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Cross-Cultural Medical Care Training and Education: a National Survey of Pediatric Hematology/Oncology Fellows-in-Training and Fellowship Program Directors

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Abstract
Pediatric hematologists/oncologists face complex situations such as breaking bad news, treatment/clinical trials discussions, and end-of-life/hospice care. With increasing diversity in patient and physician populations, cultural competency and sensitivity training covering different aspects of pediatric hematology/oncology (PDHO) care can help improve health care delivery and reduce disparities. Though it is considered a required component of fellowship training, there is no clearly defined curriculum meant specifically for PDHO fellows-in-training (PDHO-F). A national online survey of 356 PDHO-F and 67 PDHO program directors (PDHO-PD) was conducted to assess the educational experience, perceptions about identifying barriers including one's own biases and trainee comfort in delivering culturally sensitive care in various PDHO relevant clinical situations. One hundred and eleven (31.2%) PDHO-F and 27 (40.3%) PDHO-PD responded. 30.6% of PDHO-F "strongly agreed/agreed" they received comprehensive cross-cultural communication (CCC) training. The top two teaching methods were faculty role modeling and informal teaching. Majority of CCC training is in medical school or residency and only 10.8% of PDHO-F reported that most of their CCC training was in fellowship. In most clinical situations, there was a modest direct correlation between the fellow's level of agreement that they received comprehensive CCC training and their comfort level. Comfort level with some clinical situations was also significantly different based on year of training. Fellowship training programs should have CCC curricula which use experiential learning models and lay the foundation for promoting cultural awareness, self-reflection, and better patient-physician partnerships which can eventually adapt to and surmount the challenges unique to the physician's chosen field of practice.

Keywords Cross-cultural communication training · Pediatric hematology/oncology · Trainees · Program directors

Introduction

Communication is a key element of pediatric oncology care as it helps nurture patient-physician relationships as families struggle with life-threatening diagnoses, complex treatment plans which involve decision-making in the face of uncertainty, enrolling in clinical trials, impact of treatments on quality of life, long-term functional outcomes and fertility, and end-of-life/hospice care.

Factors such as race/ethnicity, cultural differences, educational status, and language barriers also play a major role in patient-physician communication and partnerships in ensuring ample access to and delivery of high-quality medical care. Studies have shown disparities in outcomes in childhood cancer as well as prognosis communication due to race/ethnicity [1–3]. While making decisions regarding cancer care, parents from racial/ethnic minorities maybe at a higher risk for decisional regret [4]. Socioeconomic status is also known to impact mortality risk in pediatric cancer. Pediatric patients with acute myeloid leukemia living in communities with greater economic and educational disadvantage and in communities

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with a confluence of moderately high economic and educational disadvantage, housing instability, and immigration-related features were noted to be at increased risk of mortality [5].

Educational organizations and other groups continue to emphasize the need for physician awareness of cultural factors and its impact on health care and the development of necessary skill sets for providing the best medical care. The American Academy of Pediatrics (AAP) recognizes that the increasing cultural diversity of patient populations has implications for the provision of pediatric health services and that culturally effective health care should be promoted through education at all levels, from premedical education and medical school through residency education and continuing medical education [6]. The AAP also recognizes communication training as a critical, but generally neglected, component of pediatric and pediatric subspecialty practice and training [7]. The Accreditation Council for Graduate Medical Education (ACGME) requires residents and fellows in training to demonstrate competence in effective communication skills across a broad range of socioeconomic and cultural backgrounds [8].

While the impact of cultural differences on health care and the need for effective communication skills and training are clearly evident, studies have shown that communication skills training in pediatric oncology is still lacking with didactic learning and role modeling being frequent methods of learning. This highlights both the lack of recognition of limitations of such learning methods and underutilization of the principles of adult learning theories and multimodal approaches in communication skill building [9, 10].

With increasing diversities in patient and physicians populations and shifts in populations that medical professionals serve currently and will serve over the next few decades, medical education which incorporates cultural humility, a process of life-long commitment to self-reflection and self-critique [11], will help physicians provide empathetic, respectful, and effective health care.

The purpose of this study was to conduct a national survey of pediatric hematology/oncology (PDHO) fellows-in-training (PDHO-F) and PDHO fellowship program directors (PDHO-PD) to learn about their educational experience and existing teaching methods in relation to cross-cultural communication (CCC) training in PDHO fellowship programs and perceived levels of trainee comfort when taking care of patients with limited language proficiency as well as patients from culturally diverse backgrounds, and to identify areas which will help enhance the training experience for future PDHO-F.

Methods

Survey Design

Two electronic survey tools were developed by three of the authors (A.A.N, V.R, and D.M.W) for the administration to PDHO-F and PDHO-PD, respectively. The survey was designed primarily to assess the educational structure and comfort levels of trainees in delivering culturally sensitive care with (1) patients who have limited/no English proficiency and (2) patients from different ethnic/racial/cultural backgrounds in various PDHO-relevant clinical situations. The various PDHO relevant clinical situations included in the survey were the following: breaking bad news/discussion of diagnosis, treatment discussion and shared medical decision-making, enrolling on clinical trials (phase I and II and randomized control trials), end-of-life/hospice care, medication compliance, and oncofertility issues.

PDHO-F Survey Tool The trainee survey included questions to obtain basic demographic information such as age, gender, racial/ethnic background, current year of fellowship training, prior residency training details, and medical school training details (United States (US) medical school or non-US medical school). Trainee perception about identifying barriers including one's own biases when taking care of patients from different backgrounds was solicited using a 5-point Likert scale measuring level of agreement/disagreement. Questions on approximate proportion of patients cared for from different ethnic/racial/cultural backgrounds and of limited/no English proficiency were included. A question addressing type of interpreter services (interpreter present during patient encounter, virtual interpreter via online remote access device, family/community member) which trainees find most useful was included. The level of trainee comfort in various PDHO-related clinical situations with patients from different ethnic/racial/cultural backgrounds and patients who have limited/no English proficiency was recorded using the following 5-point Likert scale response options: very uncomfortable, somewhat uncomfortable, neither comfortable or uncomfortable, somewhat comfortable, and very comfortable. Three questions were designed to address the educational experience of the trainees which included when they felt they received the most cross-cultural communication training (medical school, residency, fellowship, other), if they receive comprehensive CCC training in their current program (using a 5-point Likert scale measuring level of agreement/disagreement) and current teaching methods (formal lecture sessions, informal teaching on a case-to-case basis, interactive sessions with cultural diversity experts/language interpreters, faculty role modeling, simulated patient interactions).

PDHO-PD Survey Tool The program director survey had a similar structure and design as the trainee survey. Additional questions included information on fellowship program size, where program directors received their medical training (US programs or non-US programs), if program directors received cross-cultural communication training during their medical training (medical school, residency, fellowship) and if their programs facilitate faculty skill development and role modeling for providing culturally competent care. The program director perception of trainee level of comfort in various PDHO-related clinical situations with patients from different ethnic/racial/cultural backgrounds and patients who have limited/no English proficiency was recorded using the following 5-point Likert scale response options: very uncomfortable, somewhat uncomfortable, neither comfortable or uncomfortable, somewhat comfortable, and very comfortable.

Study Design and Participants

The surveys were distributed electronically to 356 trainees (PDHO-F survey) and 67 program directors (PDHO-PD survey) of the ACGME-accredited US pediatric hematology/oncology training programs using a secure web-based application in March 2016. Each participant received an initial request followed by a maximum of three reminders. Participation was voluntary. Responses were anonymous and participants were not asked the name of their program. No incentives or compensation was offered. This study was deemed as meeting requirements for exempt research status by the Mayo Clinic Institutional Review Board.

Statistical Analysis

Results are reported using frequency and percentages. Ordinal measures on a 5-point Likert scale were compared between groups using the Kruskal-Wallis test (for three groups) and the Wilcoxon rank sum test (for two groups). The Spearman rank correlation was used to summarize the degree of correlation between a trainee's level of agreement with regards to having received comprehensive CCC training and comfort level with various clinical situations. All statistical tests were two sided and p value of < 0.05 was considered statistically significant. SAS®, Version 9.4.was used for statistical analyses.

Results

Participant Characteristics The total responses received were 111 (31.2%) and 27 (40.3%) for the PDHO-F and PDHO-PD surveys, respectively. Table 1 summarizes the respondents' characteristics.

Table 1 Characteristics of PDHO-F and PDHO-PD respondents

A. Characteristics of PDHO-F respondents	*N* (%)
Total	111
Fellowship year	
1st year	28 (25.2)
2nd year	35 (31.5)
3rd year	42 (37.8)
4th year	5 (4.5)
Other*	1 (0.9)
Medical school training	
Non-US program	20 (18.0)
US program	91 (82.0)
Residency training	
Pediatrics	104 (93.7)
Internal medicine and pediatrics (combined program)	6 (5.4)
Child neurology	1 (0.9)
Age category (years)	
Total number of responses	108
26–30	15 (13.9)
31–35	76 (70.4)
36–40	13 (12.0)
41–45	4 (3.7)
Gender	
Total number of responses	109
Female	72 (66.1)
Male	37 (33.9)
Racial/ethnic background	
Total number of responses	104
Asian	19 (18.3)
Black or African American	6 (5.8)
Hispanic	7 (6.7)
Non-Hispanic White	72 (69.2)
B. Characteristics of PDHO-PD respondents	*N* (%)
Total	27
Position	
Associate program director	1 (3.7)
Program director	26 (96.3)
Fellowship program size	
1–2 fellows/year	18 (66.7)
3–4 fellows/year	5 (18.5)
5 or more fellows/year	4 (14.8)
Medical training	
Medical school—US program	27 (100)
Residency—US program	27 (100)
Fellowship—US program	27 (100)
Age category	
< 36	1 (3.7)
36–45	12 (44.4)
46–55	9 (33.3)
> 55	5 (18.5)
Respondent gender	

Table 1 (continued)

Female	14 (51.9)
Male	13 (48.1)
Racial/ethnic background	
Total number of responses	26
Asian	6 (23.1)
Hispanic	1 (3.8)
Native Hawaiian or other Pacific Islander	1 (3.8)
Non-Hispanic White	18 (69.2)

PDHO-F pediatric hematology/oncology fellows-in-training, *PDHO-PD* pediatric hematology/oncology program directors

*Recent graduate (3 months from graduation)

Patient Population

Supplemental Table 1 outlines the approximate proportion of their (1) patient population with limited/no English language proficiency and (2) patient population belonging to ethnic/racial/cultural background different from the respondents.

Trainee Self-Assessment

Of the 111 trainees, 75 (67.6%) either agreed or strongly agreed that their own cultural values/belief systems can create biases when treating patients. The majority ($n = 104$, 93.7%) agreed or strongly agreed that they are able to identify potential barriers in patient care based on their ethnic/racial/cultural background.

Educational Experience

Among the 111 PDHO-F respondents, only 30.6% ($n = 34$) agreed/strongly agreed that they receive comprehensive CCC training in their current program. Only 10.8% ($n = 12$) reported receiving their most cross-cultural communication training for providing good patient care during fellowship training. The majority of the trainees reported that the most cross-cultural communication training they received was in residency (45%, $n = 50$), in medical school (32.4%, $n = 36$) with a small group reporting no training (7.2%; $n = 8$), or in other training (4.5%; $n = 5$) such as personal/life experiences and upbringing. Current teaching methods are as outlined in Fig. 1. The top two teaching methods reported by trainees were faculty role modeling (67.6%, $n = 75$) and informal teaching on a case-to-case basis (44.1%, $n = 49$).

Out of the 26 PDHO-PD responders, 10 (38.5%) and 8 (30.8%) responded yes to receiving cross-cultural communication training during medical school and residency, respectively, with only 5 (19.2%) responding yes to receiving cross-cultural communication training during fellowship training. Only 9 out of 27 (33.3%) PDHO-PD respondents reported that their program facilitates faculty skill development and role modeling for providing culturally competent patient care.

Trainee Comfort Levels

Perceived comfort levels of PDHO-F and PDHO-PD perception of PDHO-F comfort levels in various clinical situations are as detailed in Supplemental Table 2. When dealing with patients with limited or no English proficiency, the top four clinical situations in which the trainees reported feeling very or somewhat uncomfortable were the following: (1) enrolling patients in phase I/II clinical trials (24.0%), (2) oncofertility issues (20.6%), (3) end-of-life/hospice care (16.8%), and (4) enrolling patients in randomized control/phase III clinical trials (15.9%). When dealing with patients from different ethnic/racial/cultural backgrounds, the trainees reported feeling very or somewhat uncomfortable for the same four clinical situations (refer to Supplemental Table 2). No difference was noted between PDHO-PD perceptions of PDHO-F comfort levels with various clinical situations and PDHO-F-reported comfort levels.

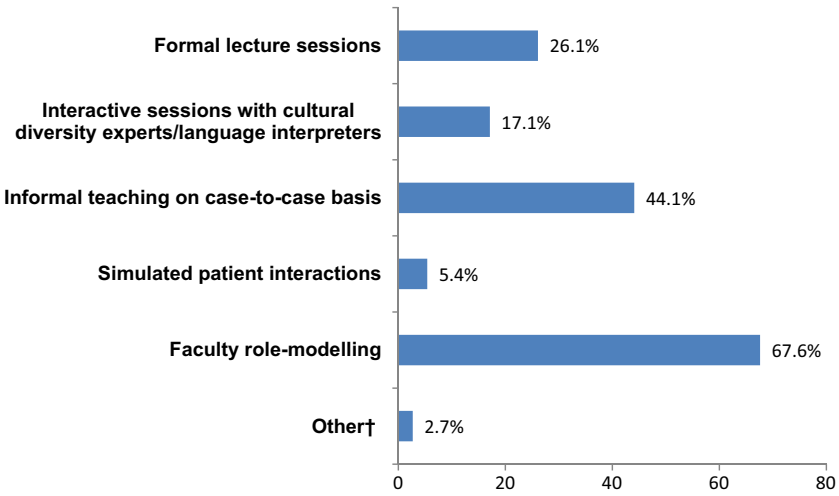

Fig. 1 Current teaching methods reported by PDHO-F respondents. †Three respondents reported other methods including online modules and working with patients

Table 2 Comparisons of PDHO-F respondents perceived comfort levels based on year of fellowship

Clinical Situation	Year of fellowship			*p* value†			
	1st year ($N = 28$)	2nd year ($N = 35$)	≥ 3rd year ($N = 48$)	Global	1st vs. 2nd	1st vs. ≥ 3rd	2nd vs. ≥ 3rd
A. When dealing with patients with limited/no English proficiency							
Breaking bad news/discussion of diagnosis				0.34			
Total number of responses	26	35	48				
Very uncomfortable	3 (11.5%)	0 (0.0%)	0 (0.0%)				
Somewhat uncomfortable	3 (11.5%)	3 (8.6%)	4 (8.3%)				
Neither comfortable nor uncomfortable	2 (7.7%)	3 (8.6%)	3 (6.3%)				
Somewhat comfortable	11 (42.3%)	17 (48.6%)	25 (52.1%)				
Very comfortable	7 (26.9%)	12 (34.3%)	16 (33.3%)				
Treatment discussion and shared medical decision-making				0.23			
Total number of responses	26	35	48				
Very uncomfortable	3 (11.5%)	0 (0.0%)	0 (0.0%)				
Somewhat uncomfortable	0 (0.0%)	2 (5.7%)	2 (4.2%)				
Neither comfortable nor uncomfortable	3 (11.5%)	6 (17.1%)	5 (10.4%)				
Somewhat comfortable	14 (53.8%)	15 (42.9%)	21 (43.8%)				
Very comfortable	6 (23.1%)	12 (34.3%)	20 (41.7%)				
Enrolling in phase I/II clinical trials				0.15			
Total number of responses	22	33	45				
Very uncomfortable	2 (9.1%)	0 (0.0%)	0 (0.0%)				
Somewhat uncomfortable	6 (27.3%)	8 (24.2%)	8 (17.8%)				
Neither comfortable nor uncomfortable	4 (18.2%)	6 (18.2%)	9 (20.0%)				
Somewhat comfortable	9 (40.9%)	14 (42.4%)	20 (44.4%)				
Very comfortable	1 (4.5%)	5 (15.2%)	8 (17.8%)				
Enrolling in randomized control/phase III clinical trials				0.020	0.036	0.006	0.65
Total number of responses	25	35	47				
Very uncomfortable	2 (8.0%)	0 (0.0%)	0 (0.0%)				
Somewhat uncomfortable	6 (24.0%)	5 (14.3%)	4 (8.5%)				
Neither comfortable nor uncomfortable	4 (16.0%)	5 (14.3%)	5 (10.6%)				
Somewhat comfortable	10 (40.0%)	14 (40.0%)	24 (51.1%)				
Very comfortable	3 (12.0%)	11 (31.4%)	14 (29.8%)				
Medication compliance				0.09			
Total number of responses	26	35	48				
Very uncomfortable	3 (11.5%)	0 (0.0%)	0 (0.0%)				
Somewhat uncomfortable	1 (3.8%)	4 (11.4%)	4 (8.3%)				
Neither comfortable nor uncomfortable	3 (11.5%)	5 (14.3%)	5 (10.4%)				
Somewhat comfortable	14 (53.8%)	16 (45.7%)	17 (35.4%)				
Very comfortable	5 (19.2%)	10 (28.6%)	22 (45.8%)				
End-of-life/hospice care				0.13			
Total number of responses	25	34	48				
Very uncomfortable	4 (16.0%)	1 (2.9%)	0 (0.0%)				
Somewhat uncomfortable	2 (8.0%)	4 (11.8%)	7 (14.6%)				
Neither comfortable nor uncomfortable	7 (28.0%)	7 (20.6%)	8 (16.7%)				
Somewhat comfortable	10 (40.0%)	17 (50.0%)	24 (50.0%)				
Very comfortable	2 (8.0%)	5 (14.7%)	9 (18.8%)				
Oncofertility issues				0.08			
Total number of responses	25	34	48				
Very uncomfortable	4 (16.0%)	1 (2.9%)	0 (0.0%)				

Table 2 (continued)

Clinical Situation	Year of fellowship			*p* value†			
	1st year ($N = 28$)	2nd year ($N = 35$)	≥ 3rd year ($N = 48$)	Global	1st vs. 2nd	1st vs. ≥ 3rd	2nd vs. ≥ 3rd
Somewhat uncomfortable	5 (20.0%)	5 (14.7%)	7 (14.6%)				
Neither comfortable nor uncomfortable	6 (24.0%)	9 (26.5%)	12 (25.0%)				
Somewhat comfortable	8 (32.0%)	14 (41.2%)	21 (43.8%)				
Very comfortable	2 (8.0%)	5 (14.7%)	8 (16.7%)				
B. When dealing with patients from different ethnic/racial/cultural backgrounds							
Breaking bad news/discussion of diagnosis				0.007	0.050	0.002	0.28
Very uncomfortable	1 (3.6%)	0 (0.0%)	0 (0.0%)				
Somewhat uncomfortable	4 (14.3%)	3 (8.6%)	1 (2.1%)				
Neither comfortable nor uncomfortable	3 (10.7%)	2 (5.7%)	2 (4.2%)				
Somewhat comfortable	14 (50.0%)	15 (42.9%)	20 (41.7%)				
Very comfortable	6 (21.4%)	15 (42.9%)	25 (52.1%)				
Treatment discussion and shared medical decision-making				0.005	0.57	0.003	0.014
Very uncomfortable	1 (3.6%)	0 (0.0%)	1 (2.1%)				
Somewhat uncomfortable	1 (3.6%)	2 (5.7%)	0 (0.0%)				
Neither comfortable nor uncomfortable	2 (7.1%)	3 (8.6%)	2 (4.2%)				
Somewhat comfortable	16 (57.1%)	17 (48.6%)	14 (29.2%)				
Very comfortable	8 (28.6%)	13 (37.1%)	31 (64.6%)				
Enrolling in phase I/II clinical trials				0.004	0.035	0.001	0.21
Total number of responses	24	33	45				
Very uncomfortable	0 (0.0%)	0 (0.0%)	1 (2.2%)				
Somewhat uncomfortable	7 (29.2%)	5 (15.2%)	3 (6.7%)				
Neither comfortable nor uncomfortable	6 (25.0%)	3 (9.1%)	3 (6.7%)				
Somewhat comfortable	9 (37.5%)	19 (57.6%)	25 (55.6%)				
Very comfortable	2 (8.3%)	6 (18.2%)	13 (28.9%)				
Enrolling in randomized control/phase III clinical trials				0.001	0.008	< 0.001	0.26
Total number of responses	28	35	47				
Very uncomfortable	0 (0.0%)	0 (0.0%)	1 (2.1%)				
Somewhat uncomfortable	7 (25.0%)	2 (5.7%)	3 (6.4%)				
Neither comfortable nor uncomfortable	4 (14.3%)	3 (8.6%)	1 (2.1%)				
Somewhat comfortable	13 (46.4%)	17 (48.6%)	18 (38.3%)				
Very comfortable	4 (14.3%)	13 (37.1%)	24 (51.1%)				
Medication compliance				0.003	0.37	0.001	0.021
Very uncomfortable	0 (0.0%)	0 (0.0%)	1 (2.1%)				
Somewhat uncomfortable	3 (10.7%)	4 (11.4%)	0 (0.0%)				
Neither comfortable nor uncomfortable	4 (14.3%)	4 (11.4%)	4 (8.3%)				
Somewhat comfortable	14 (50.0%)	13 (37.1%)	12 (25.0%)				
Very comfortable	7 (25.0%)	14 (40.0%)	31 (64.6%)				
End of life/hospice care				0.001	0.020	< 0.001	0.09
Total number of responses	27	34	48				
Very uncomfortable	3 (11.1%)	0 (0.0%)	0 (0.0%)				
Somewhat uncomfortable	4 (14.8%)	3 (8.8%)	5 (10.4%)				
Neither comfortable nor uncomfortable	8 (29.6%)	7 (20.6%)	5 (10.4%)				
Somewhat comfortable	11 (40.7%)	20 (58.8%)	23 (47.9%)				
Very comfortable	1 (3.7%)	4 (11.8%)	15 (31.3%)				
Oncofertility issues				0.14			
Total number of responses	26	34	48				

Table 2 (continued)

Clinical Situation	Year of fellowship			*p* value†			
	1st year ($N = 28$)	2nd year ($N = 35$)	≥ 3rd year ($N = 48$)	Global	1st vs. 2nd	1st vs. ≥ 3rd	2nd vs. ≥ 3rd
Very uncomfortable	2 (7.7%)	1 (2.9%)	1 (2.1%)				
Somewhat uncomfortable	7 (26.9%)	1 (2.9%)	5 (10.4%)				
Neither comfortable nor uncomfortable	4 (15.4%)	10 (29.4%)	13 (27.1%)				
Somewhat comfortable	11 (42.3%)	17 (50.0%)	20 (41.7%)				
Very comfortable	2 (7.7%)	5 (14.7%)	9 (18.8%)				

PDHO-F pediatric hematology/oncology fellows-in-training

†A global comparison between the 3 fellowship year of training levels was evaluated using the Kruskal-Wallis test and pairwise comparisons between any two fellowship year of training levels were evaluated using the Wilcoxon rank sum test if the *p* value for the global test was < 0.05

There was no significant difference in perceived comfort levels of PDHO-F respondents in various clinical situations based on gender and between non-white and white as well as between Asian and white PDHO-F respondents (data not shown). While there was no statistically significant differences in perceived comfort levels of PDHO-F when comparing those respondents trained in US programs versus non-US programs, there was a trend towards significance in the following situations: (1) PDHO-F who trained in non-US programs tended to report feeling more comfortable in dealing with patients with limited or no English proficiency when discussing oncofertility issues compared to fellows who trained in US programs ($p = 0.07$) and (2) PDHO-F who trained in non-US programs tended to report feeling less comfortable in dealing with patients with different ethnic/racial/cultural backgrounds when breaking bad news or discussing the diagnosis ($p = 0.07$). However, 64 (70.4%) of the 91 fellows with US medical school training were non-Hispanic white compared to 8 (40%) of the 20 fellows with non-US medical school training. Therefore, one needs to be cautious in interpreting this data since we do not have a sufficient sample size to tease out whether the differences observed above are related to the training program or the differences in ethnic/racial background of those in each training program.

The level of perceived comfort was significantly different based on post-graduate year of training for some clinical situations. For those clinical situations in which the statistical test indicated statistically significant ($p < 0.05$) differences between any of the three groups (1st year, 2nd year, ≥ 3rd year), additional pairwise comparisons between the fellows in any two fellowship years were performed as shown in Table 2. First-year trainees reported being less comfortable than both 2nd year and ≥ 3rd year PDHO-F respondents in dealing with patients with limited or no English proficiency when enrolling patients in randomized control/phase III clinical trials. First-year trainees reported being less comfortable than both 2nd year and ≥ 3rd year PDHO-F respondents in dealing with patients with different ethnic/racial/cultural backgrounds when breaking bad news or having discussions about diagnosis, when enrolling patients in phase I/II clinical trials, when enrolling patients in randomized control/phase III clinical trials, and when dealing with end-of-life/hospice care. Both 1st year and 2nd year trainees reported being less comfortable than ≥ 3rd year PDHO-F respondents in dealing with patients with different ethnic/racial/cultural backgrounds with treatment discussions and shared medical decision-making and medication compliance.

The Spearman rank correlation coefficient was used to summarize the degree of correlation between trainee's level of agreement that they received comprehensive CCC training and their perceived comfort level. A positive, direct correlation denotes that those who agree that they received comprehensive training were more likely to report feeling more comfortable. Based on the sample size, correlations greater than 0.20 were significantly different from zero at the 0.05 level. Correlations in the range of 0.21 to 0.29 were observed for the perceived comfort level in dealing with patients with limited or no English proficiency for breaking bad news/discussion of diagnosis, treatment discussion, enrolling in phase I or phase II clinical trials, end-of-life/hospice care, and oncofertility issues.

Discussion

A physician involved in the care of a child with cancer does not stop at just treating the disease. He/she is entrusted with the task of breaking complex information with many unknowns in the immediate and distant future, including dismal prognosis, to patients/families from different walks of life and diverse backgrounds with the primary goal of providing the best medical care through a shared decision-making process. Even two families from the same cultural background may have different perspectives, expectations, and needs.

Effective communication has been shown to improve patient-physician satisfaction, adjustment to illness, and medical decision-making [12, 13]. However, when dealing with patients with a cancer diagnosis, parents and providers have reported communication deficiencies in many areas such as initial diagnosis, treatment decisions including clinical trial enrollment, survivorship transition, and end-of-life and advance care planning. These communication deficiencies may in part be due to insufficient communication skills training, overreliance on role modeling, and failure to utilize best practices [10]. Moreover, though there is clear need for communication skills development through the continuum of one's medical career, from the time of entry into medical school through the years as a practicing physician, there is little in the form of structured curricula with trainees often relying on role modeling and didactic learning for skill development.

A nationwide survey of 2047 residents from various specialities including pediatrics showed that less than half of the respondents reported that they were "well-prepared" or "very well prepared" to provide cross-cultural care. Nearly one third of residents reported lacking good role models or mentors for cross-cultural care and one third to half reported receiving little or no training in key areas since they left medical school [14]. In our study, less than one third of the PDHO-F respondents agreed/strongly agreed that they receive comprehensive CCC training in their current training program. Our survey also shows that there is a decrease in CCC training as PDHO-F progress through training with most of the training in medical school and residency and only 10.8% reporting they received the most training during fellowship.

The top four clinical situations where fellows reported being very or somewhat uncomfortable when dealing with families with limited English proficiency and diverse cultural backgrounds were enrolling patients in phase I/II clinical trials, oncofertility issues, end-of-life/hospice care, and enrolling patients in clinical randomized control phase III trials. Though our study did not look at parental perceptions, prior studies on parental perception have shown parents reporting inadequate discussion of alternatives to the proposed treatment and of the research nature of the protocol [15], lower quality of information received regarding issues related to the child's future [16], and insufficient discussion on survivorship and potential oncofertility issues [17]. End-of-life care is one of the most challenging areas of practice in pediatric oncology. Studies have shown both parents and physicians identifying communication challenges at end of life [18, 19]. In addition, a recent study showed that race/ethnicity does impact pediatric hospice experience for parents [20].

More than 90% of PDHO-F agreed/strongly agreed that they are able to identify potential barriers while delivering cross-cultural care. However, the level of perceived comfort was significantly different based on post-graduate year of training for some clinical situations and a modest direct correlation was noted between trainee's level of agreement with receiving comprehensive CCC training and their perceived comfort levels. This highlights the need for CCC curricula that spread over the entire training period while focusing on various PDHO-related clinical situations.

The two most common CCC training methods reported by PDHO-F respondents were faculty role modeling and informal teaching on case-to-case basis similar to what other studies on communication have shown as well [9, 21]. Interactive learning methods such as simulated patient interactions and interactive sessions with culturally diverse experts and interpreters constituted a small proportion of training methods. Over the years, many adult learning theories have continued to demonstrate the need for teaching and learning that goes beyond passive listening and lectures. Experiential learning, as described by David Kolb, considers "learning as a process whereby knowledge is created through the transformation of experience." The four required elements for the learner include the following: (1) active learning (concrete experiences), (2) ability to reflect on experiences (reflective observation), (3) abstract conceptualization, and (4) active experimentation wherein the learner, through cycles of experience, reflection, and knowledge acquisition, is able to add more value to daily experiences [22]. In addition to adult learning methodologies, to provide effective cross-cultural care throughout the continuum of one's career as a medical professional, physicians also need to cultivate cultural humility which has been described as a process of life-long learning, self-reflection, and critique. Cultural humility allows a physician to be self-aware of unconscious biases and stereotyping and allows situational awareness that takes into account both general and individual preferences greatly impacting communication and decision-making [11].

Our program has piloted and implemented a CCC training curriculum for our fellows utilizing an experiential learning model that includes the following: (1) a pre-course self-reflection; (2) a learning module with a review of published literature and multiple choice questions; (3) a half-day workshop with faculty-facilitated small-group role play simulations addressing challenging areas of communication related to pediatric hematology/oncology care such as diagnosis, breaking bad news, end-of-life care, treatment decision-making, and informed consent-clinical trials within the framework of diverse cultural-belief systems; (4) interactive sessions with language interpreters and physicians from different cultural, ethnic, and religious belief systems; and (5) a post-course reflection at 1 and 3 months after the workshop. This curriculum has been well received by our trainees. Although it was primarily meant for trainees, this curriculum has helped promote an environment that embraces cultural humility for the involved faculty as well. This curriculum is available on MedEDPORTAL and can be readily implemented, with modifications if necessary, by other training programs as well [23].

The success of a communication skills training program also heavily rests on faculty professional development [24]. In our study, two thirds of the program directors reported their program does not facilitate faculty skill development and role modeling for providing culturally competent patient care demonstrating the need for faculty development programs and resources. MedEDPORTAL and other organizations such as the American Society of Clinical Oncology and American Society of Pediatric Hematology/Oncology serve as a great resource for various programs/curricula that can be utilized for both trainee and faculty development.

Our study has limitations which include the cross-sectional nature of the study and possible selection bias. Given the limited number of respondents, those willing to respond may not be representative of the entire group of PDHO-PD and PDHO-F in the country. In addition, given the lack of information on survey non-responders, it is possible that the responders maybe different from non-respondents in characteristics that could have impacted the study inferences. Also, the perceived level of comfort with various clinical situations may not be entirely reflective of the actual knowledge and skillsets of the trainees required to deliver high-quality care. This study also does not address patient/parent perceptions of the quality of communication delivered by the trainees.

In conclusion, our survey results and published literature demonstrate the importance and need for CCC curricula and faculty development programs in the field of pediatric oncology. No physician can learn and master every culture and belief system known to mankind. The goals of cross-cultural care training is to create self-awareness, to recognize the influence of different factors such as language proficiency and health literacy on health care, and to develop and incorporate strategies and tools that help the next generation of pediatric oncologists to provide culturally sensitive care that promotes application of clinical knowledge in the context of each individual patient and their needs and beliefs. It is therefore important to recognize that cross-cultural care involves the physician, the patient, and the clinical context. Training curricula as well as faculty development programs should focus on all three aspects and not just on the physician or the patient. This in turn will greatly enhance health care as well as provider and patient satisfaction.

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