Global Health Experiences, Well-Being, and Burnout: Findings From a National Longitudinal Study

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ABSTRACT

OBJECTIVE: Describe the demographics of pediatric and internal medicine/pediatric residents participating in global health (GH) experiences and examine relationships between GH involvement and self-perceived burnout, resilience, mindfulness, empathy, and spirituality.

METHODS: The Pediatric Resident Burnout and Resilience Study Consortium developed a national longitudinal study through collaboration with the Association of Pediatric Program Directors' Longitudinal Educational Assessment Research Network. Electronic surveys were administered to pediatric trainees annually (2016−2018). GH and well-being data were extracted. Descriptive statistics were calculated.

RESULTS: Of 9653 eligible pediatric and medicine/pediatric residents from 55 institutions, 6150 responded to the survey in 1 or more years, with average completion rate of 63.7% over a 3-year period. Controlling for repeat survey-takers, 12.7% (536/4213) of residents reported involvement in a GH-specific pathway, curricula, or track. GH participants were significantly more likely to be unmarried ($P < .001$), childless ($P = .003$), and medicine/pediatric trainees ($P < .001$). Controlling for repeated measures and demographic factors, GH participants demonstrated higher levels of empathic concern ($P < .001$) and higher spirituality scores in 2 of 3 domains ($P < .01/<.05$). GH involvement was not associated with lower reports of burnout or improved resilience/mindfulness.

CONCLUSION: Although GH involvement is associated with increased levels of empathy and spirituality, it was not protective against burnout in this study. This highlights the need to study and promote the well-being of all residents, and perhaps especially those experiencing the challenges of working in low-resource settings. Future efforts should determine the impact of predeparture training, programmatic support, and post-trip debriefing on resident well-being.

KEYWORDS: burnout; global health; well-being

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WHAT'S NEW

This study uses the Pediatric Resident Burnout and Resilience Study Consortium national data to describe the demographics of those pediatric residents involved in global health and shows a relationship between global health, empathy, and spirituality, but importantly shows that global health involvement is not protective against burnout.

GLOBAL HEALTH (GH) experiences play an integral role in North American residency programs, with up to 58% of residency programs offering GH electives as of 2014.[1] GH experiences offer well-established benefits to trainees, including the promotion of personal and professional development through scholarship,[2] innovation,[3] and exposure to novel clinical experiences,[4] as well as opportunities to develop competency in all 6 Accreditation Council for Graduate Medical Education competency domains.[5] GH involvement can inform career decisions[2] and is associated with both increased resource efficiency[6] and more positive attitudes toward populations experiencing health inequities.[4]

Although significant variability exists in resident GH experiences, including GH educational structure (pathway,

curricula, or track), funding, requirements, and faculty engagement,[7,8] there is growing consensus regarding what is felt to be important for residents involved in GH. A "GH track" generally includes a longitudinal global child health curriculum, a GH rotation with international or domestic underserved experiences, predeparture preparation, preceptorship during GH electives, postreturn debrief, and scholarly output.[7] The complexities of preparing and mentoring trainees in GH experiences has led to the development of best practice guidelines, GH educator consortiums, and "minimum preparation standards" for predeparture training[9,10] including ways to simulate culture shock and the emotions trainees are likely to experience.[11,12] Accreditation Council for Graduate Medical Education-based competency curricula have been developed for pediatric residents involved in GH experiences in order to standardize both predeparture education and assessment of medical knowledge.[13] The American Academy of Pediatrics developed consensus guidelines stating that predeparture orientation processes are essential and should address cross-cultural awareness, health, personal safety, and professionalism.[14] Many programs provide support to trainees while abroad, and offer opportunities to process experiences after they return.

However, the interplay of factors that may influence well-being during or after GH experiences is unknown. Well-being can be defined as the presence of positive emotions and moods as well as the absence of negative emotions, satisfaction with life, fulfillment, and positive functioning.[15] Many factors contribute to overall well-being, and much research is focused on understanding and promoting these factors. Burnout can be defined as a "syndrome of emotional exhaustion and cynicism that occurs frequently among individuals who do 'people work' of some kind."[16] It can result in shorter job tenure, increased medical errors, patient dissatisfaction, depression, and substance abuse.[17] Burnout affects >50% of pediatric trainees[18] and symptoms persist among practicing physicians.[17] However, burnout is best understood through a systems model, where frontline care delivery, health care organizations, and the external environment impact individual factors, and in turn, lead or place the individual practitioner on the spectrum between burnout and professional well-being.[19]

Pilot work suggests that GH involvement may be protective against burnout,[20] but GH experiences may involve some of the system pressures known to play a role in burnout.[19,21] These challenges have prompted GH educators to consider how to best promote resident well-being and decrease burnout. Tailored predeparture training, simulation, programmatic support, and post-trip debriefing may also contribute to well-being. Incorporating well-being concepts into predeparture training is now considered best practice,[22] though only the minority of predeparture curricula include well-being training and there is significant variability in content.[23] Overall, the relationships between GH involvement, GH curricula, and well-being are poorly defined.

We sought to explore the relationship between GH involvement and various parameters of well-being, including burnout, utilizing the Pediatric Resident Burnout and Resilience Study Consortium (PRB-RSC, https://pedsresresilience.com/) national database.

The overall goal of the PRB-RSC is to measure pediatric resident burnout in a national cohort, and improve pediatric resident resilience, compassion, and overall well-being through the development, implementation, and evaluation of well-being interventions.[18] The objective of this study was to describe the characteristics of those pediatric and medicine-pediatrics residents with GH involvement and to examine relationships between GH involvement and self-perceived burnout, resilience, mindfulness, empathy, and/or spirituality.

METHODS

The PRB-RSC developed a multi-institutional longitudinal observational study in partnership with the Association of Pediatric Program Directors' Longitudinal Educational Assessment Research Network (APPD LEARN) to assess risk factors for burnout in pediatric residents.[18] These survey items were assembled by the PRB-RSC Steering Committee, based on expert opinion and iterative review of relevant literature.

Data were collected via an annual electronic survey during the months of April to June in 2016 to 2018. Institutional review board approval was obtained at each participating institution. Involvement in the consortium and survey was voluntary, with 55 unique consortium sites in 2018 (Appendix 1). In 2016, 34 institutions participated in the survey with a 62.17% (1693 of 2723) response rate. In 2017, 43 institutions participated in the survey with a 66.58% (2179 of 3273) response rate. In 2018, 49 of 55 consortium member institutions participated, with a response rate of 62.29% (2278 of 3657). Eligible residents included categorical pediatric residents as well as combined programs (eg, medicine-pediatrics, pediatric-neurology, etc.) at PRB-RSC sites. There were no exclusion criteria.

GH involvement was defined as participation in a GH-specific pathway, curricula, or track. In general, GH experiences were 4 weeks in duration and the GH tracks were integrated into the residency programs with weekly or monthly curricula or meetings. Trainees were asked to reflect on their current or last rotation; therefore, GH involvement preceded the outcomes measured in the survey. Basic demographic information as well as outcome measures of well-being were included in the survey. Well-being outcome measures included burnout, as defined by the Maslach Burnout Inventory-Human Services Survey, Resilience as defined by the Brief Resilience Scale, and Mindfulness as defined by the Cognitive and Affective Mindfulness Scale. The components of these scales and their use within the consortium have been described in prior publications.[18] Empathy and spirituality measures are described below:

Empathy. Empathy was measured using 2 of the 4 subscales from the Davis Interpersonal Reactivity Index: Empathy Concern (EC) and Perspective Taking. EC, also known as *affective empathy*, measures other-oriented

feelings such as sympathy and concern for the unfortunate circumstances of others, or motivation to care for another's well-being.[24] Perspective Taking, also known as *cognitive empathy*,[24] measures the tendency to spontaneously adopt the psychological point of view of others.

Spirituality. Spirituality was measured using 3 items from the Spiritual Involvement and Beliefs Scale-Revised, a 22-item, 4-factor, self-report measure. The scale represents core spirituality (the experience of connectedness to one's life purpose), spiritual perspective (existential depth), spiritual humility (personal application of spirituality), and spiritual insight (reflective acceptance of what cannot be changed). Experts from the PRB-RSC Steering Committee chose 3 questions relevant to trainee spiritual health and well-being. These questions asked about frequency of praying or meditating in the last week and participation in spiritual activities in the last month with at least 1 other person.

Descriptive statistics were used to describe participant demographic characteristics, burnout, and resident experiences. The unit of analysis was survey response. Categorical variables were compared among groups using Fisher's exact test or chi-square, as appropriate. Continuous variables were compared using *t* tests for most scales except the empathic concern scale and the spirituality items, whose distributions were significantly nonparametric, and the Mann-Whitney U test was used.

Linear and logistic mixed-effects regression models were fitted to predict outcomes of well-being from GH involvement and other covariates using data from all 3 years, with random intercepts for learner and program included in every model to account for clustering and repeated measures and all predictors entered simultaneously. Variables that were identified as statistically significant predictors were included as covariates in the models. The burnout model employed logistic regression; models for other outcomes of well-being used linear regression. We also fitted a similar set of models among the subgroup of residents who were on the global health track to evaluate the impact of current or past GH elective on each outcome, adjusting for demographics and clustering.

Analyses were conducted using R 3.5.1 (R Foundation for Statistical Computing, Vienna, Austria) and the lme4,[25] and lmer Test,[26] packages. *P* values of <.05 were considered statistically significant.

RESULTS

Of the pediatric trainees from the unique 55 participating institutions over the course of 3 years, 63.7% (6150 of 9653) of eligible residents completed the survey. Controlling for unique survey-takers, 12.7% (536 of 4213) residents reported active GH involvement, of whom 59 of 536 (11%) were on a GH rotation at the time of survey or the month immediately preceding the survey. Residents reporting active GH involvement were less likely to be married or partnered ($P < .001$), less likely to have children ($P = .003$), and more likely to be non-Caucasian race ($P = .04$). Internal medicine-pediatric residents were more likely than categorical or combined pediatric residents to report GH involvement ($P < .001$). Table 1 summarizes participant demographics.

After controlling for clustering of learners within programs and repeated measures on learners over data collection years, participants with GH involvement had

Table 1. Demographics of Resident Learners Involved in GH Compared to Non-GH Trainees

	GH Involvement	No GH Involvement	*P*
n	536	3677	
Age (mean [SD])	28.90 (2.4)	29.03 (2.55)	.29
Female (%)	400 (74.6)	2622 (71.5)	.14
Race/ethnicity (%)			.04
Caucasian	360 (67.2)	2621 (71.5)	
African American	16 (3.0)	137 (3.7)	
Hispanic	26 (4.9)	166 (4.5)	
Asian	93 (17.4)	574 (15.7)	
Native American	3 (0.6)	16 (0.4)	
Pacific Islander	3 (0.6)	6 (0.2)	
Other, non-Caucasian	35 (6.5)	146 (4.0)	
Married/partnered (%)	268 (50.2)	2152 (58.6)	<.001
Living alone (%)	184 (34.4)	1200 (32.7)	.46
Has children (%)	54 (10.1)	556 (15.1)	.003
Is pregnant (%)	10 (2.5)	124 (4.7)	.06
Debt (%)			.34
<$50,000	141 (26.4)	1072 (29.3)	
$50,000–$100,000	54 (10.1)	330 (9.0)	
>$100,000	339 (63.5)	2262 (61.7)	
Residency type (%)			<.001
Categorical	394 (73.5)	3032 (82.5)	
Med/Peds	113 (21.1)	381 (10.4)	
Combined	29 (5.4)	264 (7.2)	

SD indicates standard deviation; GH, global health.
Data were controlled for unique learners from 2016 to 2018.

higher empathic concern scores ($P < .001$) and higher spiritual engagement in 2 of the 3 spirituality domains, including meditation in the last week ($P = .001$) and spiritual activities with another person in the last month ($P = .05$). The relationship between GH involvement and burnout was not statistically significant. These results are summarized in Table 2. Among GH participants, the timing of the GH experience or rotation was not correlated with well-being outcomes. Residents who completed the survey during a GH experience demonstrated no measurable differences in well-being measures compared to their peers.

DISCUSSION

In this large nationally representative sample from the PRB-RSC, 1 in 10 (12%) pediatric, medicine/pediatric, and combined pediatric residents reported involvement in a GH-specific pathway, curricula, or track. Though current GH involvement was associated with higher levels of EC and spiritual behavior, there were no associations with burnout, resiliency, or mindfulness. This is surprising given previous studies suggesting an inverse relationship between empathy and burnout in medical trainees.[27,28]

To better understand this finding, it is important to understand the complex relationships between empathy, burnout, and well-being. Empathy, broadly defined as "the capacity to share the feelings of others,"[29] has been shown to enhance therapeutic efficacy, facilitate patient trust, and foster personal meaning in medicine. Empathy is important for both professionalism and quality patient care,[30] yet appears to decline among both medical students and residents as they progress in their training.[31]

Neuroscientific research distinguishes between 2 types of empathy: *compassion* and *empathic distress.* Compassion, or "feeling for" another, parallels established definitions of EC, and is associated with good health and pro-social motivation.[32,33] EC is linked with the motivation to help others and care for their well-being.[34,35] Meanwhile, empathic distress is associated with poor health, burnout, withdrawal, and nonsocial behavior.[29] This pro-social, compassion-based empathy would be consistent with the types of volunteer work residents engage in through GH experiences. With this in mind, perhaps it is not surprising that trainees involved in GH report higher levels of EC.

However, empathy is only one component of well-being. The relationship between empathy and overall well-being is nuanced, and affected by factors such as gender and individual disposition.[35] Specifically considering empathy and burnout, these components of well-being are often inversely related among medical professionals. For example, higher levels of empathy during medical school are associated with a lower burnout risk in residency.[28] Similarly, empathy and burnout tend to be inversely related among attending physicians.[27]

The finding that residents involved in GH have no difference in burnout compared to their peers despite higher degrees of empathic concern, may indicate the presence of other unique or more prominent drivers of burnout for this population of residents. GH experiences may expose trainees to the very system pressures known to potentiate burnout (high job demands, scant resources, technology challenges, moral distress, and ethical dilemmas).[19] Trainees who participate in GH often assume additional coursework and academic pursuits related to GH education, above and beyond residency requirements.[13] In addition, GH experiences often take place in resource limited settings, where trainees may face high workloads as well as emotional, physical, and ethical challenges.[36] Trainees may be separated from their usual social support system. These experiences, particularly for residents who are inadequately prepared, may provoke culture shock[12] or distress and potentially precipitate more burnout. The wide variability in predeparture preparation, on-ground support, post-trip care, as well as duration and type of GH experiences may also play a role.[7] Though often meaningful and inspiring, the benefits of short-term GH experiences may not be enough to outweigh the influence of the learning environment on trainee well-being. A mismatch of expectations between trainees and hosts may further augment this problem.[37] Some literature suggests that EC may precipitate stress and burnout through "costly altruism,"[38] where the deep motivation to care for others can challenge overall self-care. Last, those trainees who choose to participate in GH experiences may have additional "individual mediating factors" playing a role in the burnout systems model, including unique personality and temperament, coping strategies, and personal relationships.[19]

Overall, the relationship between GH involvement and well-being requires further investigation, with specific focus on the cognitive and emotional predispositions and outcomes of trainees and host communities. Qualitative and quantitative evaluations of physicians before, during, and after GH experiences can help determine if empathy and spirituality are results of these experiences or preceded these experiences. Additionally, further research on the differentiation between international and domestic GH experiences, the quantity and quality of GH experiences throughout professional training, and structure of predeparture and post-trip care may reveal other important relationships between GH experiences and well-being. More work is required to understand what interventions are most effective.[11,22] There are likely many underutilized opportunities to promote the well-being of residents involved in GH, with possibilities including tailored predeparture preparation, programmatic ground support, tele-counseling, and post-trip interventions.

Our study is subject to limitations, including the potential for selection bias given the voluntary nature of the survey. This survey was not developed to explicitly capture information about GH experiences as the scope, length, and quality of GH experiences were not identified by the respondents. GH involvement may be open to interpretation and take many forms, including domestic versus international. Resident self-selection into GH experiences may

Table 2. Regression Models Predicting Burnout, Resilience, Mindfulness, Spirituality, and Empathy From Global Health Involvement

Predictor (Standard Error)	Burnout	Resilience	Mindfulness	Spirituality 1 (Prayer)	Spirituality 2 (Meditation)	Spirituality 3 (Activities With Another)	Empathic Concern	Perspective Taking
Global health involvement	−0.07 (0.12)	0.01 (0.03)	−0.29 (0.22)	0.07 (0.05)	0.1 (0.03)**	0.09 (0.04)*	0.7 (0.19)***	0.24 (0.17)
White race	0.18 (0.09)*	0.11 (0.02)***	0.76 (0.17)***	−0.24 (0.04)***	−0.06 (0.02)**	−0.03 (0.03)	−0.4 (0.15)**	−0.32 (0.13)*
Medicine/pediatric residents	0.17 (0.12)	0.06 (0.03)*	−0.26 (0.24)	−0.06 (0.06)	0.04 (0.03)	0.07 (0.04)	−0.57 (0.21)**	0.15 (0.18)
Combined pediatric residents	0.15 (0.16)	0 (0.04)	−0.54 (0.3)	−0.06 (0.07)	0.05 (0.04)	0.04 (0.05)	−0.14 (0.26)	0.58 (0.23)**
Married or partnered	0.03 (0.08)	0.03 (0.02)	0.13 (0.15)	0.06 (0.03)	0.02 (0.02)	0.09 (0.02)***	0.37 (0.13)**	0.13 (0.11)
Have children	−0.12 (0.11)	0.1 (0.03)***	0.4 (0.2)*	0.36 (0.04)***	0.04 (0.03)	0.33 (0.03)***	−0.35 (0.17)*	0.04 (0.15)
(Intercept)	0.01 (0.11)	3.47 (0.02)***	27.47 (0.18)***	2.12 (0.06)***	1.35 (0.02)***	1.42 (0.03)***	22.59 (0.15)***	18.97 (0.13)***
Program random intercept (SD)	0.41	0.04	0.46	0.32	0.07	0.12	0.33	0.29
n programs	55	55	55	55	55	55	55	55
N observations	5990	5994	6005	5999	5993	6000	6007	6007
n learners	4184	4187	4191	4186	4186	4188	4192	4192
Learner random intercept (SD)	1.36	0.56	4.28	1.16	0.51	0.66	3.54	3.00

SD indicates standard deviation.

One model was fitted to each outcome (burnout, resilience, mindfulness, spirituality items, empathic concern, and perspective taking) with fixed effect predictors for global health involvement, white race (vs not), residency program type (Med/Peds or Combined vs Categorical), married/partnered (vs not), and having children (vs not), and random intercepts for program and learner. The burnout model used logistic regression; other models were linear regressions. For each fixed effect predictor in each model, the estimated regression coefficient is shown, with the standard error in parentheses.

*$P < .05$
**$P < .01$.
***$P < .001$.

pose a selection bias of characteristics, personalities or behaviors that influence burnout, such as empathy or spiritual practices. However, we do not have evidence that such characteristics are more common in GH participants and it is unknown whether resident burnout fluctuates before, during or after GH experiences.

Conclusion

The rich personal and professional development experienced through GH experiences is well known, though little has been previously described about the impact on trainee well-being. Our study is the first to show that residents who engage in GH experiences demonstrate higher levels of empathy and spirituality, though GH experiences are not directly associated with improved levels of burnout, resiliency, or mindfulness. Despite lack of statistical significance between GH involvement, burnout, and resilience, further work is required to evaluate whether or not this trainee population may be more vulnerable to burnout and how to tailor interventions to promote trainee well-being.

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Supplementary Data

Supplementary data related to this article can be found online at https://doi.org/10.1016/j.acap.2020.05.006.

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