

A Quality Improvement Initiative to Reduce Pediatrician Burnout Led by the American Academy of Pediatrics Section on Internal Medicine and Pediatrics (Med-Peds)

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Abstract

Physician burnout impacts care (of self and patient), productivity, longevity of career, and overall cost to the system. While burnout rates for pediatricians are lower than average, they have not improved significantly over time. While strategies at the system level have been more successful than those at the individual level, both aspects are vital.

This quality improvement study explores physician wellness and burnout trends of a sample population of pediatricians at the 2018 and 2019 AAP National Conference and Exhibition (NCE), using the Physician Health and Wellness Booth (PHWB). A rapid cycle approach with the Plan-Do-Check-Act (PDCA) framework was utilized. The aim was to observe if reported burnout decreased by 20% over six months.

Of the pediatricians who interacted with the PHWB, 56 were randomly selected to participate. This included men and women and those in various practice settings, ranging from resident physicians to providers in practice for over 20 years. Baseline surveys included elements from a modified Maslach Burnout Inventory and the Stanford Physician Wellness Survey, focusing on burnout components (emotional exhaustion, depersonalization, and fulfillment) and wellness activities. Individual-based interventions were provided at the PHWB, including adult preventative health guidelines, resources on sleep, stress mitigation, and complementary medicine. Participants received a movie ticket and Starbucks gift card. Follow-up included six monthly newsletters with strategies from seven wellness domains. Post-intervention surveys at six months assessed all baseline questions plus the effectiveness of monthly newsletters.

A second PDCA cycle was conducted from the 2019 NCE. All individual-based interventions continued with an added aromatherapy oil station. Additional system-based resources included sample institutional wellness initiatives and burnout cost analyses, all focusing on advocating for cultural change at their respective home organizations. Interactive monthly wellness calendars addressing seven wellness domains were emailed for six months follow-up.

Results from 10 post-intervention surveys (10/56=18% of respondents) from the initial cohort reported an average of 25% decrease in burnout ($p=0.09$). This was measured on a scale of 1-10 (from "never" burned out to "very often") and improved from 6.68 ("sometimes" to "often" burned out) to 5.0 ("rarely" to "sometimes" burned out). Results from Cohort 2 reflected a decrease in burnout from 4.94 ("rarely" to "sometimes" burned out) to 2.85 ("never" to "rarely" burned out) in return from 20 post-intervention surveys (20/48=42% of respondents, $p=0.003$). Participants noted a lack of control over work schedules and a disconnect with organizational values as drivers of burnout. Both the PHWB and monthly newsletters were rated as valuable as reminders about wellness practices.

Limitations included low response rate, which was notable, and inability to prove causation of improvement from our intervention. Future steps include utilizing subject identification numbers to allow for anonymity in a prospective cohort study with a third PDCA cycle. This would allow anonymous but matched same-subject comparison of pre- and post-survey results despite the small sample size. Follow-up incentives could be beneficial. Lastly, data from both cohorts revealed the highest level of burnout in early career physicians within 10 years of training, paving an opportunity for future study.

Categories: Internal Medicine, Pediatrics, Quality Improvement

Keywords: med-peds, physician burnout, quality improvement, american academy of pediatrics, gender, physician wellness, preventive health, internal medicine-pediatrics

Introduction

Physician burnout impacts care (of self and patient), productivity, career longevity, and overall cost to the

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healthcare system with significant levels of burnout that continue to persist over the years [1-4]. While burnout rates for pediatricians are lower than the average for physicians in other specialties (41%), the rates have not improved significantly over time [5]. Many strategies have been studied to combat physician burnout, with initial efforts targeted at the individual level and improving resilience. Individual-based strategies include optimizing personal factors, skills and abilities, and healthcare roles and responsibilities [6]. However, emerging research has shown the value of interventions targeted at the organizational level. Many studies suggest that interventions at the organizational level are more successful than those at the individual level in reducing burnout, although both aspects are vital [6-12]. System-based strategies include optimizing practice efficiency, organizational culture, community and teamwork, leadership, control and autonomy, and work-life integration, among others [6,10-14].

Female physicians face unique challenges that may contribute to burnout [15]. Although recent studies found that female physicians reported a higher prevalence of burnout than male physicians in both academic practice (50.7% vs 38.2%, $p<0.0001$) and private practice (48.1% vs 40.7%, $p=0.001$) settings, the multivariable analysis found no statistically significant gender-based differences [16]. There are limited data specific to pediatricians and also to gender differences among pediatricians [2,17-21].

In 2010, the AAP Section on the Internal Medicine and Pediatrics (Med-Peds) Physician Health and Wellness (PHW) group was created to be part of the yearly exhibit hall of the AAP National Conference and Exhibition (NCE) to provide basic information about preventive health guidelines to pediatrician attendees who may not be focused or up-to-date on their own healthcare [22].

In 2018, a quality improvement project (QI) was added to focus on wellness and burnout in a sample population of pediatricians attending the 2018 or 2019 AAP-NCE, utilizing the newly created J. H. Milligan-Barr Physician Health and Wellness Booth (PHWB) [22].

The aim of the QI project was to see if reported burnout decreased by 20% over a six-month period in both cohorts through individual and organizational-based strategies at the PHWB and to report on any gender differences.

Materials And Methods

This study was reviewed and approved by the AAP Institutional Review Board (IRB), Protocol number 19 DI 01.

Cohort 1

In October 2018, the PHW group identified the first cohort of pediatricians attending the conference and visiting the PHWB. Over 200 attendees visited the PHWB, and 56 participants were randomly selected to be followed for six months. All PHWB visitors were asked about their desire to participate, and randomization was strictly based on including those who demonstrated self-generated interest to participate in the QI initiative, completed the pre-survey, and agreed to monthly follow-up.

Intervention 1

A pre-survey was completed at the PHWB just prior to the on-site intervention, and a follow-up survey was completed at the end of the six-month period. The survey was compiled from a variety of sources including the Maslach Burnout Inventory and Stanford Physician Wellness Survey [21-23]. Pre-survey questions comprised topics related to self-assessment of burnout, emotional exhaustion, depersonalization, wellness activities, and workplace autonomy and contributors to burnout. The post-survey included these questions and additional questions related to the ongoing impact of the PHWB and wellness strategies.

The materials for interventions included initiatives on-site at the AAP NCE, as well as those delivered electronically during the follow-up period of six months. Interventions focused on individual-based strategies. On-site initiatives included education about adult preventive healthcare guidelines, stress reduction techniques, strategies to enhance sleep, and information on integrative medicine. Each participant also received a \$25 Starbucks gift card and a movie ticket for their participation. At monthly follow-up, each participant received a health and wellness electronic newsletter highlighting strategies to promote wellness in all seven domains focusing on individual-based strategies, including physical wellness, emotional wellness, spiritual wellness, social wellness, environmental wellness, financial wellness, and intellectual wellness (see Appendices). The participants were encouraged to incorporate these individual strategies into their weekly wellness routines.

Cohort 2

In October 2019, the PHW group identified the second cohort of pediatricians attending the conference and visiting the PHWB. Over 250 attendees passed by the PHWB, and 48 participants were randomly selected to be followed for six months. All PHWB visitors were asked about their desire to participate, and randomization was strictly based on including those who demonstrated self-generated interest to participate

in the QI initiative, completed the pre-survey, and agreed to monthly follow-up.

Intervention 2

The second cohort completed similar pre- and post-surveys at six months following the initial intervention. Due to findings of poor organizational support as a contributor to burnout from the first Plan-Do-Check-Act (PDCA) cycle in Cohort 1, additional interventions were added to address systemic factors and resources for physicians to advocate for wellness. In addition to education on preventive healthcare guidelines, stress reduction techniques, and strategies to enhance sleep, each participant was invited to sample essential oils and learn about the beneficial effects of aromatherapy. Furthermore, they received specific resource guides and cost analyses of wellness initiatives to advocate for within their respective institutions to advocate for and promote organizational change in establishing a culture of wellness. Each participant also received a sample of essential oils in addition to a \$25 Starbucks gift card. Monthly follow-up over a six-month period continued in a similar manner as that of Cohort 1, except for the development of a wellness calendar in place of a wellness newsletter (see Appendices).

The pre- and post-surveys were analyzed, and the rates of burnout and impact of interventions were compared between both cohorts using t-tests to calculate the statistical significance. Additional trends in demographics, including gender and burnout rates, were also analyzed.

Results

The pre-survey completion rate for Cohort 1 was 100% (56/56), and the post-survey completion rate for Cohort 1 was 18% (10/56). The pre-survey completion rate for Cohort 2 was 100% (48/48), and the post-survey completion rate for Cohort 2 was 42% (20/48).

Demographics

This prospective cohort study evaluated 56 pediatricians at the 2018 and 48 pediatricians at the 2019 NCE. Both cohorts consisted of a majority of female participants (66% in Cohort 1 and 90% in Cohort 2). In both cohorts, the highest proportion of participants was those in a practice associated with a medical school or parent university (21% and 35% in Cohorts 1 and 2, respectively), followed closely by those in a nongovernment hospital or clinic and a multi-specialty group practice. No participants worked for government hospitals or clinics across both cohorts. In regard to participants and years of experience, the highest proportion of participants was those with fewer than 5 years of experience (34% in Cohort 1 and 40% in Cohort 2), while those with over 20 years of experience comprised 29% of the population in each of the cohorts. Table 1 highlights the full demographic details of the participants in both cohorts.

	Cohort 1 N=56	Cohort 2 N=48	Mean	Standard Deviation
Female	66%	90%	78%	0.12
Male	34%	10%	22%	0.12
Practice Location:				
Medical school (or parent university)	21%	35%	28%	0.07
Multispecialty group practice (other than staff model HMO)	12%	17%	15%	0.025
Nongovernment hospital/clinic	13%	10%	12%	0.015
Nonprofit community health center	9%	0%	5%	0.045
Solo or two-physician practice	2%	10%	6%	0.04
Pediatric group practice of 3-5 pediatricians	9%	4%	7%	0.025
Pediatric group practice of 6-10 pediatricians	8%	6%	7%	0.01
Pediatric group practice of >10 pediatricians	9%	8%	9%	0.005
US government hospital/clinic	0%	0%	0%	0
City/county/state government hospital/clinic	0%	7%	4%	0.035
Not specified	12%	0%	6%	0.06
Other patient care or non-patient care employment	5%	3%	4%	0.01
Years of Experience (after completion of training):				
< 5 years	34%	40%	37%	
5 to 10 years	9%	8%	9%	
10 to 15 years	11%	10%	11%	
15 to 20 years	17%	13%	15%	
> 20 years	29%	29%	29%	

TABLE 1: Demographics

Overall burnout levels

As demonstrated in Figure 1, the initial burnout levels in Cohort 1 were 6.74, which decreased to 5.25 (on a scale of 0-10 from no burnout to the maximum level of burnout) following individual-based wellness interventions. While rates of burnout decreased, results were not statistically significant (p=0.09). Figure 2 presents the pre- and post-intervention burnout levels in Cohort 2. In Cohort 2, the initial burnout levels were 4.94, which decreased to 2.85 following combined individual- and organizational-based wellness interventions that were statistically significant (p=0.003).

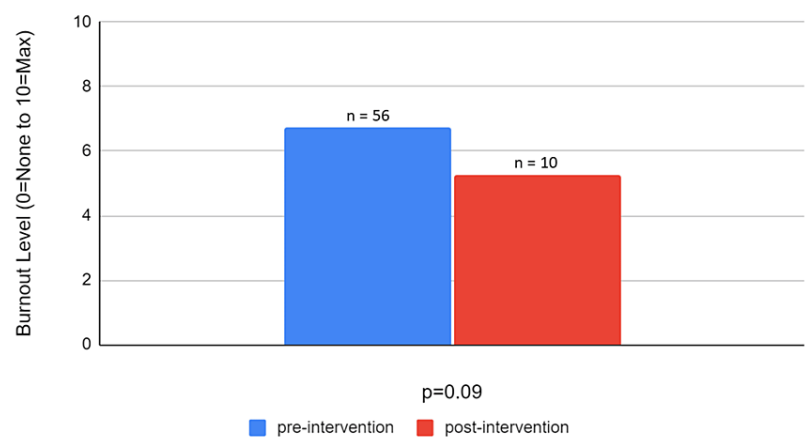


FIGURE 1: Cohort 1 Pre- and Post-Intervention Burnout Levels

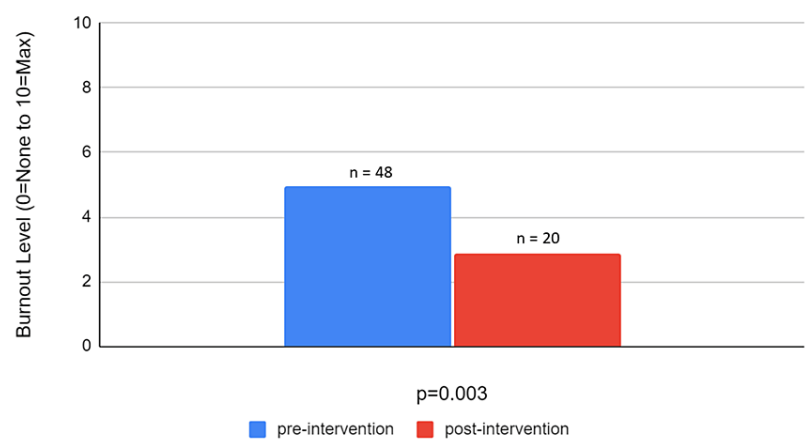


FIGURE 2: Cohort 2 Pre- and Post-Intervention Burnout Levels

Burnout levels by gender

The mean burnout levels decreased for both genders' post-intervention in both Cohorts 1 and 2 as depicted in Figures 3-4, respectively. It is notable, however, that the decrease is statistically significant only in women across both cohorts (from 5.18 to 3.42 in Cohort 1 and from 6.97 to 3.25 in Cohort 2) although the sample size of the female respondents on the post-survey of Cohort 1 was only two. Overall, the mean burnout levels were also higher in Cohort 2 than in Cohort 1 initially and after wellness interventions. In Cohort 2, there was a similar percentage decrease in burnout across both genders and a statistically significant larger improvement in burnout for women compared to men.

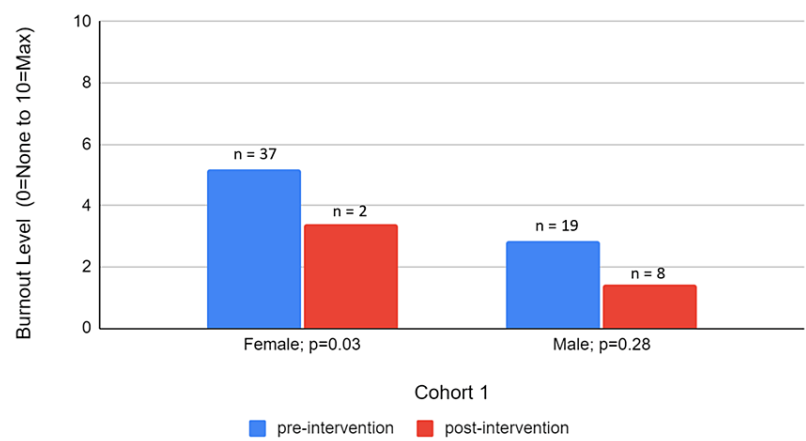


FIGURE 3: Cohort 1 Pre- and Post-Intervention Burnout Levels by Gender

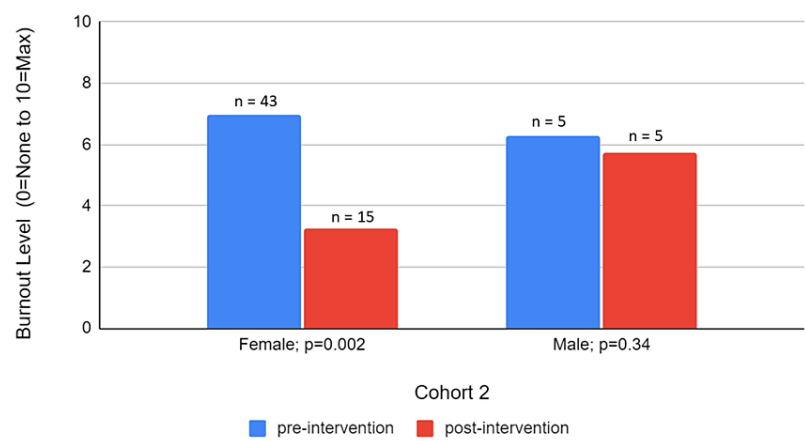


FIGURE 4: Cohort 2 Pre- and Post-Intervention Burnout Levels by Gender

Monthly wellness follow-up

The qualitative data on the monthly wellness follow-up for Cohorts 1 and 2 demonstrated an overall positive attitude toward monthly follow-up and reminders for wellness, but responses were very limited, and there was no significant change in individual practice habits due to the monthly follow-up. The Appendices include samples of the monthly wellness newsletter and the monthly wellness calendar.

Discussion

In this prospective cohort study, with each of the two cohorts examining 56 and 48 participants over nine months for Cohorts 1 and 2, respectively, we examined the overall burnout level and additional variables in wellness.

Overall, the majority of participants were female, with Cohort 1 more closely resembling the distribution of females and males in pediatrics than in Cohort 2. In regard to the practice setting, the sample of pediatricians had a higher proportion of those in a practice associated with a medical school or parent university, which was slightly less than the national average [23]. The distribution of pediatricians at various times in their careers reflects that of the general population [23].

The mean burnout levels improved in both cohorts, suggesting a level of success from the intervention (a decrease of 22% in Cohort 1 and 42% in Cohort 2), although the improvement was statistically significant only in Cohort 2. This suggests that the intervention in Cohort 2, which included a combined institutional- and individual-based intervention, was associated with a more effective reduction in burnout than a sole individual-based intervention. It is important to note that the study period for Cohort 2 ran into the start of the COVID-19 pandemic with the exact impact on our study results unclear; it is possible that the pandemic was associated with higher rates of burnout during the middle and end of the study, in which case our combined wellness intervention may have been even more effective with lower post-intervention burnout rates than without the effects of the pandemic. It is possible as there is increasingly more focus on physician wellness and burnout, and resources from institutional, external, or even national influences may have led to improvement in burnout over the years.

There was also overall higher average burnout in women than in men both before and after the intervention, which is consistent across both cohorts. This may suggest that women are at higher risk for burnout than men. Still, for both genders, there was a mean decrease in burnout; however, the improvement was more marked and statistically significant in females in Cohort 2 (53% improvement with $p=0.002$). This may suggest that women are more prone to benefit from our specific interventions or the overall type of interventions. It seems that women benefit from individual-based interventions, which were present for both cohorts, but benefit to a greater extent with system advocacy resources included.

Limitations included a poor follow-up rate of 10 (18%) and 20 (43%) participants in Cohorts 1 and 2, respectively, which is just at or below the national average for the response rate of prospective QI surveys. Additionally, there may have been a component of selection bias with many participants lost to follow-up and those who fared better in wellness choosing to respond to the post-intervention survey. The second cohort included a follow-up time that was amid the COVID-19 pandemic with a possible decreased response rate. Affinity bias could have also occurred with participants selectively approaching the vicinity of the PHWB in order for staff to randomly select them. These participants may have preexisting interests in wellness, as opposed to those who did not approach or chose not to participate. In the follow-up survey, we did not ask if the participants incorporated the individual wellness interventions into their lifestyle or used organizational-based resources to advocate for physician wellness at their organizations. Therefore, it is difficult to conclude the exact factors that contributed to their improvement in burnout. Finally, there is a possible sampling bias with fewer males included in the study in Cohort 2 when considering the gender of all pediatricians in the United States; however, given the sample population at the AAP NCE, which included more females, the sampling at the conference itself may have not been as disproportionate.

Future directions include a prospective study with random selection of participants at a larger forum to eliminate the limitation of a small physical venue for recruitment; expanding studies and initiatives in early career physicians (fewer than five years after training); collaborating with other AAP sections or committees; and extending interventions across various practice settings. As there may have been confounding factors, future studies are also needed. These include examining the impact of the sole presence of the PHWB on a national platform, which may demonstrate system support for physician wellness; intrinsic motivation for wellness inspired by and distinct from PHW initiatives; and PHW system-based resources.

Conclusions

Physician burnout is increasingly prevalent among healthcare providers, and pediatricians are not immune to this phenomenon. While the rates of pediatrician burnout have not increased significantly on a national platform, the paucity of increasing wellness and persistent feelings of emotional exhaustion and depersonalization inhibit optimal performance and personal and professional satisfaction. Furthermore, data suggest that organizational factors contribute to physician burnout at a higher level than individual factors. Developing a QI initiative organized by the AAP Section on Med-Peds provided an opportunity for a select number of pediatricians attending the AAP NCE to receive individualized wellness education and preventive health strategies while also providing resources to advocate for organizational wellness systems and culture. Med-Peds physicians served the unique role of being "the internist for the pediatrician" and empowered individuals within each cohort of this initiative to enhance the focus on their own wellness and achieved the aim of reducing burnout by 20% in a six-month period.

Appendices

MINDFULNESS MONTHLY

Volume 4 Physician Health and Wellness, AAP Med-Peds Section May 2019

WELCOME

Himani Divatia, DO, FAAP, FACP
AAP Section on Internal Medicine-Pediatrics

Welcome back to Mindfulness Monthly, Vol. 4. It's incredible to think that we are more than halfway through our monthly newsletters, and also through the year. We will be sending out a post-survey in a few months to assess the effectiveness of a monthly intervention to help yourself remain centered and mindful about your own wellness. At that time we also welcome any feedback you have about this endeavor, new opportunities you'd like to see, and ways to remain connected. Please continue to work on your wellness self-care plans, and be on the lookout for new upcoming initiatives at the 2019 AAP NCE!



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Exercise – How Hard is Too Hard?

Gia Uzelac, MD, Internal Medicine-Pediatrics
Hospitalist and Weight Management Physician

When trying to start a cardio routine establish your "base pace" – this is a pace you can maintain for at least 15-20 minutes comfortably. What is comfortable? You should be able to speak but not sing...I dare you to try singing at the gym. Please.

If you're using a treadmill, make sure the incline is on at least 1.0, otherwise you're going downhill

Don't forget weight training

Cardio will help you lose weight faster, sure but the goal is to "make gains" as the gym rats say. You want progress, strength.

Try Fasted Exercise

I used to think I'd pass out if I went to the gym before I ate anything in the morning. In fact I was emphatic about it. But the alternative was waking up earlier, eating something that would invariably still be in my stomach by the time I was powering up the treadmill. Also, unless you're an extremely motivated person, it's generally better to exercise in the morning. After work you'll be tired. You've had a whole day to think up all the excuses why you shouldn't exercise today, tomorrow is only hours away anyway, right? "Get it over with"

Try a "pre-workout" shake

This stuff is crack. Ok, exaggerating. But if you need a boost in the morning and can't tolerate coffee before the gym this stuff may be your saving grace. Get some advice about which one. Venture into a GNC. Word of caution: use about half of what the recommended amount is at first or you'll feel like your heart is going about 200 beats per minute.

Pick something you DON'T HATE

I tell my patients who says they hate exercise that it's just because they haven't tried everything yet. I am 100% sure there is something out there you'll enjoy and if you don't hate it you may actually grow to enjoy it. Aim to plan for 20- 30 minutes of exercise (something

continued on page 3

MINDFULNESS MONTHLY 1

FIGURE 5: "PHW Mindfulness Monthly" Monthly Newsletter

“Entropy of the Room is Entropy of the Mind”: Strategies in Reversal for Wellness

Tania Maheshwari, DO, PGY-1
Internal Medicine Resident, Rowan School of Osteopathic Medicine, Stratford, NJ

In practicing medicine, there will always be factors that we cannot control. Whether it be pre-authorization rejections or superimposed pneumonias, we find ourselves adjusting our care plans on nearly a second-to-second basis. As residents and physicians, this external variability is naturally a struggle to comprehend. Our extensive training in problem-solving and lateral thinking disallows the notion that life can be unpredictably unpredictable. We are racked with thoughts of “what could I have done? How do I learn from this experience? How can I be better?”

As with most things, I handle these dilemmas with lessons from my father. Growing up, my dad would walk into my room, shake his head, and say “Entropy of the room is entropy of the mind.” Not possessing a basic understanding of chemistry as an eight year old hindered my complete understanding of the situation, but I knew enough to clean my room sharpish. As time went on, this phrase was often repeated, leading to its inevitable imprint on my brain and my personality. I understood that my environment could be directly related to my mental state, but I could also affect my mental state by changing my environment.



When I feel as though I am giving up control on aspects of patient-care, I supplement that loss with gain of control over/revitalizing my external environment. Simple things like changing a pillow cover, rearranging couch positions, or swapping out framed photos allows me to influence my surroundings and regain some balance. By doing this, I can create a peaceful atmosphere – one that promotes calm thinking and reasonable decisions. Although medicine can be such a vacillating and fluid practice, making small fixes to help balance out that irregularity can bring about overall wellness.

Biophilia and Nature: Ever More Important in our Era of Urban Design

Tina Hu, MD, PGY-2
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How often do we find ourselves in a physician workroom with no windows, plants, or any link with nature and the outside world?

We, as a system, often sacrifice ourselves and our workspaces to allow patients to have the privilege of having window rooms for their healing and wellness. This process over time, whether it is 3 years in residency or 15 years in a private practice, can compound the burden on our psychological wellness.

The concept of “Biophilia” emerged in 1984 by E.O Wilson, described as the “urge to affiliate with other forms of life” and the idea that we need daily contact with nature to be productive and healthy. Supported through time recently by Beatley in 2011 and Browning in 2014, biophilia and biophilic design increases productivity and enhances psychological health by reducing stress, subsequently even lowering blood pressure and heart rate. In recent years, hospitals are adopting this in their building design, however with the focus primarily on patient wellness.

So, how can we advocate for ourselves? What can we do if we are stuck in a workroom with no windows? Studies have shown that “virtual biophilia” in the form of artificial skies (LED light panels as below), animatronics, and images of nature provide weaker but still significant effects. Other ideas include artificial plants (not requiring sunlight!) as an easy first step usually within our organizations’ budgets as above!

MINDFULNESS MONTHLY 2

FIGURE 6: PHW “Mindfulness Monthly” Monthly Newsletter



FIGURE 7: PHW "Mindfulness Monthly" Newsletter

Additional Information

Disclosures

Human subjects: Consent was obtained or waived by all participants in this study. American Academy of Pediatrics Institutional Review Board (AAP IRB) issued approval N/A. This study was approved by the American Academy of Pediatrics Institutional Review Board (AAP IRB), Protocol number 19 DI 01. **Animal subjects:** All authors have confirmed that this study did not involve animal subjects or tissue. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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methods, and study materials are available upon request.

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