

Assessing the Impact of a Physician Resiliency and Wellness Program to Physician Burnout Levels in a Pediatric Department of a Tertiary Hospital: A Pilot Study of the I-CARE Program

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ABSTRACT

Background. Physician burnout is a growing problem worldwide. Several interventions aimed at lowering burnout rates among physicians have been implemented. To date, there is no established structured program to combat burnout in the Philippine General Hospital. This study evaluated the effectiveness of the I-CARE program, a physician resilience and wellness program which adapted the different components of the international programs for the Philippine setting.

Objective. To evaluate the effectiveness of the I-CARE program in reducing medical residents' burnout level.

Methods. After key components of the I-CARE program were identified, the program was implemented in 2 phases. The first phase involved training of consultants to hone their facilitation skills. The second phase was a before-and-after study of the I-CARE program. The participants' burnout level was measured before and after the program using the Maslach Burnout Inventory.

Results. The I-CARE program was implemented in the Department of Pediatrics from March to August 2020. There was no significant change in the overall burnout levels of 59 pediatric residents after the I-CARE implementation ($p=0.32$). This may be due to several challenges encountered during the implementation, such as time constraints, the increased workload caused by the COVID-19 pandemic, and the lack of physical meetings due to the restrictions of the pandemic. However, the feedback of the administrators, facilitators and residents was generally positive. All the interviewed participants recommended the continuation of the I-CARE program in the Department of Pediatrics.

Conclusion. The I-CARE program shows potential in promoting mental health and emotional wellness among physicians in training.

Key Words: burnout, physician wellness, resiliency

INTRODUCTION

Physician burnout is a growing problem worldwide. Physician burnout is the constellation of symptoms in which a person's energy account has a negative balance over time. These include exhaustion, depersonalization, and lack of efficacy. Exhaustion refers not only to physical fatigue but also to emotional exhaustion. Depersonalization, also known as compassion fatigue, is signaled by cynicism, sarcasm, and the need to vent regarding one's patients or work. Lack of

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efficacy, sometimes referred to as reduced sense of personal accomplishment, is signaled by doubts on the meaning and quality of one's work.^{1,2}

Burnout affects more than 50% of physicians.³ It is linked to lower patient satisfaction and quality of care, increased attrition, increased staff turnover, higher medical errors, increased alcohol and drug addiction, and increased levels of depression. In the United States, the highest rates of suicide and suicidal ideation are among physicians compared to any other profession.^{1,4} Studies conducted in Asian countries showed increased prevalence of anxiety, depression and suicidal thoughts among healthcare professionals. In Malaysia, the prevalence of anxiety was 28.6% and the prevalence of depression was 10.7% among medical officers working at general hospitals.⁵ In the Philippines, a 2016 study among resident physicians in the Philippine General Hospital (PGH) showed that 23% experienced compassion fatigue and 26% experienced burnout.⁶ To date, no prevalence studies on the rates of suicide and mental health problems among physicians have been published in the Philippines.

There are six key factors associated with burnout: 1. high job demands in conjunction with lack of control; 2. disconnect between individual values and that of the organization or system; 3. insufficient rewards such that one feels taken for granted, undervalued, or undercompensated; 4. work overload; 5. unfairness; and 6. breakdown of community.⁷ Physicians are prone to burnout due to organizational transformation of the healthcare system leading to reduced sense of professional autonomy and increase in clerical duties, and the medical culture of denying self-care in the service of others, with cultural norms characterizing self-care as "selfish."⁸

In the 2016 study of Alonzo and Dans among resident physicians in the PGH, 23% experienced compassion fatigue and 26% experienced burnout. Out of the 15 clinical departments surveyed in this study, the Department of Medicine showed the highest risk for burnout at 57.6%. This was followed by the Department of Obstetrics and Gynecology at 42.9% and the Department of Pediatrics at 36.5%.⁶ Another local study conducted in 2015 at the PGH-Department of Pediatrics reported that the risk of having compassion fatigue was 39% among pediatric residents and 18% among pediatric fellows.⁹

Various interventions have been proposed to help combat physician burnout. Nguyen et al. from Harvard Medical School wrote about their community-building program, which consisted of a monthly 1-hour lunch meeting in which team members sit together in a circle as equals. The dialogue begins with housekeeping items, followed by acknowledgments, concerns, and shared decision-making. The meetings closed in an exercise called the "Failure Bow," where each person shares an error, omission, or challenge, and then leans in and takes a bow. This initiative led to an increase in the members' interest to stay in the hospital, from 22% to 47% after one year. The annual attrition rate decreased from 12% to 5%.³

Perlo and Feeley reported the experience of the Institute for Healthcare Improvement. The healthcare team shared stories about what motivated them to enter their profession and their obstacles in the experience of joy. The team members are able to explore their shared values and concerns by asking what matters to them and how they can address any impediments experienced. After instituting this program for one year, the percentage of staff who believed that the Institute for Healthcare Improvement was an excellent place work increased from 87% to 92%.²

Armato and Jenike discussed the impact of the Novant Health Leadership Development Program, which consisted of a multiday wellness retreat and one-on-one coaching and mentoring program. This program was designed to help physicians "rediscover their core," develop stronger leadership skills, engage more effectively with peers and patients, and achieve better work-life balance. The participants of this program scored higher by more than 50% compared to non-participants in terms of personal fulfillment, alignment with the health system's mission, and positive attitudes towards the organization. Despite the investment of USD 3,500 per physician participant, replacing a physician can cost an organization 2–3 times the annual salary. Thus, it was considered a good investment to institute programs to increase physician retention.¹⁰

Adelman and Liebschutz from Boston University Schools of Medicine and Public Health talked about the effect on coaching sessions in helping physicians and other healthcare workers. Coaching sessions were held face-to-face, by telephone, or by Skype for 30–60 minutes to accommodate the busy workload of the participants. The coaching program pairs faculty members trained in positive psychology and coaching with residents and fellows in training. It was observed that within four years of enacting this program, the number of physician self-referrals tripled.¹¹

While it is important to improve on personal resilience of the physician, the efficiency of practice (organizational) and culture of wellness (cultural) dimensions should also be addressed. Bohman et al. discussed the responsibility of healthcare organizations to build an efficient practice environment to foster a culture of wellness and to improve physicians' resilience. Strategies suggested include ensuring adequate staffing, mitigating documentation burdens, peer support programs, mindfulness-based stress reduction, limiting work hours, and providing convenient access to low-cost or free healthy food, on-site exercise facilities, and convenient places to nap, relax or meditate during on-call or long-shift responsibilities.⁸

In the various programs described above, the authors did not identify which specific component of the wellness programs were most effective in the reduction of burnout rate. They reported the effect of the institution of the programs as a whole.

This study aimed to evaluate the effectiveness of the I-CARE program, a physician resilience and wellness

program that incorporates the different components of the international programs and implemented locally as applicable in the PGH setting. I-CARE stands for the key principles of the program of Community, Acceptance, Resilience and Empathy.

In a nutshell, the I-CARE program emphasizes that “I” am Important and that self-care should be given due recognition and significance. This study described the pilot implementation of the I-CARE program and evaluated its effectiveness in reducing burnout among medical residents using the Maslach Burnout Inventory.

METHODOLOGY

Study Design

This was an exploratory sequential mixed methods study consisting of 1) key informant interviews of facilitators after training for the I-CARE program. 2) before-and-after study of resident trainees at the PGH.

The I-CARE program was intended to be pilot-tested in the Department of Medicine and Department of Pediatrics of the PGH. These departments were chosen due to the high number of residents in these departments, and because the two study investigators belong to these departments.

The structure of the program was an adaptation of effective programs done in medical training institutions outside of the country. Since this program was new, the investigators thought it best to have a pilot run of the program. Also, with no prior similarly structured program in the hospital, use of department historical data and participant self-baseline data as controls was deemed appropriate for a pilot test. Comparison to another program or a placebo arm was beyond the scope of the study.

There were two phases in the study. The first phase involved training of facilitators in conducting the I-CARE program to hone their facilitation and counselling skills, and to help them identify residents who may need professional counselling. The training consisted of short lectures, demonstrations, role-playing, and case discussion. After the training, feedback was obtained from the participants to assess the strengths, weaknesses, and suggested improvements for the program. The feedback was collated, and the program was revised as necessary.

The second phase was a 6-month before-and-after cohort study of the I-CARE program. This study utilized self-administered surveys to assess the study outcomes. The attrition rates before and after the program implementation was also compared. Key informant interviews were conducted at the end of the program with the facilitators, study participants and the department administrators.

Study Population

Volunteer consultants from the Department of Medicine and Department of Pediatrics of the PGH were invited to undergo training with a psychology expert to help them

facilitate the monthly sessions with the residents, as well as prepare them to conduct one-on-one sessions with medical residents if requested by the residents. Only those who consent to participate were included. The target minimum number of representatives from each department was 5 consultants.

The medical residents of the Department of Medicine and Department of Pediatrics were invited to participate in the program. Only those who consent to participate were included. The target minimum number of participants from each Department was 30 residents.

Study Site

The PGH-Department of Medicine and Department of Pediatrics residents were conveniently sampled because of the following reasons: 1) high number of medical residents, and 2) affiliation of the investigators with these departments. Since the principal goal was to establish effectiveness of the intervention, sampling from all the departments and hospitals in the Philippines or the PGH was not required. We compared pre- and post- intervention burnout scores among the resident participants.

Sample Size

The minimum sample size utilizing two-sample paired-proportion McNemar's test is 60 medical residents to achieve 80% power at a 0.05 significance level to detect a change of three times increase in the favorable response. Sample size determination was done using the G*Power 3.1.9.4 software.

Study Procedure

Structure of the I-CARE program

The I-CARE program is a mix of the programs implemented by Nguyen et al. in Harvard Medical School and Adelman and Liebschutz in Boston University Schools of Medicine and Public Health. In particular, the lightning talk and vulnerability bow are shorter versions of the program by Nguyen et al. The discussion of concerns is an adaptation of the life coaching method done by Adelman and Liebschutz. These specific interventions were chosen as they were reported to be effective in populations similar to that of our intended participants. A combination of these interventions may be expected to help decrease burnout as they provide an avenue to address issues encountered during daily activities.

The program was given a structure to help facilitators guide the discussion among the resident participants. A twice monthly schedule for the meetings was decided on as it was deemed the most feasible for both facilitators and residents given their usual hospital workload.

Aside from the twice monthly meetings, the residents could also request one-on-one sessions with the facilitator or with a counselor. The facilitators were given the contact details of the psychiatrist affiliated with this project so that they or the residents can schedule sessions with the psychiatrists if necessary.

The structure of the twice monthly meetings of the I-CARE program was as follows: a) Self-care, b) Lightning talk, c) Discussion of concerns, d) Vulnerability bow.

Self-care consisted of providing a relaxed atmosphere where the medical residents can take a break from their usual duties and responsibilities. Free lunch was to be provided for them to enjoy.

After lunch or while eating lunch, the lightning talk was conducted. This is a form of priming or icebreaker activity to induce a relaxed and light atmosphere. During the lightning talk activity, each medical resident and the facilitator formed a circle and given 1 minute to talk about anything that interests them. Should they not have a topic in mind, a bowl of prepared topics was provided.

After the lightning talk, the medical residents were asked to share their concerns and feelings about their work and the work environment. To start the discussion, the facilitator asked them: "What has been your greatest concern, challenge or realization this month?" If the resident responded with a concern or challenge, the follow-up question was as follows: "How do you think you can help yourself? How can your colleagues and the department help you?" During the discussion, the facilitator gave reminders that the session was meant to help process the concerns raised and not necessarily offer a solution or avenue for raising complaints to the department. If the resident responded with a realization, the follow-up question was as follows: "How do you think it will help you? How will it help your colleagues and department?" The facilitator helped guide the discussion so that it remained constructive and motivational.

The meeting was concluded with a vulnerability bow. In a round robin manner, each medical resident and the facilitator stood and shared what they think they did well and what they think they could improve on (such as an error, omission, or challenge) from the previous month, then took a bow. The group listened with empathy and compassion to support each member.

This structure was not intended to have a rigid implementation. The structure served as a guide for the key components to be discussed in each meeting. The structure served as an ice breaker particularly during the first few sessions of the program. The flow depended on the relationship of the facilitator and assigned residents. The important aspect of the program was the provision of a regular and protected time to openly communicate with the consultants what the residents were going through in the hospital.

The investigators prepared a training manual which included the program structure and tips on facilitation and communication skills. This manual was made available to the facilitators.

Training of Facilitators

Training of the volunteer consultants on the I-CARE program was conducted. The training curriculum was crafted by a licensed psychologist who is also an author of this paper

(RDC), taking into consideration the key principles of the I-CARE program.

The learning activities in the training session consisted of short lectures, demonstrations, role-playing, and case discussion. After the training, the facilitators were asked to fill out a self-administered survey to elicit the strengths and weaknesses of the program, and their suggestions to improve the program. Time elapsed during the role playing of the meeting was also documented and taken into consideration in the program implementation. Their feedback was discussed at the end of the session.

Before and after study

Prior to the implementation of the I-CARE program, the residents were asked to answer a self-administered survey including The Maslach Burnout Inventory. The survey was administered using printed questionnaires. Their answers served as their baseline data. This was conducted on the first quarter of 2020 but after January 2020. This time period was chosen because by this time, the medical residents have had enough exposure time to the system to be able to give accurate feedback. The chief resident administered the survey.

A total of 12 sessions (twice monthly for 6 months) of the program was planned. The chief resident took charge of assigning the residents and facilitators into groups and scheduling the meetings, depending on which schedule was best for the residents and facilitators. The recommended size of the group was one facilitator for every 5–6 residents.

The sessions were purely voluntary. Attendance did not affect the medical residents' evaluation for the residency training program. There was no minimum requirement for the residents for the number of sessions to attend and they were allowed to choose when and how many sessions they want to attend. The attendance of the medical residents was checked at every session. The percentage of sessions attended of the residents was correlated with the outcome of interest at the end of the study.

At the end of 6 months, the same survey was provided to check the impact of the program on the residents. The post-implementation MBI was administered through printed questionnaires and through a secure online format. All participants regardless of number of sessions attended were asked to answer the survey. Surveys were made available immediately at the 6-month mark and participants were given one week to answer the survey.

In addition, the residents' feedback on the I-CARE program was elicited. Key informant interviews using a standardized interview guide were done at the end of six months. Residents and consultants were asked to give feedback about the strengths and weaknesses of the program. Additional interviews on the observed performance of the medical residents were also conducted among representatives of the residency training committee and the department.

Changes due to COVID-19 pandemic

The I-CARE program was already initiated before the COVID-19 pandemic. Due to the restrictions brought about by the COVID-19 pandemic, the meetings were done either physically or through online platforms, depending on which set-up was more feasible to the participants.

Debriefing services were also offered as part of the I-CARE program giving the residents access to free debriefing sessions with a trained counselor/ therapist if they so desire. This was done on top of their regular meetings as part of the I-CARE program.

Outcome Measures

The main outcome measured was the level of burnout perceived by the resident measured using The Maslach Burnout Inventory (MBI). The Maslach Burnout Inventory is one of the most commonly used measures of burnout that has been extensively validated in multiple countries. Validation and utilization of the MBI includes use in the workplace such as hospitals or medical school. Several published studies using the MBI and its prescribed cut-off scores have been conducted in the Philippines.¹²⁻¹⁴

The MBI was developed to assess burnout as a continuous variable, incorporating the 3 dimensions of burnout—exhaustion, depersonalization, and reduced personal efficacy. It has been translated in many languages, including Tagalog. For this research, the English form was utilized since this is the language that the residents commonly used for written communications. The MBI has many versions, one of which is the MBI-Human Services Survey for Medical Personnel that has been adapted specifically for people in the health service sectors. This was the specific survey used for this research. This survey has also been used previously in studies done in the local setting including the PGH. It consists of 22 items related to feelings about work and takes 10 to 15 minutes to accomplish. The participant is asked to answer each statement from 0 to 6 to indicate how often they feel it, from never (score of 0), a few times a year, once a month or less, a few times a month, once a week, a few times a week, to everyday (score of 6). It does not specifically cover a time period from time of administration of survey.^{15,16}

The MBI consists of three components: emotional exhaustion, depersonalization and personal accomplishment. The exhaustion component represents the basic individual stress dimension of burnout. It refers to feelings of being overextended and depleted of one's emotional and physical resources. Depersonalization refers to a negative, callous,

or excessively detached response to various aspects of the job. The component of reduced efficacy or accomplishment represents the self-evaluation dimension of burnout. It refers to feelings of incompetence and a lack of achievement and productivity in work. Each component has cutoff scores to determine burnout level. Scoring is standardized and is made available to any researcher using the tool. The investigators of this study followed the steps as outlined by the MBI tool. The cutoff scores to determine burnout are found in Table 1.¹⁷ The overall level of burnout was based on the highest category of burnout level in any of the three components.

A secondary outcome of this study was the attrition rate of medical residents. Attrition rates before (historical controls) and after the program were elicited through records from the department.

The attendance of the residents to the sessions was monitored over time. Their attendance served as a proxy of the receptivity of the residents towards the program, and if they consider the program as worth their time attending. In addition, the change in level of exhaustion of the residents was evaluated alongside their attendance to the program to see if there was a correlation between these two variables.

Data Analysis

Paired t-test or Wilcoxon sign rank test, as appropriate, was used to determine significant change before and after the study on continuous outcomes such as burnout score. We intended to use linear regression to determine the relationship between the burnout score and attendance in the sessions. McNemar's test was used to determine significant change before and after the study on categorical outcomes such as burnout level. The attrition of residents per year was presented using a line graph. Visual inspection was done to determine any prominent changes from the previous years to the year of implementation of the program. Analysis was conducted using STATA 14 software. Data was anonymized and sensitive health information was removed prior to statistical analysis.

The results of the feedback from the participants and from key informant interviews were encoded and qualitatively analyzed. These interviews provided crucial information regarding the reception and feedback of the facilitators, participants and administrators about the I-CARE program which were not reflected in the quantitative outcomes measured. Similar responses obtained from the interviews were grouped into themes. The most common themes were extracted, and patterns were identified and meaningfully interpreted.

Table 1. Classification of MBI-Component Scores

Burnout level	Emotional exhaustion	Depersonalization	Personal accomplishment
<i>High</i>	≥27	≥10	0-33
<i>Moderate</i>	19-26	6-9	34-39
<i>Low</i>	0-18	0-5	≥40

Ethical considerations

This study was approved by the UP Manila Research Ethics Board. Access to the obtained data was limited only to the researchers. Participant identification numbers were assigned in the encoding of the data. The printed questionnaires were kept in a locked storage and were destroyed after the completion of the study. The encoded data were secured in a password-protected laptop accessible only to the researchers.

RESULTS

The study originally intended to recruit participants from both the Department of Medicine and Department of Pediatrics. However only the Department of Pediatrics was able to implement the I-CARE program. Non-involvement of the Department of Medicine was due to several challenges including presence of other informal mental health care programs within the Department such as the “kamustahan” session, facilitator and resident hesitancy, and the onset of the COVID-19 pandemic, The results presented here are thus limited to data from the Department of Pediatrics.

Operationalization and training of facilitators

Training of facilitators from the Department of Pediatrics was conducted on February 14, 2020. There were 20 facilitators who volunteered, and 12 of these facilitators were able to join the half-day training. After the session, feedback was collated.

The feedback of the participants included requests for additional information in the training manual such as flowchart for referral system to Psychiatry, list of commonly elicited feelings, introductory spiel that facilitators can use to explain issues concerning confidentiality and to set expectations of what the I-CARE program can address. The participants also relayed that they found facilitating to be difficult, and that they appreciated the role-playing portion of the training. The training manual was modified based on their feedback. The revised training manual and the slide set used in the training session were disseminated to the 20 facilitators.

All pediatric residents were divided into groups of 3-4 residents, made up of 1-2 residents per year level, and were assigned to one facilitator. There were 20 groups all in all. The groupings were arranged by the chief resident based on common interests of the residents and facilitators.

The COVID-19 pandemic started to escalate in the Philippines in mid-March, resulting in the imposition of quarantine and the conversion of the PGH into a COVID-19 referral center. Due to the restrictions of the pandemic, physical meetings could no longer be conducted. The facilitators adjusted to the situation by reaching out to their group through other platforms, including Viber, Telegram, SMS and Zoom.

The actual implementation of the I-CARE program varied per facilitator. Some facilitators followed the recommended flow of the program, while the others made it less structured and free flowing. Before the pandemic, sessions generally lasted from 1.5 to 2 hours. The sessions became more informal with the pandemic, with several facilitators reaching out through messages sent via Viber, Telegram or SMS and the residents responding in their free time. The actual number and length of sessions conducted, therefore, became quite difficult to quantify.

Burnout

The MBI was administered to the residents on March 2, 2020. Out of the 70 pediatric residents, 59 answered the MBI (84.3%). Among the 59 respondents, there were 22 first-year residents, 19 second-year residents and 18 third-year residents.

The MBI was administered again in September 2020. There were only 17 respondents, with 7 first-year residents, 5 second-year residents, and 5 third-year residents.

Among the 22 first-year residents who responded to the baseline MBI, 19 had high level of burnout (86.4%), 2 had moderate level of burnout (9.1%) and 1 had low level of burnout (4.5%). Among the 19 second-year residents, 18 had high level of burnout (94.7%) and 1 had moderate level of burnout (5.3%). Among the 18 third-year residents, 16 had high level of burnout (88.9%) and 2 had moderate level of burnout (11.1%) (Table 2).

For the repeat MBI results, 6 among the 7 first-year residents had high level of burnout (85.7%) and 1 had moderate level of burnout (14.3%). All the 5 second-year residents had high level of burnout (100%). Among the 5 third-year residents, 4 had high level of burnout (80%) and 1 had moderate level of burnout (20%).

Paired t-test was used to compare the data before and after the program implementation. There was no significant difference in all the components of the MBI and the overall level of burnout before and after the I-CARE program.

Out of the 17 residents who answered the post-implementation survey, only 8 provided enough data to enable comparison of their answers to the pre-implementation survey. Based on McNemar’s test, the proportion of those with high level of burnout in all components of the MBI as well as for the overall level was not significantly different before and after the I-CARE program implementation. However, the small sample size precludes definite conclusions to be made.

Attrition

There were no pediatric residents who discontinued the training program in the year 2020. From 2011 to 2020, the number of residents who left the training program per year ranged from 0 to 3, with an average of 1.4 (SD 1.07) (Figure 1). This accounts for attrition rates between the range of 0% to a peak attrition rate of 4.76% in 2016. There was

at least 1 resident who discontinued the training program in 8 out of the 9 years preceding the implementation of the I-CARE program.

Attendance

Due to the modification in the I-CARE program to adapt to the restrictions of the COVID-19 pandemic, physical meetings were no longer held. Instead, the facilitators would regularly communicate through Viber, SMS, and Zoom. Due to the practical difficulties in monitoring attendance and participation in these platforms, this outcome was no longer reported. No resident participated in the online debriefing sessions.

Key informant interviews and feedback

Interviews were conducted to elicit feedback of the facilitators and residents. The participants who consented were interviewed until saturation was reached. A total of six facilitators, five residents and the chief resident were interviewed.

Based on the facilitators' feedback, the strength of the I-CARE program was its clear and relevant objective of promoting holistic wellness of residents. Another strength was that the I-CARE program provided a structured platform that enabled the facilitators to reach out to the residents. This took off the pressure from the consultants, and also enabled inclusive participation of the residents.

Table 2. Baseline and repeat MBI results of pediatric residents

Parameter	Baseline (n=59)	Repeat (n=17)	p-value
Emotional exhaustion score (mean, SD)	30.15 (9.96)	26.88 (8.25)	p=0.54
Emotional exhaustion level of burnout (n, %)			
High	38 (64.41)	8 (47.06)	p=0.32
Moderate	15 (25.42)	8 (47.06)	
Low	6 (10.17)	1 (5.88)	
Depersonalization score (mean, SD)	13.66 (5.55)	10.94 (5.75)	p=0.07
Depersonalization level of burnout (n, %)			
High	45 (76.27)	9 (52.94)	p=0.08
Moderate	8 (13.56)	6 (35.29)	
Low	6 (10.17)	2 (11.76)	
Personal accomplishment score (mean, SD)	33.46 (4.9)	30.41 (6.10)	p=0.37
Personal accomplishment level of burnout (n, %)			
High	28 (47.46)	11 (64.71)	p = 1.00
Moderate	26 (44.07)	6 (35.29)	
Low	5 (8.47)	0 (0)	
Overall level of burnout (n, %)			
High	53 (89.83)	15 (88.24)	p = 0.32
Moderate	5 (8.47)	2 (11.76)	
Low	1 (1.69)	0 (0)	

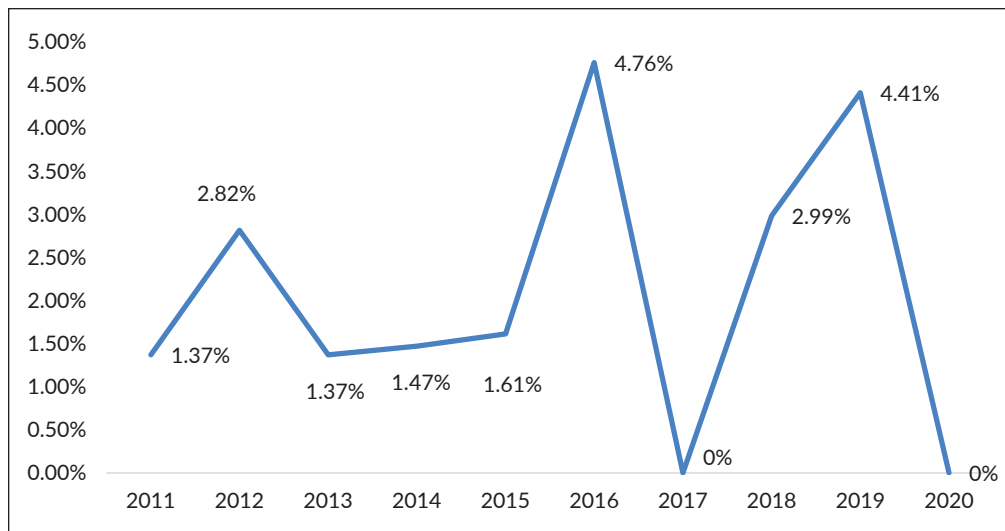


Figure 1. Attrition of pediatric residents from 2011 to 2020.

The residents relayed that the strength of the I-CARE program was that it allowed open communication with the consultants. They liked that the consultants regularly contacted them to ask them how they were doing, and that they found the consultants more approachable and easier to talk to. Compared to the previous mentoring program where they infrequently met their mentors, the facilitators in the I-CARE program actively reached out to meet the group. They liked that they were able to bond with residents from the other batches and do activities together as an outlet. They also appreciated that the program allowed a safe avenue for the verbal release of their problems and for other people to provide perspectives on their experiences.

The major limitation of the program identified by the facilitators and residents was the schedule and time. Since the residents had a rigid schedule, having a regular time to meet up could become an obstacle to the program. The facilitators and residents really needed to set aside time to meet up. Another limitation was the short implementation period of the program, since it takes time for facilitators and residents to develop a level of comfort and trust. Moreover, the restrictions of the COVID-19 pandemic did not allow face-to-face interaction within the group. This made it more difficult to establish easy rapport and capture the feelings of the group. Although some groups found it easy to build a relationship, others had more hesitation in opening up to the group.

Recommendations to improve the I-CARE program include the conduct of face-to-face meetings as originally conceived, if possible. If this is not possible, then scheduling of regular online meetings may be done so that the group has something to look forward to. It was also suggested to make the program flexible both for physical or digital settings, and to have regular online webinars on topics such as mindfulness exercises and stress management.

It was also recommended that the group be given a protected time to hold meetings, as was also originally planned before the pandemic. It was recommended to have regular checks to determine if the facilitator assigned was available to the group and was able to effectively communicate with the group. Another suggestion was for the residents to be allowed to choose their own groupmates so that they can be more comfortable in the group.

From the administrators' perspective, it was difficult to ascribe observed changes directly to the I-CARE program due to multiple confounding variables. However, they observed that residents were more cooperative and had improved communication with the department administrators. Although they were understandably tired and sad, they had few complaints and did not appear to be stressed. They were also more bonded even if they belonged in different batches, providing an extra support system for the residents. The administrators also noted that nobody came close to quitting despite the challenges of residency training during a pandemic, unlike in the previous years. It was also

observed that no incident reports have been filed concerning the residents, unlike in the previous years where there were many incident reports received.

In terms of the training manual, the facilitators liked that the manual was clear, detailed, practical, and gave specific tips on facilitation. Recommendations to improve the training of facilitators included conducting the training in smaller groups, conducting more training sessions (a series of training sessions spaced throughout the year), providing asynchronous learning modules, and to hold online training.

Everyone unanimously recommended that the I-CARE program be continued in the Department of Pediatrics. It provided an avenue for stress relief not just for the residents, but also the facilitators. It also provided an avenue for the facilitators and residents to learn from each other. According to the residents, the program helped preserve their sanity and helped them feel energized despite the challenges brought by the pandemic. It gave a sense of community and served as a source of support and assurance for the residents. According to the facilitators, the program also helped them by reminding them to be more mindful of how they interact with the residents and to consider the feelings of the trainees.

DISCUSSION

Even before the COVID-19 pandemic, the rate of burnout among physicians was already on the rise worldwide. This trend was similarly observed in the PGH. A study in 2016 that measured burnout among residents of the PGH reported that 19 out of the 52 respondents (36.5%) from the Department of Pediatrics were burned out.⁶ In this study, baseline data showed that 53 out of the 59 respondents (89.83%) from the Department of Pediatrics had high levels of burnout. Although the tool used to measure burnout differed in the 2016 study (ProQOL), it is nevertheless alarming to note such high rates of burnout.

With the COVID-19 pandemic and the residents serving in the frontlines, it was expected that there would be even higher rates of burnout. A study reported that physician trainees with exposure to COVID-19 patients had significantly higher rates of burnout (46.3% versus 33.7%, $p=0.002$) and stress (29.4% versus 18.9%, $p=0.043$) compared to physician trainees who were not exposed to COVID-19 patients.¹⁸ In India, the prevalence of physician burnout measured during the pandemic was 53.6%.¹⁹ In Romania, the prevalence of burnout among medical residents was 76%.²⁰ Although the I-CARE program was designed before the onset of the pandemic, the key goal of lowering burnout among physicians remained the same and may even need more emphasis during the pandemic.

The I-CARE program is a structured physician resiliency and wellness program that aims to reduce burnout among doctors. The study failed to demonstrate a direct correlation with the implementation of the I-CARE program and a decrease in medical resident burnout or attrition rates.

However, it should be noted that there were several factors that could have affected this result. The major limitation of this study is the presence of confounding variables, making it difficult to ascribe the observed changes to the I-CARE program. In the Department of Pediatrics, the I-CARE sessions were just beginning to be conducted when the COVID-19 situation worsened and PGH became a COVID-19 referral center. In response to this, many changes were made in the training program of the residents. The anxiety and fear of COVID-19 took a toll on everybody in the hospital. To counteract this, the Department of Pediatrics also conducted mindfulness sessions and counseling sessions with the residents. Thus, the changes noted in this study could have been a response to the pandemic, the mindfulness sessions, the counseling sessions, the I-CARE program, or more likely, the interplay of all these variables.

Another limitation is the low number of respondents particularly in the post-implementation MBI. Understandably, the COVID-19 pandemic brought many changes to the workload and schedule of the residents. Thus, in the Department of Pediatrics, there was a sharp decrease in the number of respondents before (n=59) and after (n=17) the program. The sample size is not adequate to make definite conclusions regarding the effect of I-CARE on the burnout levels of residents. This may be addressed with an extension study with the continuation of the I-CARE program in the Department of Pediatrics. Similarly, a study involving a comparison of the I-CARE program to other programs or a placebo group may be designed.

Although the I-CARE program provided a structured guide for the facilitators, the actual implementation of the program varied depending on the style of the facilitators and the characteristics of the group members. It was difficult to quantify the actual number and length of sessions conducted due to the shift to online platforms. However, despite the differences in implementation, the feedback among the participants involved similar themes. This has important implications if the I-CARE program is to be implemented in a wider scale, such as in the entire hospital. Each department in the hospital has different styles and methods in conducting their training programs. This program can be adapted to fit the characteristics of each department, so that the sessions feel natural and comfortable to the participants. As long as the key principles of the program and the objectives are clear and defined to the facilitators, it can be anticipated that the reception and impact of this program would be positive across the departments.

Despite the inconclusive results of the burnout scores in the study, it is interesting to note that there was a reduction in the mean scores for emotional exhaustion and depersonalization after the program. The mean score for emotional exhaustion before the program was 30.15, corresponding to a high burnout level. The mean score after the program was 26.88, corresponding to a moderate burnout level for this component. The mean score for depersonalization

before the program was 13.66, while the mean score after the program was 10.94. Both mean scores correspond to a high burnout level for this component. The mean score for personal accomplishment before and after the program was 33.46 and 30.41 respectively. Both correspond to a high burnout level.

There were several points raised during the key informant interviews that demonstrates a possible positive effect of the I-CARE program. Most notable is that both facilitators and participants acknowledged a better line of communication among consultants and medical residents. This may help in establishing a better support network within the training program and would thus decrease burnout rates among medical residents. This also underscores the need to actively assess the mental health of medical residents instead of waiting for signs of burnout before actual intervention.

An unanticipated learning point from this pilot implementation was highlighted with the involvement of the Department of Pediatrics and the non-participation of the Department of Medicine. Originally both Departments were invited to participate in the study but only the Department of Pediatrics was able to implement the I-CARE program. A key factor to the successful implementation of the I-CARE program in the Department of Pediatrics was the support provided by the administrators, consultants and residents. The administration readily agreed to shoulder the food expenses that will be incurred by the program, provided suggestions and feedback on how the program can be smoothly implemented, encouraged the consultants to participate in this program, and provided invaluable help in the coordination and the logistics of this program. The number of consultants who volunteered to be facilitators far exceeded the minimum target of the study, thus enabling smaller groups of 3-4 residents to be created. The residents participated in the program and helped coordinate the schedules of the group so that they could hold face-to-face or online sessions. This experience illustrates that for a physician wellness and resiliency program to be successful, the members of the healthcare system must recognize the need for the program, support its objectives, and be willing to render time and effort to the program.

Based on the findings of this study, the authors recommend that further studies be done on the implementation of the I-CARE program. Points that need to be considered include possibility of strict standardization of the delivery of the program, increase in training and supervision of the facilitators, and having a comparator arm (placebo or other programs). The program can also be expanded to involve fellows and medical students, particularly the medical students who are already exposed to hospital work and direct patient care, and other allied medical professionals. The support of the hospital administration and the consultants is fundamental to the successful implementation of the I-CARE program. Regular assessment and feedback should be obtained from all personnel involved, including the administrators, facilitators and trainees, so that the program can be adapted and modified to suit the current needs of the trainees.

CONCLUSION

While the pilot test of the I-CARE program in the Department of Pediatrics failed to show a statistical improvement in the burnout rate of the medical residents, it still yielded some improvement in burnout scores and had positive feedback among the participants as evidenced by their qualitative feedback. While these changes cannot be solely attributed to the I-CARE program due to the unexpected confounding variables that occurred this year, the feedback and reception of the Department of Pediatrics serves as proof of concept that this program may have a role in decreasing burnout among medical residents. The I-CARE program shows potential in promoting mental health and emotional wellness among physicians in training. The authors recommend continuation of the I-CARE program in the Department of Pediatrics. Future studies are needed to evaluate its possible implementation in the different Departments of the PGH. The support of the hospital administrators and consultants is one of the key factors for the successful implementation of this program.

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Statement of Authorship

All authors participated in the data collection and analysis and approved the final version submitted.

Author Disclosure

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