



Association between training culture and burnout among residents and fellows during the Covid-19 pandemic in a pediatric tertiary hospital

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OBJECTIVE: Medical trainees have increased burnout compared to the general population. This may be attributed to physiological stress, increased workload, work demands, and the training culture. This study evaluated the association between the current training culture of the residents and fellows and prevalence of burnout at the Philippine Children's Medical Center.

MATERIALS AND METHODS: Two validated survey instruments were utilized in this study: the Organizational Culture Assessment Instrument (OCAI) to assess the current and preferred training culture among the trainees, and the Maslach Burnout Inventory (MBI) to evaluate the prevalence of burnout among participants.

RESULTS: Ninety-two (pediatric residents = 50; fellows = 42) trainees were included in the study. Whereas the current identified training culture in the institution was the market or compete culture, respondents preferred the clan or collaborative culture. Majority of trainees scored high among the 3 domains of burnout: 72% for emotional exhaustion, 64% for depersonalization, and 57% in personal accomplishment. Market culture was significantly associated with emotional exhaustion and depersonalization.

CONCLUSION: The prevalence of burnout among medical trainees is a significant issue that requires attention. It is essential to implement programs to decrease burnout and shift towards a supportive training culture. This study suggests a gradual shift towards a clan culture, which can help promote collaboration, mentorship, and mutual support among trainees. Such changes will not only improve the well-being of trainees, but also enhance the quality of patient care.

KEYWORDS: *training culture, burnout, trainees*

INTRODUCTION

Culture is defined as a set of shared attitudes, values, goals, and practices that characterizes a particular group or community¹. Culture influences the performance, engagement, and competitiveness of an organization³. In the hospital setting, medical residents and fellows-in-training are considered part of an organization as they share the same objectives and principles in their training program. Bing-You in 2019, reported that a clan culture was the current culture preferred by medical residents⁴. A clan culture denotes a familial atmosphere where the emphasis is on people, with everyone being highly regarded. The primary focus of this culture is to facilitate effective communication among its members⁵.

Burnout syndrome is increased feelings of emotional exhaustion and development of negative attitude and feelings towards oneself and to other people, leading to physical exhaustion, depersonalization, and work inefficiency⁶. Physicians experience a higher rate of burnout compared to the general population⁷, with the highest prevalence observed among medical trainees⁸. The recent pandemic and new changes in the pediatric residency and fellowship training are difficult times which can take a significant physical, mental, and emotional disadvantage to the medical trainees⁹. The endpoint is residents and fellows will quit¹⁰. According to a study conducted at the Philippine General Hospital

(PGH) Department of Pediatrics, 89.83% of pediatric residents experienced high levels of burnout during the COVID-19 pandemic, compared to 36.5% among their trainees during 2016¹¹. Similarly, a study done last 2015 at the Philippine Children's Medical Center (PCMC) revealed that only 18% of pediatric residents experience high levels of burnout¹². Over the past two years since the onset of the COVID-19 pandemic, the PCMC residency training program has witnessed a decline in the number of applicants and an increase in trainee attrition. In 2021, 41% of first-year residents resigned, while 29% of them discontinued their training within the first six months of 2022. To provide support to the residents and fellows amidst the pandemic, regular psychosocial assistance was offered in the form of group activities and inspirational messages through a Viber group.

Organizational culture, including the "training program" culture provides guidelines and identity in the workplace¹³. There are 4 types of organizational culture: the market or complete culture, which focuses on completing work and getting things done. The hierarchy culture emphasizes authority and obedience. Medical residents' perception of a hierarchy culture is negatively associated with effective feedback⁴, furthermore, studies have shown a correlation between hierarchy culture and workplace bullying among nurses¹⁴. The clan culture is friendly and collaborative, promoting teamwork and conflict management.

With regards to patient care, clan culture improves overall quality of care, relationship, and communication within co-workers¹⁵⁻¹⁶. Moreover, there is a positive and significant relationship between clan culture and intention to stay among healthcare workers¹⁷. Lastly, the adhocracy or create culture, focuses on innovation, entrepreneurship, and creative solutions. Burnout in healthcare is influenced by situational, personal, and work-related stressors. It is associated with increased medical errors and reduced quality of patient care¹⁸. There is also an increase in suicidal thoughts among medical trainees who experience burnout¹⁹. The day-to-day work in the hospital and the learning environment, which includes the training program, organization, and overall atmosphere, is a complex structure. Mentors and feedback play a crucial role in burnout prevention¹⁸. Positive mentor relationships and regular feedback are associated with lower burnout symptoms. A negative learning environment culture, including experiences with consultants, nurses, administrative staff, and patients, can influence burnout among male and female residents²⁰. Contributing factors to high burnout levels include psychological stress, longer work hours (>100 hours/week), and working in a public institution²¹. The COVID-19 pandemic has led to increased burnout among frontline health workers due to stress, depression, and anxiety²².

The findings of this study aim to benefit both the trainees and the medical education

training core in dealing with the prevalence of burnout among trainees and improving the training culture conducive for learning as well as maintaining general well-being of the residents and fellows. Identified confounding factors are mental health disorders and the current rotation of the trainees, which may affect the prevalence of burnout. This study aims to investigate the association between the training culture and prevalence of burnout among the pediatric trainees during the COVID-19 pandemic. The specific objectives are to identify the current and preferred training culture, determine prevalence of burnout, and examine the association between training culture and burnout. The results of this study will provide insight to the impact of the training culture on burnout, highlighting the need for addressing this issue and possibly making amendments in the pediatric residency and fellowship training to reduce burnout and drop-out rate.

MATERIALS AND METHODS

This cross-sectional study was conducted between October to December 2022 at the Philippine Children's Medical Center. The study included pediatric residents and fellows with more than 6 months of training during the data collection period, while subspecialty fellows not under the Philippine Pediatric Society (PPS) and outside rotators (residents and fellows) were excluded.

The study employed a total population sampling approach and was appropriate due to

the small and well-defined characteristics of the population (i.e. all pediatric trainees). To determine the association between the dominant training culture and burnout, a minimum sample size of 86 participants was utilized. This sample size provided 80% statistical power to detect an effect size of 0.40 using Spearman correlation analysis, with a significance level of 0.05.

This study was administered via pen-and-paper format. Prior to data collection, the investigator provided an orientation to the pediatric trainees either through an online platform (such as Zoom or Google Meet) or in person. The survey instruments were individually number coded for each trainee and enclosed in a brown envelope that corresponded to their year level (for residents) or subspecialty (for fellows). The envelopes were distributed by the primary investigator, and trainees who voluntarily participated, signed copies of the informed consent form. Regular reminders were sent via text message by the investigator during data collection. The completed survey instruments were personally collected by the investigator and encoded in MS Excel.

The two validated survey instruments used were the Organizational Culture Assessment Instrument (OCAI) and the Maslach Burnout Inventory (MBI) to assess the training culture and burnout, respectively. The Organizational Culture Assessment Instrument (OCAI) is a validated tool for evaluating organizational culture, which was

developed by Robert Quinn and © Kim Cameron at the University of Michigan²³. Based on their Competing Values Framework, it assesses the organization's internal versus external focus and stability versus flexibility, and categorizes organizations into Clan, Adhocracy, Hierarchy, and Market culture²⁴. The OCAI consists of 24 questions divided into 6 categories: dominant characteristics, organizational leadership, management, organizational glue, strategic emphases, and criteria for success, using a 100-point scale divided among the four cultures (A – Clan, B – Adhocracy, C – Market, D – Hierarchy) in each category. The instrument has been validated in the healthcare-setting²⁵ and has been used extensively in hospital organizations worldwide²⁶⁻²⁷. Locally, it has also been used in our hospitals²⁸ and schools for research purposes²⁹⁻³⁰.

The Maslach Burnout Inventory (MBI) is a widely used tool considered as the “gold standard” in measuring burnout and has been validated in countries worldwide, particularly in the healthcare setting³¹. It accurately assesses the 3 dimensions of burnout among healthcare professionals, namely, emotional exhaustion, personal accomplishment, and depersonalization³². The tool has been extensively used in the Philippines especially among healthcare workers, such as medical residents, nurses, and emergency room personnel^{11,33-35}. It has 22 items divided into the 3 components written in the form of statements about personal feelings and

attitudes³⁶. The MBI is oriented with the World Health Organization's 2019 definition of burnout as a valid occupational phenomenon³⁷. The tool uses a 7-point scale for responses, which can range from 0 or "never" to 6 or "every day". Emotional exhaustion is defined as a state of emotionally worn-out and drained because of stress from a person's life or at the workplace³⁸. Depersonalization or derealization disorder involves a recurring feeling of being detached from one's body or mental process³⁹. The last subscale in the MBI is the personal accomplishment which is composed of 8 questions about a person's achievement, energy, and actions toward the patient³⁶. A higher mean score in emotional exhaustion and depersonalization indicates an increased level of burnout, while a higher mean score in personal accomplishment reflects a low-level of burnout. Approval from Professor Robert E. Quinn and © Kim Cameron was sought and granted prior to data collection. The Maslach Burnout Inventory (MBI) was purchased online in the official publisher website, Mind Garden Incorporated.

Frequency was used to summarize the current and preferred culture of the residents and the fellows in the different subspecialties. The average of each alternative, which corresponds to the four cultures, in the OCAI survey was computed to identify the dominant culture. The mean and standard deviation were computed to determine the prevalence of the three dimensions of burnout³⁶. A high degree

of exhaustion is defined as more than or equal to 27 (Table 1), moderate degree for scores 19-26, and low degree for less than or equal to 18. To evaluate depersonalization, a high degree is defined as more than or equal to 10, moderate degree for scores 6-9, and low degree for less than or equal to 5. For personal accomplishment assessment, a high degree is defined as more than or equal to 40, moderate degree for scores 34-39, and low degree for less than or equal to 33.

Table 1. Levels of Burnout Domains

	HIGH	MODERATE	LOW
Emotional Exhaustion	≥27	19-26	≤18
Depersonalization	≥10	6-9	≤5
Personal Accomplishment	≤33	34-39	≥40

Spearman correlation analysis, a commonly employed non-parametric test, was used to assess the relationship between the dominant training culture and burnout, specifically measuring the prevalence of emotional exhaustion, depersonalization, and personal accomplishment. This statistical analysis method is frequently used to determine the strength of association between two variables.

Approval was sought from the Institutional Research – Ethics Committee prior to commencement of data collection. Prior to data collection, the participants were required to give informed consent as per the

National Ethical Guidelines for Health and Health-Related Research (2017), while ensuring their privacy in accordance with the Data Privacy Act of 2012 by maintaining anonymity. Instead, identification numbers were assigned to each trainee for encoding data, and only the investigator has access to the master list of all participants. Trainees who scored moderate to high in each burnout domain were provided with contact information for appropriate mental health support, while maintaining their anonymity from others.

This research paper was submitted to the Center for Research and Development (CRD) and General Pediatric Services Division (GPSD) of the Philippine Children’s Medical Center. The physical copies of the survey forms were securely stored in a filing cabinet located at the PCMC General Pediatric Services Division Office. These records will be disposed through shredding after three years or earlier if deemed unnecessary. Digital copies of the data were saved on a password-protected portable digital storage device (USB) which is solely accessible to the primary investigator. The data will be permanently deleted by reformatting the storage disk along with the hard copies.

RESULTS

A total of 92 trainees participated in the study, which included 50 pediatric residents and 42 fellows from the different subspecialties: adolescent medicine (3),

ambulatory pediatrics (1), pediatric infectious diseases (7), nephrology (3), hematology and oncology (4), pulmonology (3), neonatology (5), endocrinology (2), pediatric critical care (5), gastroenterology (2), neurology (1), and neurodevelopmental pediatrics (6). Eleven participants (3 residents and 8 fellows) were not included in the study because they either graduated (9), did not return the questionnaires (1), or resigned from training (1).

The results show that the current dominant training culture among the trainees (Table 2), is the market or compete culture (mean = 28.0%).

Table 2. Overall Current Dominant Culture

Culture Type	Mean (%)
Clan	26.7
Adhocracy	19.1
Market	28.0
Hierarchy	26.1

Among the 12 pediatric subspecialties, six have market or compete cultures, namely, adolescent medicine, ambulatory pediatrics, hematology-oncology, neurodevelopmental pediatrics, neurology, and pulmonology (Table 3). The sections of endocrinology, nephrology, pediatric critical care, and pediatric infectious diseases have a clan or collaborate culture. The section of neonatology has 2 current dominant cultures, the market (mean = 26.3%) and clan culture (mean = 26.3%). The gastroenterology section has a current culture of hierarchy (mean = 37.1%)

Table 3. Current Dominant Culture according to trainees

Subspecialty	Culture Type			
	Clan	Adhocracy	Market	Hierarchy
	Mean (%)			
Adolescent Medicine	23.3	18.6	29.4	28.6
Ambulatory Pediatrics	30.0	20.0	30.8	19.2
Endocrinology	34.2	13.8	21.3	30.8
Gastroenterology	20.8	12.1	29.6	37.1
Hematology and Oncology	19.2	19.6	30.8	30.0
Neurodevelopmental Pediatrics	18.1	17.5	32.8	31.7
Neonatology	26.3	24.4	26.3	23.1
Nephrology	39.7	14.7	19.2	26.4
Neurology	26.7	18.3	36.7	18.3
Pediatric Critical Care	34.5	19.2	28.8	17.7
Pediatric Infectious Diseases	35.7	18.8	18.5	27.5
Pulmonology	23.5	22.7	27.1	26.3
Residents	25.9	19.4	29.1	25.5

The preferred training culture among all trainees is the clan or collaborate culture (mean = 34.1%) (Table 4).

Table 4. Overall Preferred Culture

Culture Type	Mean (%)
Clan	34.1
Adhocracy	22.7
Market	23.1
Hierarchy	22.6

Except for one, all subspecialties including the residents prefer clan or collaborate culture. Only the section of endocrinology favors market or compete culture (Table 5).

Table 5. Preferred Culture according to trainees

Subspecialty	Clan Type			
	Clan	Adhocracy	Market	Hierarchy
	Mean (%)			
Adolescent Medicine	26.4	25.6	25.6	24.2
Ambulatory Pediatrics	27.5	21.7	25.8	22.5
Endocrinology	25.4	31.7	33.3	18.8
Gastroenterology	27.9	23.3	24.2	23.8
Hematology and Oncology	29.2	23.3	25.8	22.5
Neurodevelopmental Pediatrics	34.2	21.0	21.5	24.6
Neonatology	27.7	24.2	24.2	24.8
Nephrology	46.7	22.2	22.5	17.5
Neurology	29.2	25.0	23.3	24.2
Pediatric Critical Care	39.3	18.4	20.1	23.3
Pediatric Infectious Diseases	45.7	18.5	19.9	23.5
Pulmonology	29.8	22.3	21.7	27.3
Residents	33.7	23.3	23.2	22.0

For the prevalence of burnout among all pediatric trainees (Table 6), 66 respondents have high levels of emotional exhaustion (72%), 13 have moderate levels (14%), and 13 have low levels (14%). For depersonalization, 59 respondents have high levels (64%), 16 have moderate levels (17%), and 17 have low levels (19%). Lastly, 52 respondents have low levels of personal accomplishment (57%), 27 have moderate levels (29%), and 13 have high levels (14%).

Among the residents (Table 6), 43 of them have high levels of emotional exhaustion (86%), 6 have moderate levels (12%), and 1 have low level (2%). For depersonalization, 42 residents have high levels (84%), 6 have moderate levels (12%), and only 2 have low levels (4%). For levels of personal accomplishment, 37 respondents have low levels (74%), 10 have moderate levels (20%), and 3 have high levels (6%).

Table 6. Frequency of trainees according to burnout levels for each burnout domain

	Emotional Exhaustion			Depersonalization			Personal Accomplishment		
	Low	Mod	High	Low	Mod	High	Low	Mod	High
Adolescent Medicine	2	0	1	2	0	1	1	0	2
Ambulatory Pediatrics	1	0	0	1	0	0	1	0	0
Endocrinology	1	0	1	1	0	1	1	1	0
Gastroenterology	0	1	1	0	2	0	0	2	0
Hematology and Oncology	1	1	2	0	2	2	1	3	0
Neurodevelopmental Pediatrics	0	1	5	1	0	5	3	0	3
Neonatology	1	2	1	2	1	1	1	2	1
Nephrology	1	0	2	1	0	2	2	1	0
Neurology	0	0	1	0	0	1	0	1	0
Pediatric Critical Care	1	1	3	1	3	1	2	2	1
Pediatric Infectious Diseases	3	1	3	3	2	2	3	2	2
Pulmonology	1	0	3	3	0	1	0	3	1
Residents	1	6	43	2	6	42	37	10	3
TOTAL	13	13	66	17	16	59	52	27	13

Spearman’s test of association was computed to assess the relationship between the current dominant training culture and the domains of burnout (Table 7). There was a positive association between emotional exhaustion (spearman rho = 0.437, p <0.001) and depersonalization (spearman rho = 0.347, p <0.001) with the market culture, while it is not linked with personal accomplishment (spearman rho = -0.140, p 0.183).

Table 7. Association between the market culture and domains of burnout

	Emotional Exhaustion	Depersonalization	Personal Accomplishment
Spearman rho	0.437	0.347	-0.140
p-value	<0.001	<0.001	0.183

DISCUSSION

Prior to the COVID-19 pandemic, 18% of pediatric residents at the Philippine Children's Medical Center (PCMC) reported experiencing high levels of burnout¹². This study revealed a notable increase in all three domains of burnout during the pandemic: 72% experienced significant emotional exhaustion, 64% exhibited high levels of depersonalization, and majority (57%) had low levels of personal accomplishment. The results are comparable to the study done at the Philippine General Hospital (PGH), which also revealed high levels of burnout among pediatric residents during the pandemic¹¹. The observed outcomes could be attributed to the confounding variable of the ongoing pandemic. In general, a significant majority of the medical trainees reported high levels of burnout across all three domains. This aligns with the global trend of elevated burnout rates among physicians during the pandemic, likely influenced by factors such as increased patient load, long working hours, and night-work shifts⁴⁰.

Recognizing the significance of the training culture is crucial as it can either enhance or diminish an institution's objectives

and goals. A positive culture plays an important role as it attracts applicants, fosters engagement, promotes retention, and influences satisfaction, all of which impact overall performance. A study in a hospital in the UK⁴¹ found that their current dominant culture is market culture while its preferred is clan culture, same with the results of this study. In terms of providing care to patients, the clan culture offers better quality of care and high patient satisfaction compared to market culture⁴²⁻⁴³. Market culture is characterized by a prominent sense of competition among individuals, with a strong focus on achieving results and prioritizing the needs of clients or patients. While it offers benefits such as increased productivity and self-improvement, an excessively competitive environment can lead to unhealthy competition and burnout⁴⁴, as supported by the findings of this study. On the other hand, the preferred clan culture fosters collaboration, commitment, participation, and loyalty, while promoting a sense of belongingness and open communication, creating a family-like atmosphere and a positive working environment.

A shift to a clan culture in an institution can increase work engagement and job satisfaction, reduce medical errors and patient complaints, and create a healthy patient safety environment⁴⁵. It is imperative to gradually change the training culture of the trainees to address the high prevalence of burnout and their preferred clan culture. Various interventions are recommended to address burnout, which includes increasing awareness of burnout in the hospital, implementing stress-reduction programs that incorporate regular mental health and emotional awareness activities facilitated by professionals, establishing a comprehensive wellness curriculum for trainees to foster well-being, providing workshops on communication skills and managing difficult patient interactions, and ensuring a manageable workload. Additionally, encouraging regular mentor-mentee discussions and organizing team-building activities can also be effective strategies in reducing burnout⁴⁶. In shifting to a clan culture, the organization needs to establish trust with its trainees by developing deeper connections with them. Instead of individual recognition, encouraging shared team rewards can foster a sense of teamwork, and boosting resident's morale through their inclusion in the Program on Awards and Incentives for Service Excellence (PRAISE) committee of the institution. Furthermore, promoting a feedback culture can enhance the bond among trainees,

encouraging open communication between each other and with their superiors. Creating a sense of connection within the organization can lead to improved individual and team performance, ultimately resulting in overall team success.

The limitation of this study is the few respondents in some subspecialties. Furthermore, the research was done during a pandemic which may be a confounding variable in the prevalence of burnout.

A follow-up study should be carried out in the future to monitor the prevalence burnout among the trainees and if there is a change in the culture of the institution. Additionally, conducting a supplemental study (categorical analysis) may also be done to assess association between other types of culture and burnout, as well as exploring the prevalence of burnout among residents across different year levels, fellows in each subspecialty training, post-graduate interns (PGI), and medical students.

CONCLUSION

The high prevalence of burnout among the pediatric trainees in our institution is congruent with the experiences of most medical residents worldwide. This study revealed that the current training culture is associated with burnout, specifically on emotional exhaustion and depersonalization. Preventive measures should be implemented to

burnout of the trainees and a gradual shift to the preferred clan culture, which negatively correlates with burnout.

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