

This study evaluated student wellbeing using a composite measure consisting of 3 principal constructs considered for wellbeing in PISA 2028 assessment. The three constructs include satisfaction with life, positive affect, and self-efficacy-resilience. Satisfaction with life, refers to the extent to which students find meaning and understand what gives meaning to their life (example item: I have discovered satisfactory meaning in life). The satisfaction with life is a 3-item scale with a Cronbach's alpha of 0.84. Positive Affect refers to the sense of positive feeling in students' life such as happiness, joy, and cheerfulness. Positive affect is also a 3-item scale with Cronbach's alpha of 0.84. Self-efficacy-resilience refers to the extent to which students trust in their own abilities to deal with life situations involving challenging circumstances (Example Item: I usually manage one way or the other). Self-efficacy-resilience is a 5-item scale with a Cronbach's alpha of 0.76. All three constructs are based on a Likert scale with four response categories ranging from completely disagree to completely agree. This study using factor

analysis computed a composite measure of student wellbeing where reliability score (Cronbach's alpha) was found to be 0.69. The multi-item constructs were transformed into single variables by adding the different items after conducting factor analysis. In the first step, three variables were constructed i.e., satisfaction with life, positive affect, and self-efficacy-resilience. Next, these three variables were added to make one composite measure of wellbeing.

Independent Variables

The independent variables used in the analysis include the PISA index of economic, social and cultural status (ESCS), immigration status (dummy variables for first generation (0= native and Second generation, 1=first generation) and second-generation immigrants(0 =native and first generation, 1= second generation), school level variables such as school mean socio economic status (SES), School type (0=public, 1= private), school urbanicity(0=rural, 1= urban) grade level (1=8th, 2=9th, 3=10th, 4=11th, 5=12th) and gender(0 =male, 1= female). The descriptive statistics for both dependent and independent variables are presented in table 1.

Table 1
Descriptive Statistics

Variables	N	Min	Max	Mean	Std. Dev.
Grade level	4838.00	8.00	12.00	10.09	0.51
First generation immigrants	4838.00	0.00	1.00	0.07	0.25
Second generation immigrants	4838.00	0.00	1.00	0.17	0.37
Gender	4838.00	0.00	1.00	0.49	0.50
School Urbanicity	4838.00	0.00	1.00	0.41	0.49
School type	4838.00	0.00	1.00	0.04	0.20
Wellbeing	4838.00	-4.76	3.62	0.00	1.01
School SES	4838.00	-63.29	131.72	46.88	25.49

Data Analysis

The data analysis was conducted using SPSS version 28 and IEA IDB Analyzer. Before conducting the analysis, weights were applied to account for the sample imbalances and make the analysis nationally representative. Since the study aimed to conduct a student level analysis, final student weight W_FSTUWT_SCH_SUM provided in the PISA 2018 data set was applied. The weight is meant for student level analysis when measures of interest are collected for all students in the sample. The regression analysis was conducted in three steps. In the first step (Model 1), the association of socio-economic status and immigration status (first generation and second generation) with wellbeing was investigated. In the second step (Model 2), the interaction effect of first-generation immigration status and socioeconomic status was explored. Similarly in step 3 (Model 3) interaction effect of second-generation immigration status and socioeconomic status was introduced to the model. All three models were controlled for gender and school level

variables such as grade level, school type (public or private), school urbanicity (rural or urban) and school mean SES.

Model 1
$$Wellbeing_i = \alpha_i + \beta_1 First\ generation_i + \beta_2 Second\ generation_i\ \beta_3 ESCS_i + \beta_4 Gender_i$$
$$+ \beta_5 school\ type_i + \beta_6 grade\ level_i + \beta_7 School\ urbanicity_i$$
$$+ \beta_8 School\ SES_i + \varepsilon_i$$

Model 2
$$Wellbeing_i = \alpha_i + \beta_1 First\ generation_i + \beta_2 Second\ Generation_i + \beta_3 ESCS_i$$
$$+ \beta_4 Interaction\ First\ gen * ESCS_i + \beta_5 Gender_i + \beta_6 school\ type_i$$
$$+ \beta_7 grade\ level_i + \beta_8 School\ urbanicity_i + \beta_9 School\ SES_i + \varepsilon_i$$

Model 3
$$Wellbeing_i = \alpha_i + \beta_1 First\ generation_i + \beta_2 Second\ Generation_i + \beta_3 ESCS_i$$
$$+ \beta_4 Interaction\ First\ gen * ESCS_i + \beta_5 Interaction\ Second\ gen * ESCS_i$$
$$+ \beta_6 Gender_i + \beta_7 school\ type_i + \beta_8 grade\ level_i + \beta_9 School\ urbanicity_i$$
$$+ \beta_{10} School\ SES_i + \varepsilon_i$$

Results

Variables for immigration status as first-generation immigrant students and second-generation immigrant students and socioeconomic status (ESCS) were first introduced as main effect independent variables to the linear regression model (Step 1: Model 1). The regression model was controlled for a list of school level variables such as school type, school urbanicity, school's mean SES along with grade level and student gender.

Table 2
Pooled Results after Regression

Variables	Model 1			Model 2			Model 3		
	Coef.	(S.E)	p value	Coef.	(S.E)	p value	Coef.	(S.E)	p value
Constant	-0.15	0.04	0.00	-0.10	0.03	0.00	-0.16	0.04	0.00
ESCS	0.12	0.02	0.00	0.12	0.01	0.00	0.13	0.02	0.00
School SES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grade Level	0.01	0.06	0.86	0.01	0.04	0.88	0.01	0.06	0.85
First Gen	-0.14	0.05	0.01	-0.14	0.04	0.01	-0.14	0.06	0.01
Second Gen	-0.08	0.04	0.05	-0.07	0.03	0.06	-0.07	0.04	0.05
School Urbanicity	-0.08	0.03	0.01	-0.08	0.02	0.01	-0.08	0.03	0.01
Gender	-0.01	0.03	0.61	-0.02	0.02	0.61	-0.02	0.03	0.59
School Type	0.20	0.08	0.00	0.20	0.05	0.00	0.20	0.07	0.00
Interaction 1	0.00	0.00	0.00	-0.03	0.04	0.28	-0.05	0.04	0.16
Interaction 2	0.00	0.00	0.00	0.00	0.00	0.00	-0.04	0.03	0.14

The analysis of model 1 presented in table 1, revealed that socioeconomic status is significantly associated with student wellbeing, $b = 0.12$ (SE = 0.02), ($p < 0.05$). Similarly, schools' mean socio-economic status and school type were found to be significantly correlated with wellbeing

with $b = 0.00$ (SE = 0.00), ($p < 0.05$) and $b = 0.20$ (SE = 0.08), ($p < 0.05$) respectively. The results also found that the schools' urbanicity status was also significant $b = -0.08$ (SE = 0.03), ($p < 0.05$) and explained a good portion of variation in Wellbeing. Additionally, immigration status as first-generation immigrant was found to be significantly negatively associated with wellbeing $b = -0.14$ (SE = 0.05), ($p < 0.05$).

In step 2 (Model 2) the interaction between socio economic status and immigration status as first-generation immigrant was introduced. The socioeconomic status (ESCS) remained significant $b = 0.12$ (SE = 0.01) ($p < 0.05$). Schools' mean socioeconomic status and school type were also significantly related with wellbeing with $b = 0.00$ (SE = 0.00) ($p < = 0.05$) and $b = 0.20$ (SE = 0.05) ($p < 2.73$) respectively. School urbanicity status also remained significantly associated with wellbeing ($b = -0.08$ (SE = 0.02) ($p < = 0.05$). Although the interaction effect was found to be insignificant, the immigration status as first-generation immigrant was found to be statistically significant and negatively associated with wellbeing $b = -0.14$ (SE = 0.04) ($p < 0.05$).

In Step 3 (Model 3) the interaction between socioeconomic status and immigration status as second-generation immigration student was added to model 2. The results revealed a positive significant relationship between socioeconomic status and wellbeing $b = 0.13$ (SE = 0.02) ($p < 0.05$). School mean SES and school type remained significantly associated with wellbeing ($b = 0.00$ (SE = 0.00) ($p < 5.42$) and $b = 0.20$ (SE = 0.07) ($p < 0.05$) respectively. The immigration status as first-generation immigrant also remained negatively associated with wellbeing ($b = -0.14$ (SE = 0.06) ($p < = 0.05$). Moreover, the interaction between socioeconomic status and both immigration status as first and second-second-generation student was found to be statistically unrelated with wellbeing.

Discussion

This study attempted to explore the moderating effect of socioeconomic status on the relationship between immigration status and wellbeing in the PISA 2018 evaluation. Using three linear regression models the study presents first exploration of the association between wellbeing, immigration status and socioeconomic status. The study found that a higher socioeconomic status is associated with higher levels of wellbeing. Moreover, immigration status as a first-generation immigrant is associated with lower levels of wellbeing. It was found that socioeconomic status does not moderate the relationship between immigration status and wellbeing. [14], [15]

The positive association between socioeconomic status and wellbeing is consistent with the previous literature which considers socioeconomic status as an important factor for wellbeing [16]. It is expected that immigrants belonging to an upper socio-economic class would not only have a better chance to assimilate into the society, but it is also likely that they would have faced less challenges during their immigration process, thus having a greater wellbeing. However, the exposure to cultural and emotional factors could negatively influence immigrant students' sense of belonging thereby posing a risk to their wellbeing.

The negative relationship between first-generation immigrant status and wellbeing is also consistent with the previous literature [14], [15]. However, the insignificant association between second generation immigrant status and wellbeing is unexpected. The insignificance of this

association could perhaps be attributed to the better acculturation of second-generation immigrant students in the US education system.

It is also important to note here that among the covariates, school type, school's socioeconomic status and school urbanicity have been found to be statistically significant, indicating that students attending private schools in upper class neighborhoods in suburban settings have a greater wellbeing. The significant association of wellbeing with socioeconomic variables at school level further points to the importance of a higher socioeconomic status for greater wellbeing.

Limitations of the study

This research examined the relation between socioeconomic status and immigration status as first generation and second-generation immigrant student on student wellbeing. While the study controlled for major school level factors that could impact wellbeing, it does not account for potential familial factors that could contribute to adolescent students' wellbeing. Future research should explore those other factors so that informed policy measures could be adopted. Moreover, the smaller sample size of immigrant students compared to native students could have impacted the results. This study also does not include adolescent students' sense of belonging as a component of wellbeing. Inclusion of sense of belonging to wellbeing could provide deeper insights into immigrant students' wellbeing. Another major limitation of the study is that the relation between wellbeing, socioeconomic status and immigration status could be a complex association. This study used a simple linear regression model which may not have captured the true association between these variables. Future work should adopt more sophisticated models to study this association. Nevertheless, findings from this study contribute to the literature and could serve as a foundation for future research.

Conclusion

This study examined the relation between wellbeing, immigration status and socioeconomic status and among American adolescent students. It also investigated the interaction between immigration status as first-generation and second-generation student and socioeconomic status against wellbeing among adolescent students. The results revealed that there is a positive association between socioeconomic status and wellbeing and a negative relation between immigration status as a first-generation immigrant and wellbeing. Furthermore, the interactions between socioeconomic status and immigration status were found to be statistically insignificant.

Acknowledgements

References

[1] P. Connor and G. López, "5 facts about the US rank in worldwide migration," 2016.

[2] M. Tienda and R. Haskins, "Immigrant Children: Introducing the Issue," *Future Child.*, vol. 21, no. 1, pp. 3–18, 2011, doi: 10.1353/foc.2011.0010.

[3] A. S. Waterman, "Reconsidering happiness: A eudaimonist's perspective," *J. Posit. Psychol.*, vol. 3, no. 4, pp. 234–252, 2008.

[4] E. Diener, "Guidelines for national indicators of subjective well-being and ill-being.," in *Journal of Happiness Studies: An Interdisciplinary Forum on Subjective Well-Being*, 2006.

[5] A. S. Waterman, "Eudaimonic identity theory: Identity as self-discovery," in *Handbook of identity theory and research*, Springer, 2011, pp. 357–379.

[6] C. D. Ryff and B. H. Singer, "Know thyself and become what you are: A eudaimonic approach to psychological well-being," *J. Happiness Stud.*, vol. 9, no. 1, pp. 13–39, 2008.

[7] C. D. Ryff, "Happiness is everything, or is it? Explorations on the meaning of psychological well-being.," *J. Pers. Soc. Psychol.*, vol. 57, no. 6, p. 1069, 1989.

[8] A. S. Waterman *et al.*, "The Questionnaire for Eudaimonic Well-Being: Psychometric properties, demographic comparisons, and evidence of validity," *J. Posit. Psychol.*, vol. 5, no. 1, pp. 41–61, 2010.

[9] O. for E. Co-operation and Development (OECD), "PISA 2018 results (volume I): What students know and can do." OECD Publishing Paris, 2019a.

[10] OECD, "PISA 2018 assessment and analytical framework," *PISA 2018 assessment and analytical framework*. OECD Paris, 2019c.

[11] O. for E. Cooperation and Development (OECD), "PISA 2018 results (volume III): What school life means for students' lives." PISA, OECD Publishing Paris, 2019b.

[12] F. Alivernini, E. Cavicchiolo, S. Manganelli, A. Chirico, and F. Lucidi, "Support for autonomy at school predicts immigrant adolescents' psychological well-being," *J. Immigr. Minor. Health*, vol. 21, no. 4, pp. 761–766, 2019.

[13] E. Soriano and V. C. Cala, "School and emotional well-being: A transcultural analysis on youth in Southern Spain," *Health Educ.*, 2018.

[14] A. Borraccino *et al.*, "Perceived well-being in adolescent immigrants: it matters where they come from," *Int. J. Public Health*, vol. 63, no. 9, pp. 1037–1045, 2018.

[15] S. Rodríguez, A. Valle, L. M. Gironelli, E. Guerrero, B. Regueiro, and I. Estévez, "Performance and well-being of native and immigrant students. Comparative analysis based on PISA 2018," *J. Adolesc.*, vol. 85, pp. 96–105, 2020.

[16] F. Alivernini, E. Cavicchiolo, S. Manganelli, A. Chirico, and F. Lucidi, "Students' psychological well-being and its multilevel relationship with immigrant background, gender, socioeconomic status, achievement, and class size," *Sch. Eff. Sch. Improv.*, vol. 31, no. 2, pp. 172–191, Apr. 2020, doi: 10.1080/09243453.2019.1642214.

[17] M. Y. Stella, Z. J. Huang, R. H. Schwalberg, M. Overpeck, and M. D. Kogan, "Acculturation and the health and well-being of US immigrant adolescents," *J. Adolesc. Health*, vol. 33, no. 6, pp. 479–488, 2003.

[18] D. Sirlopú and D. Renger, "Social recognition matters: Consequences for school participation and life satisfaction among immigrant students," *J. Community Appl. Soc. Psychol.*, vol. 30, no. 5, pp. 561–575, Sep. 2020, doi: 10.1002/casp.2463.

Appendix I

Bivariate Correlations

Bivariate Correlations

	Grade level	ESCS	School SES	First generation	Second generation	Wellbeing	School Urbanicity	School type	Gender
Grade Level	1	.095[**]	-.042[**]	.034[*]	.039[**]	0.004	.046[**]	0.027	.065[**]
ESCS	.095[**]	1	-.396[**]	-.070[**]	-.185[**]	.095[**]	-0.016	.085[**]	-0.013
School SES	-.042[**]	-.396[**]	1	0.024	.084[**]	.035[*]	.113[**]	-.231[**]	.033[*]
First Generation	.034[*]	-.070[**]	0.024	1	-.102[**]	-0.022	.096[**]	.051[**]	-0.007
Second Generation	.039[**]	-.185[**]	.084[**]	-.102[**]	1	-.049[**]	.178[**]	-0.014	-0.001
Wellbeing	0.004	.095[**]	.035[*]	-0.022	-.049[**]	1	-0.021	0.023	0.001
School Urbanicity	.046[**]	-0.016	.113[**]	.096[**]	.178[**]	-0.021	1	.151[**]	0.016
School type	0.027	.085[**]	-.231[**]	.051[**]	-0.014	0.023	.151[**]	1	-0.027
Gender	.065[**]	-0.013	.033[*]	-0.007	-0.001	0.001	0.016	-0.027	1

**. Correlation is significant at the 0.01 level (2-tailed).