Work Experiences and Satisfaction of International Medical School Graduates

Shesha K. Katakam, MD, MPH,[a] Mary Pat Frintner, MSPH,[b] Cristina Pelaez-Velez, MD,[c] Rana Chakraborty, MD, MSc, DPhil (Oxon)[d]

abstract

OBJECTIVES: We compared demographics and work, financial, and satisfaction experiences of early-career and midcareer pediatricians categorized by their childhood and medical school locations.

METHODS: Data from the Pediatrician Life and Career Experience Study were used to examine the characteristics and experiences of 3 groups, which were categorized as (1) international childhood and medical school graduate (international-IMG), (2) United States childhood and international medical school graduate (US-IMG), and (3) United States or international childhood and United States medical school graduate (USMG). With multivariable logistic regression, we examined the experiences of the groups, controlling for participant characteristics.

RESULTS: Data from 1467 of 1804 participants were analyzed; 13% were categorized as international-IMGs, 6% were categorized as US-IMGs, and 81% were categorized as USMGs. International-IMGs and US-IMGs were less likely than USMGs to report their race and ethnicity as white and non-Hispanic (26%, 32%, and 71%, respectively; $P < .05$) and more likely to report caring for patients with public insurance (adjusted odds ratio [aOR] 1.80 [95% confidence interval (CI) 1.27–2.56] and aOR 2.12 [95% CI 1.31–3.42], respectively). International-IMGs were less likely than USMGs to agree that physician colleagues value their work (aOR 0.35; 95% CI 0.21–0.56). Overall, 8 in 10 reported that their work was personally rewarding; international-IMGs were less likely than USMGs to report such satisfaction ($P < .05$).

CONCLUSIONS: Among a national sample of pediatricians, international-IMGs and US-IMGs play important roles in workforce diversity. They also report unique challenges. Most are satisfied with their work, but international-IMGs are the least satisfied.

[a]*La Porte Hospital, La Porte, Indiana;* [b]*American Academy of Pediatrics, Itasca, Illinois;* [c]*Texas Children's Pediatrics, Houston, Texas; and* [d]*Mayo Clinic College of Medicine and Science, Rochester, Minnesota*

Dr Katakam conceptualized and designed the study and survey data-collection tool, drafted the initial manuscript, reviewed and revised the manuscript, and provided additional review of the manuscript; Drs Pelaez-Velez and Chakraborty conceptualized the study, revised the manuscript, and provided additional review of the manuscript; Ms Frintner conceptualized and designed the study and survey data-collection tool, conducted the analysis, drafted the initial manuscript, reviewed and revised the manuscript, and provided additional review of the manuscript; and all authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

This work was presented at the annual meeting of the Pediatric Academic Societies; May 6–9, 2017; San Francisco, CA.

DOI: https://doi.org/10.1542/peds.2018-1953

Accepted for publication Oct 18, 2018

WHAT'S KNOWN ON THIS SUBJECT: International medical school graduates constitute approximately one-fourth of practicing pediatricians and pediatric residents. An interplay of several unique predictors has led to consistently low career satisfaction levels among physicians who are international medical school graduates.

WHAT THIS STUDY ADDS: By categorizing pediatricians into 3 subgroups on the basis of childhood and medical school locations, we showed differences in personal, work, and financial experiences and perceptions of support and satisfaction at work, with implications for policy and workforce discussions.

To cite: Katakam SK, Frintner MP, Pelaez-Velez C, et al. Work Experiences and Satisfaction of International Medical School Graduates. *Pediatrics.* 2019;143(1):e20181953

Physician workforce issues are an important element in efforts to improve the health care delivery system and payment structure.[1] Recent trends point toward shortages of pediatricians and pediatric subspecialists in rural and underserved areas.[1]

International medical school graduates (IMGs) are defined as physicians who graduated from medical schools outside of the United States and Canada.[2] IMGs constitute approximately one-fourth of both practicing pediatricians and pediatric residents,[3–5] and they play an important role in providing access to care in underserved rural and urban areas, which include Health Professional Shortage Areas.[3,6,7]

Researchers in several studies have examined the career satisfaction levels of US physicians.[8–12] Less research has been focused on satisfaction among IMGs,[8,10,13] and few researchers have looked at IMGs in primary care, including pediatrics.[8,10,12] These studies have found that IMGs report lower career satisfaction[13] even after adjusting for variables related to the practice environment and physician characteristics.[11] Career dissatisfaction may be molded by adverse personal and professional experiences, including social isolation, limited professional advancement, and challenges navigating the workplace.[8] Physician satisfaction is associated with increased patient satisfaction, interpersonal aspects of care, and better compliance with therapy.[14,15] Physician dissatisfaction can increase health care costs, representing a loss of >5% of a total annual operating budget related to recruitment, training, and productivity after physician turnover.[16]

In the current study, we examined the demographic, professional, and financial characteristics of pediatric IMGs working in the United States as well as their job and career satisfaction levels. We used data from the American Academy of Pediatrics (AAP) Pediatrician Life and Career Experience Study (PLACES), a unique, national data set[17] that includes pediatric IMGs. Drawing from previous research[5] in which pediatricians were examined by their medical school and childhood locations, we compared the characteristics and satisfaction levels of IMGs who grew up outside of the United States with IMGs who grew up in the United States and US medical school graduates.

METHODS

Participants

We analyzed cross-sectional data collected in 2015 from PLACES, a national, longitudinal study in which the work and life experiences of pediatricians across their careers are tracked.[17] Participants in PLACES are surveyed twice yearly. In this study, we focus on data collected in 1 of these surveys.

Participants in PLACES were identified by using an AAP database that includes all pediatricians who completed US residency programs (both AAP members and nonmembers). The following 2 cohorts of pediatricians were recruited in 2012 on the basis of their residency graduation date: 2009–2011 and 2002–2004. Thirty-nine percent of pediatricians who were randomly selected to participate in PLACES signed up for the study and completed the first study survey. Details regarding PLACES methodology, including the target population, sample size analysis, and nonresponse and poststratification weights, are previously described.[17] Initial study weights were calculated because nonresponse bias tests revealed that participants were significantly more likely to be women, AAP members, and graduates of US medical schools than pediatricians in the respective target cohorts. For the current study, these initial study weights were adjusted on the bases of sex, AAP membership status, and the medical school location of participants who completed the 2015 survey, and they were applied to all analyses in this article.

We analyzed data from 1 of the PLACES surveys conducted in 2015 (April–September) via e-mail and surface mail depending on participant preference. Participants received a $20 Amazon.com gift card for completing the annual survey. The AAP Institutional Review Board approved the study.

Survey Content

The domains and questions for the PLACES surveys were developed through (1) content prioritization by a project advisory committee; (2) literature review to identify related, existing questions; and (3) cognitive interviews and pilot tests to assess how questions were interpreted by participants. When available, survey questions were adapted from other physician studies, including the Physician Worklife Study,[18,19] Medicine in Australia: Balancing Employment and Life,[20] and the AAP Annual Survey of Graduating Residents,[21] among others.[22–24] In the current article, we focused on the following domains: work characteristics, financial experiences, and job satisfaction.

Data Analysis

The analytic sample included pediatricians who participated in the 2015 survey, answered questions about their backgrounds (eg, medical school location and childhood location) on a previous survey, and were not in fellowship

training in 2015. Participants were categorized into the following 3 groups by their reported childhood and medical school locations[5]: (1) international childhood and medical school graduate (international-IMG), (2) United States childhood and international medical school graduate (US-IMG), and (3) United States or international childhood and United States medical school graduate (USMG). Unlike previous researchers,[5] we combined pediatricians who grew up outside of the United States and graduated from a US medical school with the other US medical school graduates because the number of respondents was small (n = 39) and their training experiences were similar to those of USMGs.

χ^2 tests were used to examine whether (1) demographic characteristics, (2) work characteristics, (3) financial experiences, and (4) job satisfaction factors varied by the 3 childhood–medical school location groups. Multivariable logistic regression was used to identify associations (if found in the bivariate results) for work characteristics (8 models), financial experiences (5 models), and job satisfaction (5 models) among the 3 childhood–medical school groups while controlling for pediatrician demographic characteristics, including cohort (2009–2011 residency graduates or 2002–2004 residency graduates), sex (male or female), race and ethnicity (white and non-Hispanic, Asian and non-Hispanic, or other [including Hispanic, African American, or black]), marital status (yes or no), whether a respondent has children (yes or no), educational debt in 2015 (<$100 000 or ≥$100 000, including a spouse's or partner's debt, if applicable), and region of the country (Midwest, Northeast, South, or West). Educational debt was also examined as an outcome. Annual income (≥$200 000 or <$200 000) was also included in 3 of the financial characteristic models (retiring savings are on track, owns primary residence, and has no financial worries) and all of the satisfaction models.

All data presented were weighted as described above. All analyses were conducted with PASW Statistics 22 (SPSS Inc, Chicago, IL), using $P \leq .05$.

TABLE 1 Demographic Characteristics by Childhood and Medical School Location

Characteristics	International-IMG (n = 186), %	US-IMG (n = 91), %	USMG (n = 1190), %
2009–2011 residency graduate cohort[a]	58.1	46.2	48.4
Female sex[a]	54.8	67.0	66.7
Married or partnered in 2015[a]	88.6	74.4	88.1
Spouse or partner work status in 2015 (among those married or partnered)[a]			
Not working	25.9	10.1	20.2
Working part-time	9.9	5.8	15.8
Working full-time	64.2	84.1	64.1
Has children in 2015	77.8	74.7	80.2
Race and/or ethnicity[a]			
White and non-Hispanic	25.9	32.2	71.3
Asian and non-Hispanic	42.2	32.2	14.5
Hispanic	20.5	30.0	6.6
Black or African American	7.6	0.0	5.2
Other and/or non-Hispanic	3.8	5.6	2.3
Proficient communicating in a language other than English[a]	72.9	64.4	31.3
Region of the country[a]			
Midwest	20.8	9.4	24.1
Northeast	25.1	27.1	20.6
South	36.1	40.0	34.2
West	18.0	23.5	21.1

[a] $P \leq .05$ on the χ^2 test.

RESULTS

A total of 88% of the participants in PLACES (1587 of 1804) completed the 2015 survey. Of the 1467 participants in the analytic sample, 13% (n = 186) grew up outside of the United States and graduated from an international medical school, 6% (n = 91) grew up in the United States and graduated from an international medical school, and 81% (n = 1190) graduated from a US medical school.

Demographic Characteristics

The 3 childhood–medical school groups varied by sex, marital status, race and ethnicity, language proficiency, and region of the country (Table 1). Pediatricians who graduated from international medical schools were less likely than the US graduates to report being white and non-Hispanic, and they were more likely to report proficiency communicating with patients in languages other than English. Approximately one-fourth of the international-IMG, 32.2% of the US-IMG, and 71.3% of the USMG groups self-identified as white and non-Hispanic, and 72.9% of the international-IMG, 64.4% of the US-IMG, and 31.3% of the USMG groups reported proficiency in other languages.

Work Characteristics

Physicians in the 3 childhood–medical school groups also varied by professional characteristics, including current position, part-time work, work area and setting, having ≥50% of patients with public insurance, agreement that physician colleagues value their work and are important sources of personal support, and likelihood of leaving

their jobs in the next 2 years (Table 2). For example, 43.5% of those in the international-IMG group, 40.3% of those in the USMG group, and 29.7% of those in the US-IMG group were working as subspecialists in 2015. In a multivariable analysis (Table 3), physicians in the international-IMG group were less likely than those in the USMG group to work part-time hours (adjusted odds ratio [aOR] 0.56; 95% confidence interval [CI] 0.33–0.96), agree that their physician colleagues value their work (aOR 0.35; 95% CI 0.21–0.56), and agree that their physician colleagues are an important source of personal support (aOR 0.58; 95% CI 0.41–0.83). They were more likely than physicians in the USMG group to work in an urban, inner-city area, work at a practice, have ≥50% of their patients covered by public insurance, and plan to leave their job in the next 2 years. Physicians in the US-IMG group were less likely than those in the USMG group to work as subspecialists (aOR 0.49; 95% CI 0.29–0.83), and they were more likely to work in a practice setting (aOR 1.72; 95% CI 1.08–2.74) and care for more patients with public insurance (aOR 2.12; 95% CI 1.31–3.42).

TABLE 2 Work and Financial Characteristics in 2015 by Childhood and Medical School Location

Characteristics	International-IMG (n = 186), %	US-IMG (n = 91), %	USMG (n = 1191), %
Current position[a]			
General pediatrics	48.9	48.4	42.3
Subspecialist	43.5	29.7	40.3
Hospitalist	7.5	16.5	10.6
Other	0.0	5.5	6.8
Part-time work[a]	13.0	16.7	22.4
Work area[a]			
Suburban	31.2	34.5	36.8
Urban and inner city	45.7	28.7	23.9
Urban and not inner city	16.1	28.7	30.8
Rural	7.0	8.0	8.6
Work setting[a]			
Practice	50.5	57.3	43.1
Medical school and/or university-affiliated hospital or clinic	32.3	24.7	37.4
Community hospital or clinic	15.6	12.4	11.7
Other, including government hospital or clinic	1.6	5.6	7.8
≥50% patients covered by public insurance[a]	57.5	60.7	40.6
Agree that physician colleagues value their work[a]	78.7	81.6	90.8
Agree that physician colleagues are an important source of personal support[a]	57.9	62.8	70.0
Likely to leave job in the next 2 y[a]	23.1	19.1	14.3
Financial experiences[a]			
Had educational debt at residency graduation	16.7	73.6	82.7
Education debt in 2015 ≥$100 000, including spouse's or partner's debt	9.7	51.1	35.2
Income ≥$200 000	32.8	32.9	37.5
Retirement savings are on track (saving as much as would like)	41.4	27.0	41.2
Owns primary residence	76.1	78.9	86.4
Has no financial worries	17.3	10.0	21.7
Satisfaction[a]			
Completely or very satisfied with salary	26.6	35.6	38.2
Completely or very satisfied with nonmonetary aspects of job	39.1	42.2	48.9
Completely or very satisfied with job benefits	30.4	36.0	50.6
Agree or strongly agree that work is personally rewarding	70.7	85.4	88.4
Agree or strongly agree that they are satisfied with career as physicians	72.8	85.2	82.0

[a] $P \leq .05$ on the χ^2 test.

Financial Experiences

Physicians in the 3 childhood–medical school groups had different financial experiences (Table 2). For example, 16.7% of those in the international-IMG group, 73.6% of those in the US-IMG group, and 82.7% of those in the USMG group had educational debt at residency graduation, and 9.7% of those in the international-IMG group, 51.1% of those in the US-IMG group, and 35.2% of those in the USMG group reported at least $100 000 of debt in 2015 (including spouse or partner debt, if applicable). In a multivariable analysis (Table 4), the physicians in the international-IMG group were less likely than those in the USMG group to have educational debt at residency (aOR 0.04; 95% CI 0.03–0.06), have educational debt in 2015 (aOR 0.13; 95% CI 0.08–0.23), and own their primary home (aOR 0.58; 95% CI 0.36–0.93). Physicians in the US-IMG group were more likely than those in the USMG group to have educational debt in 2015 (aOR 2.55; 95% CI 1.53–4.25).

Satisfaction

The majority of participants in all 3 groups (70.7%–88.4%) reported overall job (agree that work is personally rewarding) and career (agree that they are satisfied with their careers as physicians) satisfaction levels (Table 2). Fewer reported satisfaction with their salaries (26.6%–38.2%), the nonmonetary aspects of their jobs (39.1%–48.9%), and their job benefits (30.4%–50.6%).

TABLE 3 Factors Associated With Work Characteristics in 2015

Factors	aOR (95% CI)							
	Subspecialist Position	Part-time Hours	Urban and Inner-city Area	Practice Setting	≥50% Patients With Public Insurance	Physician Colleagues Value Their Work	Physician Colleagues Are an Important Source of Personal Support	Likely to Leave Job in Next 2 y
Childhood–medical school location								
USMG (reference)	—	—	—	—	—	—	—	—
International-IMG	1.07 (0.75–1.52)	0.56 (0.33–0.96)[a]	2.46 (1.71–3.53)[a]	1.68 (1.18–2.38)[a]	1.80 (1.27–2.56)[a]	0.35 (0.21–0.56)[a]	0.58 (0.41–0.83)[a]	1.57 (1.02–2.40)[a]
USMG-IMG	0.49 (0.29–0.83)[a]	0.73 (0.37–1.43)	0.92 (0.53–1.59)	1.72 (1.08–2.74)[a]	2.12 (1.31–3.42)[a]	0.54 (0.29–1.02)	0.73 (0.45–1.20)	1.52 (0.85–2.72)
2009–2011 residency graduate cohort (reference: 2002–2004 graduates)	0.87 (0.68–1.12)	0.66 (0.48–0.91)[a]	1.08 (0.82–1.41)	0.60 (0.48–0.77)[a]	1.05 (0.82–1.34)	1.83 (1.24–2.70)[a]	1.60 (1.24–2.08)[a]	1.57 (1.14–2.17)[a]
Female sex (reference: male sex)	0.40 (0.32–0.51)[a]	22.19 (12.30–40.05)[a]	0.71 (0.55–0.91)[a]	1.39 (1.11–1.75)[a]	0.83 (0.66–1.04)	0.93 (0.64–1.34)	1.24 (0.97–1.58)	1.11 (0.81–1.52)
Race and ethnicity								
White and non-Hispanic (reference)	—	—	—	—	—	—	—	—
Asian and non-Hispanic	1.27 (0.94–1.73)	1.12 (0.75–1.67)	1.13 (0.81–1.59)	0.76 (0.56–1.03)	1.01 (0.74–1.37)	0.89 (0.56–1.41)	1.00 (0.72–1.39)	0.99 (0.66–1.49)
Other, including minority	0.80 (0.58–1.10)	0.98 (0.65–1.48)	1.85 (1.33–2.59)[a]	0.83 (0.61–1.12)	1.97 (1.45–2.70)[a]	0.84 (0.52–1.35)	0.86 (0.62–1.19)	1.40 (0.95–2.07)
Married (reference: not married)	1.03 (0.70–1.51)	2.46 (1.25–4.84)[a]	1.22 (0.80–1.87)	1.11 (0.76–1.62)	1.06 (0.72–1.56)	1.03 (0.56–1.87)	0.93 (0.62–1.40)	0.67 (0.42–1.08)
Has children (reference: does not have children)	0.76 (0.55–1.06)	3.29 (1.95–5.57)[a]	0.64 (0.45–0.90)[a]	1.15 (0.83–1.58)	0.69 (0.49–0.95)	1.10 (0.66–1.85)	1.18 (0.84–1.68)	1.04 (0.68–1.60)
Region								
Midwest (reference)	—	—	—	—	—	—	—	—
Northeast	0.79 (0.57–1.10)	1.00 (0.65–1.53)	1.33 (0.94–1.89)	1.13 (0.82–1.57)	0.80 (0.57–1.11)	0.66 (0.40–1.09)	1.16 (0.82–1.64)	0.74 (0.48–1.16)
South	0.82 (0.61–1.09)	0.60 (0.40–0.90)[a]	0.65 (0.46–0.91)[a]	1.41 (1.05–1.89)[a]	1.27 (0.94–1.70)	0.95 (0.58–1.54)	0.94 (0.69–1.28)	0.97 (0.66–1.42)
West	0.60 (0.43–0.84)[a]	1.05 (0.69–1.61)	0.64 (0.43–0.93)[a]	1.55 (1.12–2.16)[a]	0.89 (0.64–1.25)	1.11 (0.64–1.95)	1.58 (1.10–2.27)[a]	0.79 (0.50–1.24)
Educational debt in 2015 ≥$100 000, including debt of spouse or partner (reference: <$100 000)	1.26 (0.97–1.64)	0.61 (0.43–0.87)[a]	1.18 (0.88–1.58)	1.15 (0.89–1.49)	1.10 (0.84–1.42)	0.64 (0.42–0.97)[a]	0.85 (0.64–1.13)	0.75 (0.53–1.07)

—, not applicable.
[a] $P \leq .05$ in the logistic regression model.

The 3 childhood–medical school groups varied on all 5 measures of satisfaction, with the international-IMG group being the least satisfied on all the measures (Table 2). In a multivariable analysis (Table 5), physicians in the international-IMG group were less likely than those in the USMG group to report satisfaction with their salaries (aOR 0.61; 95% CI 0.41–0.90), the nonmonetary aspects of their jobs (aOR 0.60; 95% CI 0.42–0.85), and their job benefits (aOR 0.33; 0.22–0.47) and reported lower overall work satisfaction (agree that work is personally rewarding; aOR 0.27; 95% CI 0.18–0.41) and career satisfaction (aOR 0.41; 95% CI 0.27–0.62). Physicians in the US-IMG group were less likely than those in the USMG group to be satisfied with their job benefits (aOR 0.50; 95% CI 0.30–0.82).

DISCUSSION

Using national data from the AAP PLACES, we found differences in demographic and work characteristics, financial experiences, and satisfaction levels among 3 groups of early-career and midcareer pediatricians, whom we classified by their childhood locations and medical school locations (international-IMG, US-IMG, and USMG). Key findings of the study include that international-IMGs feel less valued and supported by their physician colleagues at work, and although strong majorities of all groups report job and career satisfaction, international-IMGs are the least satisfied with these domains as well as with their salaries and benefits. The study may have implications for IMGs and pediatric workforce policies. Residency program directors who routinely train IMGs may be interested in these findings because IMGs constitute one-fourth of the pediatric trainees.

TABLE 4 Factors Associated With Financial Characteristics in 2015

Factors	aOR (95% CI)				
	Educational Debt at Residency	Educational Debt in 2015, Including Spouse's or Partner's Debt, if Applicable	Retirement Savings on Track	Owns Primary Residence	Has No Financial Worries
Childhood–medical school location					
USMG (reference)	—	—	—	—	—
International-IMG	0.04 (0.03–0.06)[a]	0.13 (0.08–0.23)[a]	0.97 (0.68–1.38)	0.58 (0.36–0.93)[a]	0.65 (0.42–1.03)
US-IMG	0.65 (0.38–1.10)	2.55 (1.53–4.25)[a]	0.76 (0.45–1.29)	1.01 (0.51–1.99)	0.66 (0.32–1.38)
2009–2011 residency graduates cohort (reference: 2002–2004 graduates)	1.96 (1.46–2.63)[a]	6.16 (4.72–8.04)[a]	0.80 (0.63–1.03)	0.24 (0.16–0.37)[a]	0.85 (0.63–1.15)
Female sex (reference: male sex)	1.15 (0.86–1.55)	1.28 (0.98–1.68)	1.01 (0.80–1.29)	1.34 (0.93–1.94)	0.97 (0.73–1.30)
Race and ethnicity					
White and non-Hispanic (reference)	—	—	—	—	—
Asian and non-Hispanic	0.38 (0.27–0.55)[a]	0.84 (0.58–1.20)	1.11 (0.81–1.50)	0.41 (0.27–0.63)[a]	1.05 (0.72–1.54)
Other, including minority	1.07 (0.71–1.61)	0.95 (0.66–1.36)	0.53 (0.38–0.74)[a]	0.49 (0.32–0.77)[a]	0.64 (0.42–0.97)[a]
Married (reference: not married)	0.95 (0.59–1.55)	1.60 (1.02–2.51)[a]	1.18 (0.80–1.74)	3.18 (1.97–5.14)[a]	1.51 (0.91–2.49)
Has children (reference: does not have children)	0.97 (0.64–1.48)	0.76 (0.53–1.09)	0.70 (0.50–0.97)[a]	2.81 (1.88–4.20)[a]	0.76 (0.50–1.14)
Region					
Midwest (reference)	—	—	—	—	—
Northeast	0.67 (0.44–1.01)	0.60 (0.41–0.87)[a]	0.77 (0.55–1.07)	0.56 (0.33–0.93)[a]	0.65 (0.43–0.97)[a]
South	1.02 (0.69–1.50)	0.76 (0.55–1.07)	0.78 (0.58–1.05)	0.74 (0.45–1.21)	0.75 (0.53–1.07)
West	1.10 (0.71–1.71)	0.71 (0.49–1.03)	0.87 (0.62–1.22)	0.55 (0.32–0.94)[a]	0.66 (0.43–0.99)
Educational debt in 2015 ≥$100 000, including debt of spouse or partner (reference: <$100 000)	NA	NA	0.52 (0.40–0.68)[a]	0.61 (0.42–0.89)[a]	0.28 (0.19–0.40)[a]
Income ≥$200 000 (reference: <$200 000)	NA	NA	1.53 (1.21–1.95)[a]	1.74 (1.17–2.58)[a]	1.67 (1.25–2.22)[a]

NA, not applicable (variable was not included in the model); —, not available.

[a] $P \leq .05$ in the logistic regression model.

Demographically, both international-IMGs and US-IMGs in our study were more varied compared with USMGs, especially in terms of race, ethnicity, and being multilingual. Researchers in other studies have also found that IMGs in other specialties have similar demographic characteristics.[5,6,13,25,26] Almost one-half of Hispanic pediatricians in our sample graduated from an international medical school. This is an important finding given the increasing proportion of Hispanic children in the US population,[27] the shortage of Hispanic pediatricians,[28] and commitments to workforce diversity by organizations, including the AAP.[29] Patients of IMGs are more likely to be minorities and immigrants and live in neighborhoods where English is poorly spoken or not spoken at all.[6] From a health care delivery perspective, it is important to understand patient-provider concordance and provide linguistically and culturally appropriate care to improve health care access for minorities.[30]

Compared with physicians in the USMG group, those in the international-IMG group were more likely to work full-time; work in a practice setting in an urban, inner-city area; see patients on public insurance; and have plans to move to a new job. The finding that international-IMGs tend to work full-time may be reflective of minimum work-hour restrictions associated with their visas.[31] Researchers in multiple studies have reported that IMGs tend to work in underserved areas in which patients with public insurance are seen.[10,13,25,32–34] The US federal government offers the J-1 visa waiver program, through which IMGs can commit to work in designated Health Professional Shortage Areas for 2 years in lieu of returning to their home countries.[35] The program includes

TABLE 5 Factors Associated With Satisfaction in 2015

Factors	aOR (95% CI)				
	Completely or Very Satisfied With Salary	Completely or Very Satisfied With Nonmonetary Aspects of Job	Completely or Very Satisfied With Job Benefits	Agree or Strongly Agree That Work Is Personally Rewarding	Agree or Strongly Agree That They Are Satisfied With Career As Physicians
Childhood–medical school location					
USMG (reference)	—	—	—	—	—
International-IMG	0.61 (0.41–0.90)[a]	0.60 (0.42–0.85)[a]	0.33 (0.22–0.47)[a]	0.27 (0.18–0.41)[a]	0.41 (0.27–0.62)[a]
US-IMG	1.08 (0.64–1.82)	0.78 (0.48–1.27)	0.50 (0.30–0.82)[a]	1.02 (0.51–2.06)	1.19 (0.62–2.29)
2009–2011 residency graduates cohort (reference: 2002–2004 graduates)	1.42 (1.08–1.85)[a]	1.11 (0.87–1.41)	1.05 (0.82–1.34)	1.24 (0.87–1.75)	1.27 (0.93–1.74)
Female sex (reference: male sex)	1.20 (0.93–1.55)	0.68 (0.54–0.86)[a]	0.70 (0.55–0.89)[a]	0.70 (0.49–0.99)[a]	0.68 (0.49–0.93)[a]
Race and ethnicity					
White and non-Hispanic (reference)	—	—	—	—	—
Asian and non-Hispanic	0.71 (0.51–0.99)[a]	0.80 (0.59–1.08)	1.08 (0.79–1.46)	0.90 (0.60–1.36)	1.15 (0.79–1.69)
Other, including minority	0.83 (0.59–1.16)	1.07 (0.79–1.45)	1.41 (1.03–1.93)[a]	0.98 (0.63–1.52)	1.56 (1.02–2.37)[a]
Married (reference: not married)	1.05 (0.69–1.59)	1.38 (0.94–2.02)	1.29 (0.87–1.89)	1.04 (0.61–1.78)	1.37 (0.86–2.19)
Has children (reference: does not have children)	0.97 (0.68–1.38)	0.92 (0.66–1.26)	0.66 (0.48–0.92)[a]	1.17 (0.75–1.82)	1.20 (0.81–1.79)
Region					
Midwest (reference)	—	—	—	—	—
Northeast	0.72 (0.50–1.02)	0.87 (0.63–1.20)	0.69 (0.49–0.96)[a]	0.74 (0.46–1.18)	0.89 (0.58–1.36)
South	0.91 (0.66–1.24)	0.81 (0.61–1.09)	0.88 (0.65–1.18)	1.02 (0.65–1.60)	1.03 (0.69–1.52)
West	0.84 (0.59–1.20)	0.74 (0.53–1.03)	0.83 (0.59–1.16)	0.71 (0.44–1.13)	0.59 (0.39–0.90)[a]
Educational debt in 2015 ≥$100 000, including debt of spouse or partner (reference: <$100 000)	0.65 (0.49–0.87)[a]	0.63 (0.48–0.81)[a]	0.72 (0.55–0.93)[a]	0.60 (0.42–0.87)[a]	0.57 (0.41–0.79)[a]
Income ≥$200 000 (reference: <$200 000)	4.68 (3.64–6.02)[a]	1.14 (0.90–1.43)	1.43 (1.13–1.81)[a]	0.91 (0.65–1.28)	1.56 (1.14–2.15)[a]

—, not applicable.

[a] $P \leq .05$ in the logistic regression model.

benefits for IMGs as well as for the programs designed to care for underserved populations. It was also previously reported that IMGs change their jobs more often and leave underserved areas after completing work obligations.[13,35] Physician turnover has big financial impacts (>5% of the total annual operating budget) due to hiring, training, and loss of productivity on health care entities, some of which can least afford it.[16] Employers' understanding and support of the immigration process may play a positive role in IMG job satisfaction.

In our study, we collected information on financial characteristics, and although some of the similarities and differences among the groups were expected, others were not, and they may warrant further study. As anticipated, international-IMGs reported much lower educational debt than those graduating from US medical schools. Tax funding of medical education in their home countries has been shown to reduce levels of debt.[36] Although we found that the groups reported similar salaries, retirement savings, and financial concerns, the international-IMGs were less likely to report home ownership and satisfaction with their salaries, benefits, and jobs. Physicians in this group may not want to establish more permanent residences because of the temporal nature of visa status and/or the location of their jobs (eg, inner city). The lower levels of satisfaction with salary and benefits among this group was not expected. The Society for Human Resource Management reports that the top contributors to employee job satisfaction are respectful treatment, compensation, benefits, and job security.[37] Researchers in future studies might explore if feeling less supported and/or valued by colleagues or

working under visa restrictions, possibly with employers offering less-generous job benefits, helps to explain the lower satisfaction.

Researchers in several studies have reported lower satisfaction levels among IMG physicians.[8–10,13,32] Compared with other studies which looked at career satisfaction as a singular outcome,[11–15] our study attempted to look at additional facets of physician satisfaction, including salary, nonmonetary aspects, work, and career, confirms the findings in other publications that IMGs report lower job satisfaction.[11–15] Measures of physician satisfaction across different domains might be used in recruitment and retention efforts if these areas can be addressed.

International-IMGs in our study were also less likely to feel valued or supported at work by their physician colleagues. A big part of job satisfaction is collegial recognition and support, a lack of which has also been reported in other studies.[13,32] The reasons for this perception among IMGs might be cultural, procedural, and/or system related. Some of these factors have been observed in other groups, including minority physicians, female physicians, and international nursing graduates.[13]

A recent study of a cohort of IMG found that faculty and peers perceive IMG performance to be comparable to that of USMGs, with IMGs excelling in clinical knowledge and skills and underperforming in communication, public health knowledge, and efficiency.[38] Challenges facing IMGs are both cultural and noncultural, including patient-centered care, shared decision-making, lower hierarchy and loss of status, subtleties of language, navigating the health care system, science-oriented medical education, and immigration requirements.[31] Support services in the form of acculturation strategies that include training in language, culture, and traditions can be helpful.[35,39] The Educational Commission for Foreign Medical Graduates IMG Advisor Network is a platform connecting practicing IMG physicians and trainees.[40] Institutionally, structured mentoring, workplace policies preventing bias, language proficiency, and promoting cultural sensitivity toward IMGs can be implemented, but they require further research.[13,41,42]

IMGs who train on a J-1 visa frequently seek work in underserved areas to qualify for the waiver program. Initiatives to support IMGs by those in state waiver offices and employers could be used to improve integration into rural and underserved communities.[41] Mentoring programs with past recipients of J-1 waivers may be helpful. Changes to the structure of J-1 programs should be made while keeping in mind the health care needs of underserved communities. IMG physician organizations can aid physician acculturation via training workshops and modules with role-play, case studies, and patient scenarios.[43] Those in medical organizations with a significant IMG presence might consider forming an IMG group,[32] such as the AAP Section on International Medical Graduates.[44]

US-IMGs, as observed in previous literature, constitute an important part of the workforce, especially in primary care.[45] Our research reveals some important similarities and differences between the international-IMG and US-IMG groups in our sample. They both differ from USMGs in terms of race, ethnicity, and language, and physicians in the international-IMG and US-IMG groups care for more patients with public insurance than those in the USMG group. They are different in that physicians in the international-IMG group tend to subspecialize, feel less supported and valued by colleagues at work, and experience less satisfaction than US-IMGs. Physicians in the US-IMG group have more educational debt. Approximately one-half still had educational debt >$100 000 in 2015, indicating that policies that better support these pediatricians before and after training may be helpful.

These results should be interpreted while considering our study's strengths and limitations. First, these data were self-reported, including medical school and childhood locations, and are limited to early-career and midcareer pediatricians. Second, although the participation rate among PLACES pediatricians who completed the 2015 survey was high, the initial project enrollment rate was lower (41%).[17] However, efforts were made to account for nonresponse bias by using a data-weighting procedure. Third, we do not have information on US citizenship; we used childhood location to define our groups instead of citizenship. Fourth, physician retention and satisfaction are complex issues, and there may be other factors that were not measured in our study that contribute to these findings. The rapid changes in health care policies, including reimbursement and other mandates for providers, will undoubtedly change factors associated with the domains we measured. The study's strengths include its large, national sample and the timing of the data collection from IMGs, which was several years after their residency graduation.

CONCLUSIONS

In our national study, nearly 1 in 5 early- to midcareer participants are IMGs. International-IMGs and US-IMGs are more racially diverse and multilingual. International-IMGs are more likely to work full-time and care for children with public insurance in urban, inner-city areas. Despite low levels of educational debt, international-IMGs report decreased home ownership. They face unique challenges, such as feeling less supported and valued at work, and are less satisfied with their salaries and benefits. Overall, international-IMGs report lower satisfaction levels with their careers as physicians and are more likely to leave their jobs in the next 2 years. The results of this study might be used to inform policy discussions regarding immigration and visa requirements, J-1 visa waiver policies, acculturation strategies, and workforce diversity.

ACKNOWLEDGMENTS

We thank the pediatricians participating in PLACES, who all gave generously of their time to make this project possible. Members of the PLACES Project Advisory Committee include the following: Bobbi J. Byrne, MD, FAAP, chairperson; Gary L. Freed, MD, MPH, FAAP; Shesha Kalyan Katakam, MD, MPH, FAAP; Laurel K. Leslie, MD, MPH, FAAP; Ashley A. Miller, MD, FAAP; and Amy J. Starmer, MD, MPH, FAAP.

ABBREVIATIONS

AAP: American Academy of Pediatrics
aOR: adjusted odds ratio
CI: confidence interval
IMG: international medical school graduate
international-IMG: international childhood and medical school graduate
PLACES: Pediatrician Life and Career Experience Study
USMG: United States or international childhood and United States medical school graduate
US-IMG: United States childhood and international medical school graduate

Address correspondence to Shesha K. Katakam, MD, MPH, La Porte Hospital, 1509 State St, La Porte, IN 46350. E-mail: seyshu@gmail.com

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

FINANCIAL DISCLOSURE: The authors have indicated they have no financial relationships relevant to this article to disclose.

FUNDING: Funded by the American Academy of Pediatrics.

POTENTIAL CONFLICT OF INTEREST: The authors have indicated they have no potential conflicts of interest to disclose.

REFERENCES

1. Basco WT, Rimsza ME; Committee on Pediatric Workforce; American Academy of Pediatrics. Pediatrician workforce policy statement. *Pediatrics*. 2013;132(2):390–397
2. Educational Commission for Foreign Medical Graduates. Certification: definition of an IMG. Available at: https://www.ecfmg.org/certification/definition-img.html. Accessed March 12, 2018
3. IHS Inc. The Complexities of Physician Supply and Demand: Projections From 2013 to 2025. Washington, DC: Association of American Medical Colleges; 2015. Available at: https://www.aamc.org/download/426248/data/thecomplexitiesofphysiciansupplyanddemandprojectionsfrom2013to2.pdf. Accessed February 20, 2018
4. Association of American Medical Colleges. 2016 physician specialty data report. Available at: https://www.aamc.org/data/workforce/reports/457712/2016-specialty-databook.html. Accessed March 12, 2018
5. Umoren R, Rybas N, Frintner MP. The contribution of childhood and medical school location to the career paths of graduating pediatrics residents. *Acad Pediatr*. 2015;15(5):557–564
6. Hing E, Lin S. Role of international medical graduates providing office-based medical care: United States, 2005-2006. *NCHS Data Brief*. 2009;(13):1–8
7. AMA-IMG Section Governing Council. *International Medical Graduates in American Medicine: Contemporary Challenges and Opportunities*. Chicago, IL: American Medical Association; 2013
8. Chen PG, Curry LA, Nunez-Smith M, Bradley EH, Desai MM. Career satisfaction in primary care: a comparison of international and US medical graduates. *J Gen Intern Med*. 2012;27(2):147–152
9. Mazurenko O, Menachemi N. Environmental market factors associated with physician career satisfaction. *J Healthc Manag*. 2012;57(5):307–322; discussion 323–324
10. Morris AL, Phillips RL, Fryer GE Jr, Green LA, Mullan F. International medical graduates in family medicine in the United States of America: an exploration of professional characteristics and attitudes. *Hum Resour Health*. 2006;4:17
11. Stoddard JJ, Hargraves JL, Reed M, Vratil A. Managed care, professional autonomy, and income: effects on physician career satisfaction. *J Gen Intern Med*. 2001;16(10):675–684
12. Leigh JP, Kravitz RL, Schembri M, Samuels SJ, Mobley S. Physician career satisfaction across

specialties. *Arch Intern Med*. 2002;162(14):1577–1584

13. Chen PG, Nunez-Smith M, Bernheim SM, Berg D, Gozu A, Curry LA. Professional experiences of international medical graduates practicing primary care in the United States. *J Gen Intern Med*. 2010;25(9):947–953
14. DiMatteo MR, Sherbourne CD, Hays RD, et al. Physicians' characteristics influence patients' adherence to medical treatment: results from the Medical Outcomes Study. *Health Psychol*. 1993;12(2):93–102
15. Scheepers RA, Boerebach BC, Arah OA, Heineman MJ, Lombarts KM. A systematic review of the impact of physicians' occupational well-being on the quality of patient care. *Int J Behav Med*. 2015;22(6):683–698
16. Waldman JD, Kelly F, Arora S, Smith HL. The shocking cost of turnover in health care. *Health Care Manage Rev*. 2010;35(3):206–211
17. Frintner MP, Cull WL, Byrne BJ, et al. A longitudinal study of pediatricians early in their careers: PLACES. *Pediatrics*. 2015;136(2):370–380
18. Williams ES, Konrad TR, Linzer M, et al. Refining the measurement of physician job satisfaction: results from the Physician Worklife Survey. SGIM Career Satisfaction Study Group. Society of General Internal Medicine. *Med Care*. 1999;37(11):1140–1154
19. Linzer M, Konrad TR, Douglas J, et al. Managed care, time pressure, and physician job satisfaction: results from the Physician Worklife Study. *J Gen Intern Med*. 2000;15(7):441–450
20. The University of Melbourne. Medicine in Australia: balancing employment and life (MABEL). Available at: https://mabel.org.au/about.html. Accessed August 31, 2011
21. American Academy of Pediatrics, Department of Research. Annual Survey of Graduating Residents. Available at: http://www2.aap.org/research/graduatingressurvey.htm. Accessed November 12, 2015
22. Clem KJ, Promes SB, Glickman SW, et al. Factors enhancing career satisfaction among female emergency physicians. *Ann Emerg Med*. 2008;51(6):723–728.e8
23. Harris Poll for the National Foundation for Credit Counseling. The 2014 consumer financial literacy survey. 2014. Available at: https://www.nfcc.org/NewsRoom/FinancialLiteracy/files2013/NFCC_2014FinancialLiteracySurvey_datasheet_and_key_findings_031314 FINAL.pdf. Accessed April 13, 2018
24. AMA Insurance. Work life profiles of today's physician. Available at: https://www.amainsure.com/physicians-in-focus/report-work-life-profiles.html. Accessed April 13, 2018
25. Hart LG, Skillman SM, Fordyce M, Thompson M, Hagopian A, Konrad TR. International medical graduate physicians in the United States: changes since 1981. *Health Aff (Millwood)*. 2007;26(4):1159–1169
26. Norcini JJ, van Zanten M, Boulet JR. The contribution of international medical graduates to diversity in the U.S. physician workforce: graduate medical education. *J Health Care Poor Underserved*. 2008;19(2):493–499
27. US Census Bureau, Population Division. POP3 race and Hispanic origin composition: percentage of U.S. children ages 0–17 by race and Hispanic origin, 1980–2016 and projected 2017–2050. Available at: https://www.childstats.gov/americaschildren/tables/pop3.asp. Accessed June 7, 2018
28. Sánchez G, Nevarez T, Schink W, Hayes-Bautista DE. Latino physicians in the United States, 1980-2010: a thirty-year overview from the censuses. *Acad Med*. 2015;90(7):906–912
29. AAP News. AAP diversity and inclusion statement. 2018. Available at: www.aappublications.org/news/2017/10/30/DiversityStatement103017. Accessed March 12, 2018
30. Traylor AH, Schmittdiel JA, Uratsu CS, Mangione CM, Subramanian U. The predictors of patient-physician race and ethnic concordance: a medical facility fixed-effects approach. *Health Serv Res*. 2010;45(3):792–805
31. Michalski K, Farhan N, Motschall E, Vach W, Boeker M. Dealing with foreign cultural paradigms: a systematic review on intercultural challenges of international medical graduates. *PLoS One*. 2017;12(7):e0181330
32. Agrawal SP. Republication: international medical graduate perceptions of health policy: a pilot study. *Int J Acad Med*. 2016;2(3):45–50
33. Thompson MJ, Hagopian A, Fordyce M, Hart LG. Do international medical graduates (IMGs) "fill the gap" in rural primary care in the United States? A national study. *J Rural Health*. 2009;25(2):124–134
34. Fink KS, Phillips RL Jr, Fryer GE, Koehn N. International medical graduates and the primary care workforce for rural underserved areas. *Health Aff (Millwood)*. 2003;22(2):255–262
35. Kahn TR, Hagopian A, Johnson K. Retention of J-1 visa waiver program physicians in Washington State's health professional shortage areas. *Acad Med*. 2010;85(4):614–621
36. Zavlin D, Jubbal KT, Noé JG, Gansbacher B. A comparison of medical education in Germany and the United States: from applying to medical school to the beginnings of residency. *Ger Med Sci*. 2017;15:Doc15
37. Society of Human Resource Management. 2016 employee job satisfaction and engagement report: executive summary. 2018. Available at: https://www.shrm.org/hr-today/trends-and-forecasting/research-and-surveys/Documents/2016-Employee-Job-Satisfaction-and-Engagement-Report-Executive-Summary.pdf. Accessed September 1, 2018
38. Jimenez-Gomez A, FitzGerald MR, Leon-Astudillo C, Gonzalez-delRey J, Schubert CJ. Performance of international medical graduates in pediatric residency: a study of peer and faculty perceptions. *Acad Pediatr*. 2018;18(7):728–732
39. Kalra G, Bhugra DK, Shah N. Identifying and addressing stresses in international medical graduates. *Acad Psychiatry*. 2012;36(4):323–329
40. Educational Commission for Foreign Medical Graduates. IMG Advisors Network: about IAN. Available at: https://www.ecfmg.org/echo/ian-index.html. Accessed September 19, 2018

41. Kehoe A, Metcalf J, Carter M, McLachlan JC, Forrest S, Illing J. Supporting international graduates to success. *Clin Teach*. 2018;15(5):361–365

42. Fox CH, Meijer F. Teaching medical English to foreign-language doctors. *Med Educ*. 1980;14(5):316–319

43. Pilotto LS, Duncan GF, Anderson-Wurf J. Issues for clinicians training international medical graduates: a systematic review. *Med J Aust*. 2007;187(4):225–228

44. American Academy of Pediatrics. Section on International Medical Graduates (SOIMG). Available at: https://www.aap.org/en-us/about-the-aap/Sections/Section-on-International-Medical-Graduates/Pages/SOIMG.aspx. Accessed June 20, 2018

45. Eckhert NL, van Zanten M. U.S.-citizen international medical graduates–a boon for the workforce? *N Engl J Med*. 2015;372(18):1686–1687

PEDIATRICS®
OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Work Experiences and Satisfaction of International Medical School Graduates

Shesha K. Katakam, Mary Pat Frintner, Cristina Pelaez-Velez and Rana Chakraborty

Pediatrics 2019;143;
DOI: 10.1542/peds.2018-1953 originally published online December 18, 2018;