DIGITAL ACCESS TO SCHOLARSHIP AT HARVARD
DASH.HARVARD.EDU

HARVARD LIBRARY
Office for Scholarly Communication

Medical Students' and Faculty's Perceptions of Psychological Safety in the Core Clerkships: Experience From Harvard Medical School and Faculty of Medicine, Universitas Indonesia

Citation
Khairani, Candrika Dini. 2020. Medical Students' and Faculty's Perceptions of Psychological Safety in the Core Clerkships: Experience From Harvard Medical School and Faculty of Medicine, Universitas Indonesia. Master's thesis, Harvard Medical School.

Permanent link
https://nrs.harvard.edu/URN-3:HUL.INSTREPOS:37365303

Terms of Use
This article was downloaded from Harvard University's DASH repository, and is made available under the terms and conditions applicable to Other Posted Material, as set forth at http://nrs.harvard.edu/urn-3:HUL.InstRepos:dash.current.terms-of-use#LAA

Share Your Story

The Harvard community has made this article openly available.
Please share how this access benefits you. Submit a story .

Accessibility

MEDICAL STUDENTS' AND FACULTY'S PERCEPTIONS OF PSYCHOLOGICAL SAFETY IN THE CORE CLERKSHIPS: EXPERIENCE FROM HARVARD MEDICAL SCHOOL AND FACULTY OF MEDICINE, UNIVERSITAS INDONESIA

CANDRIKA DINI KHAIRANI

A Thesis Submitted to the Faculty of

The Harvard Medical School

in Partial Fulfillment of the Requirements

for the Degree of Master of Medical Sciences in Medical Education

Harvard University

Boston, Massachusetts.

May, 2020

Thesis Mentor: David Alan Hirsh, MD, FACP Candrika Dini Khairani, MD

Medical Students' and Faculty's Perceptions of Psychological Safety in The Core Clerkships: Experience from Harvard Medical School and Faculty of Medicine, Universitas Indonesia

Abstract

Background: Psychological safety describes people's perceptions of feeling safe to take interpersonal risks. The medical education literature encourages educators to foster a psychologically safe environment, but few studies explore what educational approaches create psychological safety in clinical clerkships. This study aimed to characterize psychological safety in clinical clerkships in two medical schools in different cultural contexts, Harvard Medical School (HMS) and Universitas Indonesia (UI).

Method: We carried out a mixed-methods study at HMS and UI. We distributed an online survey using Edmondson's psychological safety scale to measure students' psychological safety. We then conducted semi-structured interviews of students and faculty. We transcribed the interviews verbatim and analyzed them using qualitative content analysis.

Results: Survey results indicated that for HMS and UI students' psychological safety did not significantly differ. Students and faculty in each school also shared a similar understanding of the construct of psychological safety. Students and faculty reported that students learn better in psychologically safe environments. Both students and faculty described that students feel psychologically safe in their clerkships when students feel they are able to have their concerns addressed, to act without fear, and to not be preoccupied with portraying themselves as competent.

Differences between the two schools appeared in the factors participants described that influence students' psychological safety, including social, personal, and organizational factors.

Discussion and Conclusions: We described the construct of psychological safety in a medical school in the US and one in Indonesia and characterized factors that influence psychological safety in these contexts. Study participants at HMS and UI similarly characterized the construct of psychological safety and its consequences even though these schools are located in countries with different cultural values. We consider psychological safety and the factors that influence it through the lens of the cultural context and Hofstede's cultural dimensions framework.

Take-home Messages: Psychological safety is a construct that can be determined in medical schools in different cultural settings. Psychological safety may be influenced by a cultural context, and education leaders should consider these factors when formulating culturally appropriate interventions to foster psychological safety.

This Thesis, Medical Students' and Faculty's Perceptions of Psychological Safety in the Core Clerkship: Experience from Harvard Medical School and Faculty of Medicine, Universitas Indonesia , presented by Candrika Dini Khairani, and Submitted to the Faculty of The Harvard Medical School in Partial Fulfillment of the Requirements for the Master of Medical Sciences in Medical Education has been read and approved by:

Amy C. Edmondson, PhD

Donna Luff, PhD

Ardi Findyartini, MD, PhD

Date: April 23, 2020

Table of Contents

Chapter 1. Background 1

1.1. Background 1

Chapter 2. Data and Methods 4

2.1. Subject and setting 4

2.2. Study design 4

2.2.1. Quantitative 5

2.2.2. Qualitative 5

2.3. Data Analysis 6

2.3.1. Quantitative 6

2.3.2. Qualitative 6

2.4. Results 7

2.4.1. Quantitative Results 7

2.4.2. Qualitative Results 4

Chapter 3. Discussions 14

3.1. Psychological Safety in the Core Clerkships 15

3.2. Cultural influence on Psychological Safety 19

3.3. Implications for Medical Education 24

3.4. Strengths and Limitation 25

3.5. Conclusions 26

Bibliography 27

Appendices 33

Medical Students Interview Guide 33

Faculty and Administrators Interview Guide 34

English version of the Psychological Safety Scale 35

Indonesian version of the Psychological Safety Scale 36

List of tables

Tables

Table 1 Demographic characteristics of survey respondents 16

Table 2 Pearson Correlation Matrix of all items within the English and Indonesian Psychological Safety Scales 17

Table 3 Psychological Safety Scores 17

Table 4 Linear regression results 17

Acknowledgements

This thesis was written during a truly unprecedented time. Its completion would not have been possible if it were not for these people mentioned below.

First and foremost, I wish to express my sincere appreciation to my amazing thesis mentor, Dr. David Hirsh, for his guidance and support. Thank you for providing me with a psychologically safe environment throughout the thesis process. Without him, this thesis project would not have been realized. Also, I would like to thank my thesis committee, Prof. Amy C. Edmondson, Dr. Donna Luff, and Dr. Ardi Findyartini. I wholeheartedly appreciate the valuable feedback each of you provided.

Also, I would like to express my sincere gratitude for the Indonesia Endowment Fund for Education (LPDP); it provided me with the funding and scholarship support for this thesis project. Without their support, this project would not have been realized. I would also like to thank the Indonesian Medical Education and Research Institute (IMERI) and the Faculty of Medicine Universitas Indonesia for providing me with a place to conduct my research when I was in Indonesia.

I would also like to thank the people behind the Master's program, Dr. Jennifer Kesselheim and Ayres Heller. Thank you both for the invaluable assistance that each of you provided me with during my time of study. In addition, I would also like to extend my special regards to each of my

classmates. I have enormously benefitted from our fruitful discussions throughout the master's program.

I also want to express my sincere gratitude for my parents, who have helped me since the very beginning. This accomplishment would not have been possible without them.

Lastly, I would like to thank all of the people who assisted me throughout the process of conceptualizing and planning this research, collecting and analyzing the data, and writing this thesis, including those whose names may not appear here.

This work was conducted with support from Students in the Master of Medical Sciences in Medical Education program of Harvard Medical School. The content is solely the responsibility of the author and does not necessarily represent the official views of Harvard University and its affiliated academic health care centers

Chapter 1. Background

1.1. Background

An effective learning environment allows students to admit mistakes, respond to feedback and reflect on their performance openly. These learning behaviors (Edmondson, 1999) provide opportunities for learners to acquire knowledge, grow professionally, and develop resilience (Bynum & Haque, 2016). However, in professionally challenging fields such as health care, learners may adopt avoidance behaviors because of their fear of harming their professional reputation and self-image (Edmondson, 2008). People adopt avoidance behaviors, such as failing to report mistakes when errors generate punitive action (Vincent, Stanhope, & Crowley-Murphy, 1999). Environments that are not safe for learners to make mistakes limit learning as people's concern for their self-image discourages them from taking risks or engaging in more difficult activities that promote learning (Bynum & Haque, 2016).

When learners believe that they can overcome barriers and feel secure speaking up, asking for help and engaging in behaviors that might be uncomfortable but necessary, they benefit from an environment that is "psychologically safe" (Kerr, 2004). Psychological safety is defined as the perception that an environment is safe enough to engage in interpersonal risk-taking behaviors, such as speaking up and admitting mistakes (Edmondson, 1999). Psychological safety has been shown to be closely related to positive learning experiences, team communications, and mistake reporting tendencies (Appelbaum, Dow, Mazmanian, Jundt, & Appelbaum, 2016; Edmondson, Higgins, Singer, & Weiner, 2016; Torralba et al., 2016).

Identifying the factors that contribute to the formation of psychological safety in the clinical learning environment is difficult, especially in medical students' clinical clerkships. While the medical education literature encourages educators to create psychologically safe environments, few studies explore what methods provide psychological safety in the clinical learning environment. Many contextual factors contribute to creating psychological safety in a clinical learning environment, and the means to create psychological safety varies across cultures.

In medical education, Hofstede's cultural dimensions framework is used to explain cultural differences between countries (Findyartini, Hawthorne, McColl, & Chiavaroli, 2016; Suhoyo, Van Hell, Prihatiningsih, Kuks, & Cohen-Schotanus, 2014). These dimensions are power distance, uncertainty avoidance, collectivism/individualism, masculinity/femininity and long-term orientation (Hofstede, Jan Hofstede, & Minkov, 2010). Countries may have high or low scores based on these dimensions. To further understand the influence of these cultural dimensions on psychological safety, this research was conducted at two medical schools in two countries with different cultural values. One medical school is located in the United States, a country that places a low cultural value on collectivism and power distance (Hofstede et al., 2010). In countries with these values, students expressing their opinions and experimenting with new ideas is common (Hofstede, 2001), whether or not they experience psychological safety. The other medical school is located in Indonesia, a country that greatly values collectivism and power distance (Hofstede et al., 2010). In countries with these values, students tend not to speak up or express their opinions when in large groups (Hofstede, 2001; Hofstede et al., 2010). This research exploring psychologically safe environments in two different cultures will address these following questions:

How is psychological safety conceptualized in these two medical schools in two different cultural contexts?

1. What are the similarities and differences between medical students' and faculty's perceptions of HMS and FMUI toward psychological safety?
2. How do differences in cultural values between these two schools influence psychological safety in clerkships?

Specific Objectives

1. To adapt a questionnaire to measure psychological safety in the clinical learning environment;
2. To measure psychological safety in the core clerkships of HMS and FMUI
3. To identify facilitating factors and barriers to psychological safety based on students' and faculty's perceptions in the core clerkships of HMS and FMUI
4. To understand how cultural values influence psychological safety in the core clerkships of HMS and FMUI

Chapter 2. Data and Methods

2.1. Subject and setting

The study is conducted at Harvard Medical School (HMS) and Faculty of Medicine, Universitas Indonesia (FMUI). At HMS, students complete an undergraduate degree before medical school and start on their clinical clerkships in their second year. The core clerkship is one year long, take place in four main teaching hospitals, and involves eight rotations. FMUI, students enter medical school directly after finishing secondary education and start on their clinical clerkships in their fourth year. Here, the core clerkship is two years long, takes place in one main teaching hospital, and involves thirteen rotations. The institutional review boards of HMS and FMUI considered this study exempt from review (Protocol IRB 19-1170 and 89/UN2.F1/ETIK/2019, respectively).

2.2. Study design

We used a mixed-method study design using a quantitative online survey and qualitative semi-structured in-depth interviews. Psychological safety is measured using Edmondson's psychological safety instrument. The instrument used a 5-point Likert scale to assess students' agreement with a variety of statements about psychological safety in the clerkships. The cumulative total score was then divided by the total items. The psychological safety instrument was adapted to be used in a clinical learning environment context through a series of adaptations and validation processes (Artino, La Rochelle, Dezee, & Gehlbach, 2014). An expert committee reviewed the survey items and gave their feedback, and the survey items were then revised based on the input. Cognitive pre-testing was done with ten people from the target population to collect evidence of the response process validity.

After validating the survey in English, the instrument was adapted to Indonesian, the national language of Indonesia. The adaptation process involved a translation, a back-translation, a comparison between the translated and back-translated versions, and an expert committee review (Gjersing, Caplehorn, & Clausen, 2010).

2.2.1. Quantitative

HMS and FMUI students received an email invitation to participate in this study, which included an informed consent form and a survey. The survey consisted of sociodemographic questions and the 7-item psychological safety instrument. HMS students received the English version of the survey, and FMUI students received the translated version of the survey. The survey for HMS students was distributed to students that will be graduating in 2021 and 2022. The survey for FMUI students was distributed to students that will be graduating in 2020.

2.2.2. Qualitative

Students received information about the interview at the end of the online survey. They were asked to submit their contact information if they wished to be interviewed. Faculty and administrators from each hospital received an email invitation for the interview. A total of 37 participants—27 medical students (17 HMS and 10 FMUI) and 10 faculty (5 HMS and 5 FMUI)—participated in a follow-up semi-structured in-depth interview. Interviews were conducted until thematic saturation was reached. Interviews were recorded, transcribed verbatim, and analyzed.

2.3. Data Analysis

2.3.1. Quantitative

We analyzed results using descriptive statistics and examined bivariate associations. We then analyzed the internal consistency of the Psychological Safety Scale by employing Cronbach's alpha and inter-item correlation. Data were analyzed using Stata software 16.0 (StataCorp. 2019. *Stata Statistical Software: Release 16*. College Station, TX: StataCorp LLC.).

2.3.2. Qualitative

All interviews were transcribed and then analyzed using a deductive content analysis process to obtain themes from the interview data, as guided by a pre-existing framework (Kiger & Varpio, 2020; Varpio, Paradis, Uijtdehaage, & Young, 2019). The interviewer (DK), who is the primary coder, first conducted an open coding of eight random transcriptions (four from each language). Two secondary coders (AF and CL), one for each language, coded the same transcriptions. The coders then compared their initial coding and discussed any discrepancies.

The primary coder then created a codebook based on the discussions, and the primary coder coded all transcripts using this codebook. Coding was done using NVivo qualitative data analysis software (QSR International Pty Ltd. Version 12, 2018).

2.4. Results

2.4.1. Quantitative Results

A total of 82 students from HMS and 158 students from FMUI participated in the survey. The response rate was 25% for HMS students and 84% for FMUI students. HMS students who participated were from Beth Israel Deaconess Medical Center (n = 31), Brigham and Women's Hospital (n = 24), Cambridge Health Alliance (n = 6), and Massachusetts General Hospital (n = 21). Among HMS students, 86.59% were from the Pathways track, and 13.41% of students were from the HST track.

The majority of FMUI respondents were from Jabodetabek (n = 108), and the remaining respondents were from Java non-Jabodetabek (n = 25), Sumatera (n = 14), Sulawesi (n = 4), Bali and Nusa Tenggara (n = 4), and Papua (n = 3). The majority of FMUI respondents were in the regular program (n = 124), and the rest were from the international program (n = 34). Participants' demographic characteristics are presented in Table 1.

The English and Indonesian psychological safety scales both received a good internal consistency score (Cronbach alpha of 0.86 and 0.76, respectively). These Cronbach's alphas were comparable to those reported by Edmondson (Edmondson, 1999) and another study (Appelbaum et al., 2016). Also, all inter-item correlations and factor loadings of all items within the psychological safety scale were found sufficient. The highest eigenvalues were 2.54, 0.10, and 0.50. Inter-item correlations and factor loadings are shown in Table 2.

Psychological safety scores were calculated by adding all item scores and dividing them by seven. The scores were normally distributed. Full details on the scores can be seen in Table 3.

We performed an unpaired two-sided t-test to compare the psychological safety scores between the two schools. We did not find a statistically significant difference in the mean score between the two schools ($p = 0.09$). Other variables were assessed with linear regression. The results of the regression analysis are shown in Table 4.

In addition, we also did the linear regression analysis for location-specific variables, such as MD tracks and main hospital sites for HMS, and programs and regions of origin for FMUI. For HMS, we did not find any significant difference between the Pathway track and the HST track, nor for hospital sites. For FMUI, students in the regular program yielded 0.41 points more in their psychological safety scores than students in the international program ($p<0.05$). We did not find any significant differences among the students' regions of origin.

Table 1 Demographic characteristics of survey respondents

Measure	Item	Harvard Medical School (n = 82)	Faculty of Medicine, Universitas Indonesia (n = 158)
		(%)	(%)
Gender	Female	45.5	55.1
	Male	50.0	44.9
	Transgender	1.2	0
	Prefer not to answer	4.55	0.0
Race	Hispanic, Latino or of Spanish origin	8.5	0.0
	Asian	37.8	100.0
	Black or African American	7.3	0.0
	White	36.6	0.0
	Prefer not to answer	7.3	0.0
Religion	Protestant	15.9	19.6
	Roman Catholic	12.2	15.8
	Hindu/Buddhist	9.8	5.7
	Muslim	2.4	57.6
	Atheist/Agnostic	39.0	0.00
	Jewish	7.3	00.0
	Other	13.4	1.27
Marital History	Never married	87.8	98.7
	Currently married	11.0	1.3
	Separated	1.22	0.00
Year of Birth	≥25	58.5	8.9
	23-24	41.5	76.0
	≤22	0.0	15.2
Highest Education Degree	Bachelor's degree	74.4	100.0
	Master's degree	14.6	0.0
	Doctoral degree	11.0	
Rotation	Longitudinal Integrated Clerkship	7.3	-
	Surgery	25.6	1.3
	Pediatric	9.8	0.0
	Radiology	11.0	0.0
	Internal Medicine	24.4	0.0
	OB-GYN	8.5	0.0
	Psychiatry	6.1	14.6
	Neurology	7.3	9.5
	Forensic	-	13.9
	Cardiology	-	10.8
	Ophthalmology	-	11.4

	Pulmonology	-	13.3
	ENT	-	13.3
	Dermatology	-	12.0

Table 2 Pearson Correlation Matrix of all items within the English and Indonesian Psychological Safety Scales

Items	1	2	3	4	5	6	7
1	1	0.44*	0.55*	0.58*	0.31*	0.43*	0.42*
2	0.41*	1	0.44*	0.54*	0.47*	0.40*	0.54*
3	0.36*	0.27*	1	0.51*	0.49*	0.55*	0.51*
4	0.30*	0.37*	0.23*	1	0.44*	0.40*	0.58*
5	0.44*	0.42*	0.49*	0.37*	1	0.37*	0.37*
6	0.21*	0.32*	0.11*	0.20*	0.38*	1	0.47*
7	0.28*	0.37*	0.31*	0.33*	0.47*	0.21*	1.00
Factor loadings	0.61	0.64	0.61	0.60	0.68	0.48	0.58

*Statistically significant at $p<0.01$
Four out of seven items were significantly different between the responses of FMUI and HMS students

Table 3 Psychological Safety Scores

Institution	Mean (95% CI)	SD	Median	Interquartile range	Min (% of the population)	Max (% of the population)
Harvard Medical School	3.41 (3.23 to 3.58)	0.43	3.43	0.86	1.14 (1.0)	5 (1.0)
Universitas Indonesia	3.24 (3.14 to 3.35)	0.68	3.29	0.86	1.14 (1.0)	4.71 (1.0)

Table 4 Linear regression results

Independent variable	Psychological safety score			
	Regression coefficient	95 % CI	Chi-square	r-square
Location				
Harvard Medical School	1.00	-	2.83~	0.01
Universitas Indonesia	-0.17	-0.36 to 0.28		
Gender				
Female	0.00	-	4.14**	0.05
Male	0.13	-0.06 to 0.31		
Transgender	-2.10**	-3.51 to -0.69		
Year of Birth				
≥25	0.00	-	1.27	0.01
23-24	-0.16	-0.37 to 0.06		
≤22	0.00	-0.34 to 0.34		
Marital History				
Single/Never married	0.00	-	3.49*	0.03
Married	-0.24	-0.68 to 0.20		
Separated	-1.75	-3.16 to -0.33		
Race				
Hispanic, Latino or Spanish origin	0.00	-		
Asian	0.32	-0.23 to 0.86	1.23	0.03
Black or African American	0.23	-0.56 to 1.02		
White	0.49	-0.11 to 1.08		
Other	1.11	-0.03 to 2.26		
Religion				
Muslim	0.00	-		
Protestant	0.23~	-0.03 to 0.50		
Roman Catholic	-0.07	-0.35 to 0.21		
Hindu/ Buddhist	-0.06	-0.44 to 0.32		0.03
Orthodox	0.18	-1.02 to 0.23	0.97	
Jewish	0.09	-1.02 to 1.39		
Atheist/ Agnostic	0.21	-0.28 to 0.21		
Other	-0.11	-0.55 to 0.32		
Highest Education Degree				
Bachelor's degree	0.00	-	3.17*	0.0049
Master's degree	-0.18	-0.60 to 0.24		
Doctoral degree	0.57*	0.09 to 1.05		
Rotation				
Surgery	0.00	-	6.25***	0.26
Longitudinal Integrated Clerkship	0.25	-0.33 to 0.83		
Pediatric	0.38	-0.14 to 0.89		

Radiology	0.89***	0.40 to 1.39
Internal Medicine	0.17	-0.21 to 0.56
OB-GYN	0.34	-0.20 to 0.89
Psychiatry	0.86***	0.51 to 1.22
Neurology	0.02	-0.36 to 0.40
Forensic	-0.44*	-0.81 to -0.06
Cardiology	-0.08	-0.48 to 0.32
Ophthalmology	-0.22	-0.62 to 0.17
Pulmonology	0.36~	-0.02 to 0.74
ENT	0.36~	-0.02 to 0.74
Dermatology	0.18	-0.21 to 0.57

Refuse to answer responses were suppressed in this analysis
T-statistics. ~p<0.1 * p<0.05 ** p<0.01 *** p<0.001

2.4.2. Qualitative Results

A total of 10 medical students and 5 faculty from FMUI, 17 medical students and 5 faculty from HMS participated in the in-depth interviews. The interview lengths ranged from 14 minutes to 48 minutes. Findings are presented in two overarching themes: 1) Psychological safety in the core clerkships, which shows similarities in perceived psychological safety between FMUI and HMS; and 2) Cultural influence on psychological safety, which shows differences in perceived psychological safety viewed from the lens of Hofstede's cultural dimensions framework.

2.4.2.2. Psychological safety in the core clerkships

Factors that influence psychological safety were seen in three different levels: intrapersonal, interpersonal, and institutional level. For ease of reading, every level will be sequentially described in the following section.

Intrapersonal level

Students described that they felt more comfortable if they came to the clerkship prepared with adequate knowledge, because they will be able to judge their own performance capabilities. One student describes this as follows, *"From us maybe ... if we've read. If we have read (learning materials), we become more confident when talking to preceptors. We're not afraid, for example, if the preceptor explains something that is even more difficult, we will at least know (what we don't know) and can ask further questions." – Student 2, FMUI*

Resilience was also found as one contributor to students' perceived psychological safety. As one faculty, stated *"... when students have resilience and feel confident and comfortable, they're also more likely to speak out. So I think lack of resilience can impact student's ability to share and to be loving to divulge information." – Faculty 1, HMS*

Interpersonal level

The majority of students described their sense of psychological safety as being associated with their concern of damaging their relationships with supervisors. As one student pointed out, *"...feel comfortable without fear of like feeling put down or feeling like you negatively impact you know, the relationship with a preceptor." – Student 8, HMS*

Receiving constructive feedback was found to help students develop a sense of psychological safety. For example, one student stated, *"Well, I'm saying it's more about at least receiving feedback in a way that's intentional and not meant to sort of degrade you but it's meant to help you become a better clinician and a better contributing member of a team." – Student 16, HMS*

The majority of student participants also believed that the continuity of their relationships with faculty and other team members is vital to developing relationships that enable them to feel safe in their learning environment. As one student explained, *"In psychiatry, we had 1 preceptor for every 3 students. That one preceptor accompanied us from the beginning until the end of the rotation. He always encouraged us to discuss. In my opinion, as we became more comfortable with the preceptor, it became easier for us to speak up." – Student 1, FMUI*

Participants described that setting an expectation in the beginning that they are protected from retribution and encouraged to speak up if they witness or experience harm, helped students to feel psychologically safer. One student elaborated by saying *"Now I think students are told during orientation of each clerkship that, you know, if there's any issue to speak up early, I haven't had any rotation yet where I felt like from the start of like orientation, it would, you know, be unsafe to speak up, I felt, I've actually been pleasantly surprised, personally, that I've had a good experience with that. So having those the orientation, setting clear expectations and standards, and then making sure that we're tied in with the faculty and that the faculty kind of know that, you know, we're gonna have questions, we should be able to approach them and they expect that and then checking in halfway through and at the end of each clerkship has been good opportunity to have that safe space to bring up any concerns or reflect." – Student 10, HMS*

Participants also highlighted the importance of students' participation in patients' care to help them gain a sense of safety and feeling like they are part of the team. As one student illustrated this by

saying, *"... because the more involved the medical students are, I think, the more like, happier that they are, and the more like safe and part of the team they feel." – Student 9, HMS*

Participants emphasized the importance of having a supportive community to feel psychologically safe. As one student stated, *"So they sort of made it clear from the outset that we weren't just like sort of dead weight on the team, but that everything that we said would be valued, they also follow that up with an email. They sent to us the first day saying that we want you to take charge and to take leadership of your patients because we value everything that you have to say it was like very much verbal and like written support. They were just like very concrete about it up front, and then very encouraging." – Student 9, HMS*

Institution level

Respondents described that an institutional culture that promotes the needs of students will help students become psychologically safe. As one faculty described, *"I think on a larger system basis, not just on the individual basis, it means that there are systems in place that will take into account the needs of those Individuals so that change can be effective to be beneficial for all. "– Faculty 1*, HMS

In addition, there needs to be multiple avenues of support to ensure students have people to talk with to preserve their sense of psychological safety. As one faculty stated, *"...there's an anonymous reporting system, you can use society advisors, or PCE advisors, we never want you to feel like there's not a place where you can go, especially if there's something you're really*

concerned about. And we also say, you know, the anonymous alert system also allows them to report when they think they see other people being mistreated." – Faculty 5, HMS

The perceived efficacy of speaking up also contributes to students' psychological safety. As one student illustrated, *"I just felt unhappy as medical student on that rotation and I let my clerkship director know . And she let me know like, exactly what she was going to do about it. So she outlined some concrete steps. She says like, of course I remain anonymous, but she was going to talk to the residents about things like, things they could do to make a medical student like understands their role better. She said that they had teaching with the residents about how to teach and in that she was going to mention like outlining the role of a med student from the first day that you're on the team and things like that. And then I actually noticed that that did happen for the rest of that clerkship. So, I felt good." – Student 3, HMS*

Consequences of psychological safety

Overall, students described the presence of psychological safety encouraging them to feel free from constant self-assessment, which allows them to focus more on their learning. As one study participant explained, *"So the part on the clerkship is that it should be safe for students to come in, ask questions, you know, be prepared to learn, be prepared to be engaged. and not feel as if they're going to get disrespected or in trouble when something goes wrong because things are going to go wrong eventually. Okay, but I think also on the student, part of feeling safe in the clerkship is knowing that you're going to do things wrong. So not feeling and knowing that you*

don't need to feel embarrassed, you don't need to feel anxious, you don't need to feel unsafe when things like that happen." – Student 14, HMS

The presence of psychological safety encourages students to express their feelings and advocate for themselves. As one student illustrated, *"if I showed up and I trust that somebody who is going to see me in all my goodness and badness and be committed to help me getting better, I'm gonna show up so much more of myself and so much more devoted to it and learn so much more." – Student 4, HMS*

A number of respondents also added that psychological safety could help students to become more resilient. One suggested that, *"I've had a lot of close friends of mine, they can have a lot more trying circumstances, whether it's comments made by, you know, people, colleagues, a medical question or comments that are made by patients. And I feel like that that's a, it can often be a very challenging experience to have those experiences and that there needs to be a setup to help students process these and grow and become stronger and more resilient." – Student 7, HMS*

Consequences of lack of psychological safety

On the contrary, in conditions where students feel psychologically unsafe, students described that they were afraid to report mistreatment, unable to express their feelings, and less confident in themself. They would experience constant worries, making it difficult for them to focus on their learning. One student exemplified this by saying, *"in the beginning of the tertiary rotation, I did not have a sense of psychological safety. And I did pretty bad academically as a result of that, even*

though I was working really hard, because I think I might have been somewhat depressed or anxious, like because of that, not not because of anything else. Whereas on the other side, when I got to the other end of things, that I was in a very psychologically safe environment, suddenly, like I was doing well, like there was like the academics to sort of came with it." – Student 12, HMS

Another student noted that without psychological safety, students would feel more concerned about their evaluations. This fear caused them to avoid engaging in learning behaviors that could make them come across as incompetent. A student noted this by saying, *"but a lot of students are concerned about evaluations, and rightfully so. And so, I think they feel a little bit hesitant about asking questions that may personally be perceived as, you know, dumb question or may expose their lack of understanding of topics." – Student 5, HMS*

2.4.2.3. Cultural influence on psychological safety

In relation to students' perceived psychological safety, several differences in cultural aspects were identified. Under two dimensions of Hofstede's cultural dimensions framework, the differences between the schools are 1) individualism and 2) power distance.

Individualism

HMS students described their sense of psychological safety as being related to their own personal beliefs rather than a representation of someone else's perception. As one student pointed out, "*I practice a lot like speaking up. "So I'm just like, I guess my views are a little more like skewed because this is something that I feel like I'm at baseline very comfortable with, but I understand*

it's really hard for a lot of people to speak up. And I can imagine that like there are a lot of times during the clerkship where I found a lot of my friends were like, this happened to me and I don't know what to do" – HMS student 3

On the other hand, FMUI students were more worried that one person's actions could negatively impact other people. As reflected by this comment *"Although there was only one person who made a mistake, but it felt like it was everyone's fault. It became like a stigma. The stigma goes into the whole group, even though there was only one person who did wrong." – FMUI student 2*

FMUI students were found to be more hesitant to speak up than HMS students. As a student puts it: *"Many preceptors actually love to initiate discussions. But we ourselves feel inferior because we're lacking in knowledge to participate in discussions. So it often ends up with them giving us lectures, they provide us the information, instead of, we ask them questions." – FMUI student 7*

In a similar sense to students' perceptions, FMUI faculty noted that despite their efforts to create a psychologically safe environment for students, students were still somewhat hesitant to speak up. As illustrated by an FMUI faculty, *"Sometimes they [students] are quite open. But generally, even though we've tried, students are always quiet, sometimes we don't understand why they are passive." – FMUI Faculty 3*

This might be caused by FMUI students' preference to discuss their concerns with their friends before talking to residents or faculty. As illustrated by an FMUI student*, "I have to convince myself*

that what I'm suggesting or asking is really the right thing to ask. So before asking, I need to ask a friend first if a question like this is appropriate or not. Like that." – FMUI student 6

This is also supported by another student, *"If we had problems, we had our teammates that would support us. Or if we wanted to say something (to the preceptors), our friends would give us feedback first. It made us feel more comfortable." – FMUI student 3*

Power distance

Students in both schools acknowledged that hierarchies within the clerkship program influenced their sense of psychological safety. However, FMUI students perceived a larger power distance between themselves and their teachers because they perceived them as a definitive source of knowledge; hence, their sense of psychological safety heavily depends on their teachers. As illustrated by one student *"The environment depends on the flexibility of the preceptors. Preceptors are usually very busy, and medical students rely heavily on them. We don't have the initiative to find knowledge anywhere else. So we usually wait for them." –Sstudent 7, FMUI*

Due to teachers' role in the large power distance context, FMUI students valued teachers that were available for consultations and accepted all kinds of questions. As described by one student, *"When preceptors encouraged us to ask questions. Even though we only asked basic question, they would answer with a thorough explanation. That makes me feel safe to speak up" – Student 1, FMUI*

On the other hand, HMS respondents benefitted from a safe environment because it allowed them to explore and reflect on their learnings. As one student illustrated, *"it's been helpful because it*

gives you a chance to, you know, spend the first half of the clerkship exploring and you know, reach out if you have questions, but then it gives you a dedicated time, that's mandatory for you to sit down and really reflect on you know, what's been going on and what can I change the second half of the clerkship" – Student 5, HMS

For HMS students, prior nonviolent communications training contributed to their sense of psychological safety. As one student highlighted, *"I am more comfortable in speaking up than the average. Partly it is because I was an Ed Rep, Educational Representative, and had some training about like nonviolent communication, and here is how you can you usefully give feedback and had some practice with that, and got used to voicing things when people would come to me with them. I was invited to voice things, so I did not stop. Even after the invitation stop." – Student 4, HMS*

Chapter 3. Discussions

We conducted a cross-cultural case comparative study to examine how culture can influence psychological safety in the core clerkships of FMUI and HMS. We measured psychological safety using a validated tool and explored both the similarities and differences in the attributes of psychological safety within the two contexts.

Overall, our quantitative results show that both FMUI and HMS students scored equally on their psychological safety scores. It should be noted, however, that FMUI students scored lower in psychological safety compared to HMS students. Although this finding is not significant, it is aligned with previously published literature which suggests that psychological safety is lower in cultures with a high perceived power distance (Anicich, Swaab, & Galinsky, 2015; Appelbaum et al., 2016; Hu, Erdogan, Jiang, Bauer, & Liu, 2018).

Additionally, our results also indicated significant associations between psychological safety scores with several demographic variables. First, higher education levels among students were positively associated with higher psychological safety scores. However, we did not find such correlation in previous literature. We speculate this might be due to medical students with PhDs being better academically prepared than their medical students counterparts without PhDs. Second, psychiatry and radiology clerkships were associated with a higher level of psychological safety than the other clerkships. This finding is not surprising, especially since an earlier study confirmed that these specialties were more likely to have a higher psychological safety score compared to other specialties (Torralba et al., 2016). Higher psychological safety in these specialties might be

due to people who enter specialties having a higher tolerance for uncertainty. (Geller, Faden, & Levine, 1990; Lally & Cantillon, 2014). Third, at FMUI, psychological safety is higher in students from regular programs than it is for students from international programs. Students from international programs enter clerkship right after they have spent one year abroad; so, the lower psychological safety in these students may be due to them having to adjust to a new environment.

3.1. Psychological Safety in the Core Clerkships

When asked to describe a psychologically safe situation, respondents from both schools similarly characterized it as a construct and in terms of its consequences. Respondents explained that in conditions where they felt safe to take interpersonal risks, they were able to be fully engaged in learning opportunities without constantly worrying about the implication of their actions. In such conditions, students reported an absence of constant self-evaluation against what they perceived as being expected of them. This is consistent with a previous study done by Tsuei, Lee, Ho, Regehr, & Nimmon (2019) who describe psychological safety in medical education as "educational safety," or the subjective state of feeling free from judgement by others so students can authentically engage in their learning experience. By being authentically engaged, students may be able to learn better because their cognitive load is reduced (Van Merriënboer & Sweller, 2010).

Conversely, in situations where psychological safety is absent, students would feel fearful and inadequate. This inadequacy made students hesitant to engage in learning behaviors, such as speaking up or asking for help.

The two clerkship contexts also shared some commonalities between factors influencing psychological safety; this finding could point out some possible universal attributes of a psychologically safe climate in clinical clerkships. These attributes were seen at three different levels of the psychosocial learning environment, similar to a study done by Tsuei, (2019).

Firstly, at the intrapersonal level, psychological safety is related to how individual students interact with and develop perceptions about their learning environment. For students it has two major themes: self-efficacy and resilience. Interestingly, self-efficacy and resilience were also seen as the consequences of psychological safety. This supports existing literature suggesting that both self-efficacy and resilience act as antecedents to and outcomes of psychological safety (Roussin, Larraz, Jamieson, & Maestre, 2018; Tsuei et al., 2019; Turner & Harder, 2018).

Self-efficacy is defined as an individual's belief in their own capability in a domain of activity that contains novel, unpredictable or stressful features (Bandura, 1977). Self-efficacy emerges from social comparisons with others (Tsuei et al., 2019), and students with high self-efficacy may feel more psychologically safe because they have the confidence to decide when to ask for help (Sagasser, Kramer, Fluit, van Weel, & van der Vleuten, 2017). Accordingly, a psychologically safe environment allows students to engage in learning behaviors that may bring about their confidence as they learn from their mistakes (Aranzamendez, James, & Toms, 2015; Roussin et al., 2018; Turner & Harder, 2018).

The other theme, resilience, is defined as a mechanism that enables individuals to engage with a difficult stressor while simultaneously experiencing personal growth and developing additional

coping skills (Wright & Richmond Mynett, 2019; Zwack & Schweitzer, 2013). A student's level of resilience may contribute to a student feeling safer to express themself. Coupled with psychological safety, students may become more resilient as their tolerance for uncertainty increases (Torralba & Puder, 2017). For educators who wish to improve psychological safety at the intrapersonal level, they may also want to create interventions that are aimed at enhancing individual-level skills, such as resilience and self-efficacy, to ensure students have reasonable self expectations (Caverzagie, Goldenberg, & Hall, 2019; Tsuei et al., 2019).

Next, at the interpersonal level, psychological safety is linked to a student's social interactions with other people in clinical clerkships. Students from both contexts were particularly worried about damaging relationships with other people in clerkships, such as their fellow medical students, residents, and attendings. This result corresponds with previous studies indicating that the main barrier of students speaking up is the fear of damaging student-teacher relationships (Chung, Thang, Vermillion, Fried, & Uijtdehaage, 2018; Dwyer & Faber-Langendoen, 2018). Therefore, to improve psychological safety at this level, students and teachers should form positive relationships that are based on trust and respect. Establishing ground rules, creating structures, providing clear expectations for students, and promoting teamwork are some of the strategies that could be done to foster this trust (Jaffe, Lindell, Sullivan, & Huang, 2019). Through relationships that are rooted in trust, there is a stronger educational alliance between teachers and students, as they rely on non-judgmental interactions (Tsuei et al., 2019).

Moreover, at this level, we discovered that continuity plays a dominant role in creating psychological safety for students. As students spent more time with their peers, residents, or

preceptors, they became more comfortable in interpersonal risk-taking. This result is not surprising, considering that continuity has been highlighted in the literature to be important in clinical rotation (Hirsh, Ogur, Thibault, & Cox, 2007; Mylopoulos, Kulasegaram, Weyman, Bernstein, & Martimianakis, 2019), and students who spent a longer time in hospital felt safer to speak up about safety concerns (Schwappach, Sendlhofer, Kamolz, Köle, & Brunner, 2019).

Lastly, at the institutional level, psychological safety is found to be related to how students navigate an institution's culture and measures. The majority of respondents believe that if the institutions provide a culture that supports the needs of their students, students will feel psychologically safe. Two major themes that arose in this level are the perceived efficacy of speaking up and availability of different avenues of support for medical students. First, perceived efficacy of speaking up is defined as students' belief that their concerns are recognized by institutions and that institutions will do something about them. It has been suggested in the literature that the perceived efficacy in speaking up influences health professionals into voicing their concerns because they would know that doing so would be effective (Lee, Hahm, & Lee, 2018; Okuyama, Wagner, & Bijnen (2014). Second, for student's who have experienced or witnessed harm, the availability of avenues of support also helps them feel psychologically safer. Although, recent literature suggests that the presence of these support avenues was not enough to reduce students' fear of retaliation (Chung, Thang, Vermillion, Fried, & Uijtdehaage, 2018). While support avenues' existence remains vital, they may need to be combined with other predisposing factors.

3.2. Cultural influence on Psychological Safety

Most studies that have investigated the role of psychological safety in medical education have been conducted in the US, a country that scores low on power distance and high on individualism (Hofstede et al., 2010).

However, a recent study in another discipline indicates that the nature of psychological safety may be entirely different in countries that score high on power distance and low on individualism (Cauwelier, Ribière, & Bennet, 2016). In such cultures, creating a safe environment in medical education was not perceived as a priority (Wong, 2011).

Similar to the existing literature, the present study found a few differences between HMS and FMUI's conception of psychological safety that may be explained by culture. In the discussion below, we will explore how cultural values can influence psychological safety for those in a core clerkship using the lens of Hofstede's cultural dimensions framework (Hofstede et al., 2010).

Collectivism vs Individualism

Collectivism and individualism pertain to the degrees to which people are integrated as a group. In collectivist societies, the interest of the group prevails over the interest of the individuals. Students in this culture identify themselves as part of a group; they strive to fit into the group and place the group's needs above individual needs. Students are more reluctant to speak up mainly because they are afraid of failing and losing face. In contrast, in individualist societies, the interest of the individual prevails over the interest of the group. Students in this culture tend to be more independent, identify themselves as separate, and place their individual needs above all others. In

such cultures, face-consciousness is almost non-existent, allowing students to freely express themselves and make their own decisions (Hofstede, 2011; Hofstede et al., 2010).

Similarly, we discovered that in an interview that FMUI students had the tendency to refer to themselves with "We" and "Us", an essential characteristic of collectivist culture. This "We" consciousness indicates that students identify themselves as part of an in-group, and their actions and behaviors depend on people inside one's group. Due to this collectivist orientation, FMUI students' psychological safety may be also influenced by the group. For instance, when voicing their opinions or concerns to residents or attendings, FMUI students needed to consult with their peers beforehand to make sure what they said was okay. Mainly, they did this because they were concerned about how the implications of their behaviors could affect others. For FMUI students, their sense of psychological safety is not something that they perceived alone. Because these students shared a collective identity with their peers, they also shared their sense of psychological safety. They would especially feel psychologically safe if their fellow medical students perceived a situation the same way as them, or vice versa.

On the other hand, HMS students had a tendency to refer to themselves with "I". This "I" consciousness represents a specific characteristic of the individualist culture, in which students expect to be treated as individuals (Hofstede et al., 2010). HMS students reported that they sometimes felt psychologically safe when their fellow medical students did not. The opposite was also true in conditions where students felt unsafe; it did not mean that their peers shared the same perceptions as them. In other words, HMS students' sense of psychological safety is strictly a representation of each individual and cannot be transposed onto other people.

Another distinction was that FMUI students included not only attendings but also many different people that shaped their sense of psychological safety. These people included their fellow medical students, residents, nurses, and administrative staff. On the other hand, HMS students only included attendings and residents as the main actors who were responsible for creating their sense of safety. One possible explanation is that FMUI students encountered these people more often than their attendings, thus their sense of safety may be largely affected by their relationships with these other people in the clerkship program. If students could foster a relationship with these people, students would be worthy of their trust and would receive preferential treatment that made them feel more psychologically safe. In summary, in collectivist culture, relationships prevail over tasks and should be established first (Hofstede et al., 2010). Students would need to feel psychologically safe with everyone involved in the clerkship program in order to feel psychologically safe in the clerkship program.

Another interesting finding is that, FMUI faculty explained that they struggled with passivity among students. This kind of struggle is a common concern among faculty in collectivism culture (Wong, 2011). Medical students from this culture may be more reluctant to engage in debate, offer answers, and speak up in a large context because they are afraid of being humiliated (Hofstede et al., 2010; Morrow, Rothwell, Burford, & Illing, 2013). Given these cultural aspects, interventions to increase psychological safety at this level should consider the people inside students' groups. For example, in collectivist culture, students will feel more psychologically safe receiving individual feedback because they are taken out of the group. (Suhoyo, Schönrock-Adema, Rahayu, Kuks, & Cohen-Schotanus, 2014).

Another interesting finding is that diversity is a theme that was not seen in the FMUI respondents' answers. For FMUI respondents, differences in a point of view between peers appears to lead to communication challenges. Students prefered to have peers that shared a similar viewpoint to them. However, HMS respondents described diversity as a main contributor to psychological safety. Other studies that were conducted in a collectivist country also found similar results (Cauwelier et al., 2016). This distinction is probably caused by the contrast between collectivist and individualist culture. In collectivist culture, harmony is something that should be maintained; thus, students and faculty in this culture find disagreement appalling (Hofstede et al., 2010).

High Power Distance vs Low Power Distance

Power distance is the extent to which the less powerful members of a society accept the unequal distribution of power (G. Hofstede, 2011). In countries with a large power distance, such as Indonesia, the educational process is teacher-centered. This means teachers are placed at the center of knowledge and treated with respect, or even fear. Teachers determine the learning paths students are expected to follow. Because of the large power distance, teachers are the ones who normally initiate communications, whereas students only speak up when they are invited to (Hofstede et al., 2010).

By contrast, in countries with a small power distance, such as the US context, the educational process is student-centered. Students in this culture tend to be more independent in their learning style. It is normal for students to initiate communication, ask questions when there is something

they do not understand, and express their disagreement in front of teachers (Hofstede, 2011; Hofstede et al., 2010).

Similarly, in our findings, HMS and FMUI respondents held differing values on their perceptions of psychological safety. On the one hand, HMS study participants preferred supervisors who could provide a safe environment for them to explore without the fear of being wrong. They want to have fruitful disagreements and the ability to learn from there supervisors with the aim of identifying their knowledge gaps. On the other hand, FMUI respondents valued faculty as content experts whose expertise should not be contradicted. Supervisors were perceived as more difficult to approach; thus, students prefered residents and attendings to initiate discussions and feedback (Suhoyo, Van Hell, et al., 2014), while allowing them to ask questions without judgment.

Our finding concurs well with the results of previous findings, which indicated that teachers in a large power distance culture place more emphasis on the importance of knowledge building, unlike teachers in a small power distance culture that put more focus on the importance of a safe environment (Wong, 2011). As a result, teachers coming from a large power distance culture should exemplify a teacher model that is an authoritative role model figure while providing reassurance to students that the environment is safe for them. Teachers could position themselves as "being open to questions" and allow students to "pass" when they are invited to speak up (Cave, Pearson, Whitehead, & Rahim-Jamal, 2016).

Another distinction is that HMS students reported that they benefit from trainings that emphasized speaking up and non-violent communication. However, interventions aimed at training students to

speak up may only work for cultures with a small power distance. Such intervention might not work in a culture with large power distance (Lee et al., 2018), because of students' general hesitancy to speak up.

3.3. Implications for Medical Education

Our main aim for this study is to examine the similarities and differences in psychologically safe environments between two clerkships in different cultural settings and to explore the cultural factors that may influence psychological safety in these two contexts. We have done so by measuring the psychological safety of students from each clerkship, followed by interviewing students and faculty to further understand psychological safety situations in these two contexts.

Accordingly, our study has several main implications for medical education. First, this study offers insights into the shared factors that underlie psychological safety in these two clerkship programs. These shared factors have been widely studied in medical education as the attributes of a safe learning environment. This finding suggests that these factors may foster a psychologically safe learning environment in both contexts.

Second, this study offers insight into how cultural values can influence psychological safety in the clerkship program. We found that although psychological safety is equally perceived as crucial by the two medical schools, we found few differences in the nature of medical students' perceived psychological safety. These variances indicate that one model of psychological safety may not necessarily translate to other medical schools in different cultural contexts. By understanding how educators and learners perceive psychological safety differently in contexts with different cultural

values, education leaders will be able to apply culturally appropriate interventions for their clerkship programs.

3.4. Strengths and Limitation

This study has several limitations. First, this study only examined one clerkship program in each country, Indonesia and the US, which means that the findings should not be generalized to other clerkships programs in either country. Second, it is possible that the comparisons seen between the two schools were influenced by differences in the sample sizes, clerkship lengths and types, and tasks carried out by students during their clerkship.

Despite these limitations, this study has numerous strengths. To the best of the researcher's knowledge, to date, no prior research exists that has measured psychological safety in clerkship programs using a validated tool. Using an adapted version of a previously validated instrument to measure psychological safety, this study is the first attempt to use a mixed-method approach to scientifically measure psychological safety in clinical clerkships. Also, this study achieved data saturation with its interviews. The one-on-one in-depth interviews provided a safe space for participants to share their experiences away from the presence of others. Furthermore, this study is also the first attempt to characterize the psychological safety of clerkship programs located in two different countries with different cultural settings. Specifically, the two cultural contexts differ on "power distance" and "Individualism" dimensions, as defined by (Hofstede et al., 2010). Although this characterization may not be broadened to a country or regional context, it may offer new insights into how psychological safety might vary across different cultures.

3.5. Conclusions

In summary, we described the construct of psychological safety in two core clinical clerkships, one in the US and the other in Indonesia; and identified the factors that influence psychological safety in these two contexts. We found evidence that study participants in these two medical schools characterize psychological safety and its consequences in a similar manner. However, we found differences in the underlying factors that may influence psychological safety. These differences may be related to each country's cultural values and explained by their differences in power distance and the individualism dimensions of the Hofstede' cultural dimension theory. Our findings indicate that the nature of psychological safety in one culture does not automatically translate into other cultures. We recommend educational leaders consider these cultural aspects when formulating interventions to foster psychological safety.

Bibliography

Anicich, E. M., Swaab, R. I., & Galinsky, A. D. (2015). Hierarchical cultural values predict success and mortality in high-stakes teams. *Proceedings of the National Academy of Sciences*, *112*(5), 1338–1343. https://doi.org/10.1073/pnas.1408800112

Appelbaum, N. P., Dow, A., Mazmanian, P. E., Jundt, D. K., & Appelbaum, E. N. (2016). The effects of power, leadership and psychological safety on resident event reporting. *Medical Education*. https://doi.org/10.1111/medu.12947

Artino, A. R., La Rochelle, J. S., Dezee, K. J., & Gehlbach, H. (2014). Developing questionnaires for educational research: AMEE Guide No. 87. *Medical Teacher*. https://doi.org/10.3109/0142159X.2014.889814

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*. https://doi.org/10.1037/0033-295X.84.2.191

Bynum, W. E., & Haque, T. M. (2016). Risky Business: Psychological Safety and the Risks of Learning Medicine. *Journal of Graduate Medical Education*. https://doi.org/10.4300/JGME-D-16-00549.1

Cauwelier, P., Ribière, V. M., & Bennet, A. (2016). Team psychological safety and team learning: a cultural perspective. *Learning Organization*, *23*(6), 458–468. https://doi.org/10.1108/TLO-05-2016-0029

Cave, D., Pearson, H., Whitehead, P., & Rahim-Jamal, S. (2016). CENTRE: creating psychological safety in groups. *Clinical Teacher*, *13*(6), 427–431. https://doi.org/10.1111/tct.12465

Caverzagie, K. J., Goldenberg, M. G., & Hall, J. M. (2019). Psychology and learning: The role of the clinical learning environment. *Medical Teacher*, *0*(0), 1–5.

https://doi.org/10.1080/0142159X.2019.1567910

Chung, M. P., Thang, C. K., Vermillion, M., Fried, J. M., & Uijtdehaage, S. (2018). Exploring medical students' barriers to reporting mistreatment during clerkships: a qualitative study. *Medical Education Online*, *23*(1). https://doi.org/10.1080/10872981.2018.1478170

Dwyer, J., & Faber-Langendoen, K. (2018). Speaking up: An ethical action exercise. *Academic Medicine*, *93*(4), 602–605. https://doi.org/10.1097/ACM.0000000000002047

Edmondson, A. (1999). Psychological Safety and Learning Behavior in Work Teams. *Administrative Science Quarterly*. https://doi.org/10.2307/2666999

Edmondson, A. C. (2008). Managing the Risk of Learning: Psychological Safety in Work Teams. In *International Handbook of Organizational Teamwork and Cooperative Working*. https://doi.org/10.1002/9780470696712.ch13

Edmondson, A. C., Higgins, M., Singer, S., & Weiner, J. (2016). Understanding Psychological Safety in Health Care and Education Organizations: A Comparative Perspective. *Research in Human Development*. https://doi.org/10.1080/15427609.2016.1141280

Findyartini, A., Hawthorne, L., McColl, G., & Chiavaroli, N. (2016). How clinical reasoning is taught and learned: Cultural perspectives from the University of Melbourne and Universitas Indonesia. *BMC Medical Education*, *16*(1). https://doi.org/10.1186/s12909-016-0709-y

Geller, G., Faden, R. R., & Levine, D. M. (1990). Tolerance for ambiguity among medical students: Implications for their selection, training and practice. *Social Science and Medicine*. https://doi.org/10.1016/0277-9536(90)90098-D

Gjersing, L., Caplehorn, J. R. M., & Clausen, T. (2010). *Gjersing et al2010_Cross cultural adaptation of research instruments_language, setting, time and statistical considerations.pdf*.

Gruppen, L. D., Irby, D. M., Durning, S. J., & Maggio, L. A. (2019). Conceptualizing Learning Environments in the Health Professions. *Academic Medicine : Journal of the Association of American Medical Colleges*, *94*(7), 969–974. https://doi.org/10.1097/ACM.0000000000002702

Hirsh, D. A., Ogur, B., Thibault, G. E., & Cox, M. (2007). "Continuity" as an organizing principle for clinical education reform. *New England Journal of Medicine*, *356*(8), 858–866. https://doi.org/10.1056/NEJMsb061660

Hofstede, G. (2001). Culture's Consequences: Comparing Values, Behaviors, Institutions and Organisations Across Nations. In *Sage Publications* (Vol. 27). https://doi.org/10.1177/031289620202700105

Hofstede, G. (2011a). Dimensionalizing Cultures: The Hofstede Model in Context. *Online Readings in Psychology and Culture*, *2*(1), 1–26. https://doi.org/10.9707/2307-0919.1014

Hofstede, G. (2011b). Dimensionalizing Cultures: The Hofstede Model in Context. *Online Readings in Psychology and Culture*. https://doi.org/10.9707/2307-0919.1014

Hofstede, G., Jan Hofstede, G., & Minkov, M. (2010). Cultures and Organizations: Software of the Mind, Intercultural Cooperation and Its Importance for Survival. In *Cultures and Organizations*. https://doi.org/10.1007/s11569-007-0005-8

Hu, J., Erdogan, B., Jiang, K., Bauer, T. N., & Liu, S. (2018). Leader humility and team creativity: The role of team information sharing, psychological safety, and power distance. *Journal of Applied Psychology*. https://doi.org/10.1037/apl0000277

Jaffe, L. E., Lindell, D., Sullivan, A. M., & Huang, G. C. (2019). Clear skies ahead: optimizing the learning environment for critical thinking from a qualitative analysis of interviews with expert teachers. *Perspectives on Medical Education*, *8*(5), 289–297.

https://doi.org/10.1007/s40037-019-00536-5

Kerr, B. J. (2004). Reframing Organizations: Artistry, Choice, and Leadership. *Journal of Professional Nursing*. https://doi.org/10.1016/8755-7223(93)90012-2

Lally, J., & Cantillon, P. (2014). Uncertainty and ambiguity and their association with psychological distress in medical students. *Academic Psychiatry*. https://doi.org/10.1007/s40596-014-0100-4

Lee, H. Y., Hahm, M. Il, & Lee, S. G. (2018). Undergraduate medical students' perceptions and intentions regarding patient safety during clinical clerkship. *BMC Medical Education*. https://doi.org/10.1186/s12909-018-1180-8

Morrow, G., Rothwell, C., Burford, B., & Illing, J. (2013). Cultural dimensions in the transition of overseas medical graduates to the UK workplace. *Medical Teacher*, *35*(10). https://doi.org/10.3109/0142159X.2013.802298

Mylopoulos, M., Kulasegaram, K., Weyman, K., Bernstein, S., & Martimianakis, M. A. (2019). Same but Different: Exploring Mechanisms of Learning in a Longitudinal Integrated Clerkship. *Academic Medicine*, *95*(3), 1. https://doi.org/10.1097/ACM.0000000000002960

Okuyama, A., Wagner, C., & Bijnen, B. (2014). Speaking up for patient safety by hospital-based health care professionals: A literature review. *BMC Health Services Research*. https://doi.org/10.1186/1472-6963-14-61

Sagasser, M. H., Kramer, A. W. M., Fluit, C. R. M. G., van Weel, C., & van der Vleuten, C. P. M. (2017). Self-entrustment: how trainees' self-regulated learning supports participation in the workplace. *Advances in Health Sciences Education*. https://doi.org/10.1007/s10459-016-9723-4

Schwappach, D., Sendlhofer, G., Kamolz, L. P., Köle, W., & Brunner, G. (2019). Speaking up

culture of medical students within an academic teaching hospital: Need of faculty working in patient safety. *PLoS ONE*, *14*(9), 1–13. https://doi.org/10.1371/journal.pone.0222461

Suhoyo, Y., Schönrock-Adema, J., Rahayu, G. R., Kuks, J. B. M., & Cohen-Schotanus, J. (2014). Meeting international standards: A cultural approach in implementing the mini-CEX effectively in Indonesian clerkships. *Medical Teacher*, *36*(10), 894–902. https://doi.org/10.3109/0142159X.2014.917160

Suhoyo, Y., Van Hell, E. A., Prihatiningsih, T. S., Kuks, J. B. M., & Cohen-Schotanus, J. (2014). Exploring cultural differences in feedback processes and perceived instructiveness during clerkships: Replicating a Dutch study in Indonesia. *Medical Teacher*, *36*(3), 223–229. https://doi.org/10.3109/0142159X.2013.853117

Tavakol, M., & Sandars, J. (2014). Quantitative and qualitative methods in medical education research: AMEE Guide No 90: Part II. *Medical Teacher*. https://doi.org/10.3109/0142159X.2014.915297

Torralba, K. D., Loo, L. K., Byrne, J. M., Baz, S., Cannon, G. W., Keitz, S. A., … Kashner, T. M. (2016). Does Psychological Safety Impact the Clinical Learning Environment for Resident Physicians? Results From the VA's Learners' Perceptions Survey. *Journal of Graduate Medical Education*, *8*(5), 699–707. https://doi.org/10.4300/JGME-D-15-00719.1

Tsuei, S. H. Te, Lee, D., Ho, C., Regehr, G., & Nimmon, L. (2019). Exploring the Construct of Psychological Safety in Medical Education. *Academic Medicine : Journal of the Association of American Medical Colleges*, *94*(11S Association of American Medical Colleges Learn Serve Lead), S28–S35. https://doi.org/10.1097/ACM.0000000000002897

Van Merriënboer, J. J. G., & Sweller, J. (2010). Cognitive load theory in health professional education: Design principles and strategies. *Medical Education*.

https://doi.org/10.1111/j.1365-2923.2009.03498.x

Vincent, C., Stanhope, N., & Crowley-Murphy, M. (1999). Reasons for not reporting adverse incidents: An empirical study. *Journal of Evaluation in Clinical Practice*. https://doi.org/10.1046/j.1365-2753.1999.00147.x

Wong, A. K. (2011). Culture in medical education: Comparing a Thai and a Canadian residency programme. *Medical Education*, *45*(12), 1209–1219. https://doi.org/10.1111/j.1365-2923.2011.04059.

Appendices

Medical Students Interview Guide

Thank you for taking the time to speak with me today. My name is Dini, and I am talking to you to understand the psychological safety in the core clerkship program at Harvard Medical School. What you are going to tell me will be confidential and it will not be shared with people outside of the research team. I would also like you to know that there is no right and wrong answer in this interview. Before we start, do you have any questions?

What comes into your mind when you hear the term psychological safety?

How would you define psychological safety in the clerkship program? *Can you explain more about that?*

In your clerkship experience, when did you feel psychologically safe? When did you not feel psychologically safe? *Can you please give some examples?*

What do you think is the difference between these two experiences?

What are the elements that make your learning environment feels psychologically safe? What are the elements that make your learning environment feels less psychologically safe? *Can you please give some examples?*

To what extent the clerkship program has been able to provide this to you?

Is there anything else that I should know to understand psychological safety in the clerkship program?

Do you have other questions about this interview?

Thank you for talking with me, if you have any questions or something that you would like to add please do not hesitate to contact me.

Faculty and Administrators Interview Guide

Thank you for taking the time to speak with me today. My name is Dini, and I am talking to you to understand the psychological safety in the core clerkship program at Harvard Medical School. What you are going to tell me will be confidential and it will not be shared with people outside of the research team. I would also like you to know that there is no right and wrong answer in this interview. Before we start, do you have any questions?

How long have you been involved in the clerkship program? In what aspects have you been involved?

How would you define psychological safety in the clerkship program? *Can you explain more about that?*

What are the elements that have been effective in creating a psychologically safe environment?

What are the elements that have been less effective in creating a psychologically safe environment? *Can you please give some examples?*

What do you think about the psychological safety in the clerkship program that you are currently involved in? To what extent the clerkship program has been able to provide students in the clerkship program with a psychologically safe environment?

Is there anything else that I should know to understand psychological safety in the clerkship program more?

Do you have other questions about this interview?

Thank you for talking with me, if you have any questions or something that you would like to add please do not hesitate to contact me.

English version of the Psychological Safety Scale

1. If you make a mistake in this clerkship, it is often held against you (R)
2. In this clerkship, it is easy to discuss difficult issues and problems
3. People in this clerkship sometimes reject others for being different (R)
4. It is safe to take a risk in this clerkship
5. It is difficult to ask other members in this clerkship for help (R)
6. No one in this clerkship would deliberately act in a way that undermines my effort
7. Working with members in this clerkship, my unique skills and talents are valued and utilize

Indonesian version of the Psychological Safety Scale

1. Ketika Anda membuat suatu kesalahan dalam kepaniteraan klinik ini, Anda seringkali jadi kurang disukai karena melakukan kesalahan itu. (R)
2. Siapapun yang terlibat dalam kepaniteraan klinik ini mudah untuk mendiskusikan isu-isu dan masalah-masalah sulit.
3. Orang-orang di dalam kepaniteraan klinik ini kadang kadang menjauhi orang lain karena dianggap berbeda. (R)
4. Sikap mengambil risiko, aman dilakukan dalam kepaniteraan klinik ini.
5. Orang-orang yang terlibat dalam kepaniteraan klinik ini sulit dimintai pertolongan. (R)
6. Tidak ada seorang pun dalam kepaniteraan klinik ini yang sengaja membuat usaha saya tidak berhasil.
7. Bekerja dengan orang-orang dalam kepaniteraan klinik ini, keterampilan dan bakat unik saya dihargai dan digunakan.