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Students' resilience and mental health in the dental curriculum

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Abstract

Objectives: Dental education is perceived as a source of students' psychological and occupational stress. Resilience has been proposed as a protective factor that may support students' in managing that stress. The objectives of this study were twofold: to map the mental health and well-being content in the curriculum of the Faculty of Dentistry (FoD) at the University of British Columbia (UBC) and to investigate factors influencing resilience levels amongst dental students at UBC.

Methods: The curricular database and website of UBC's FoD were used to gather information on mental health content. A survey with the Connor-Davidson 10-Item Resilience Scale was distributed to dental students at UBC ($N = 289$). Students' de-identified demographic data were also collected.

Results: Two main mental health and well-being curricular components were identified: one didactic session on stress management and one interactive workshop on resilience. The response rate for the survey was 68.2%. Students who did not receive any mental health content (2020/21 year 1 students) had higher resilience scores ($p = .043$) when compared to students who received both components (2019/20 year 1 students and 2018/19 year 2 students). The multiple regression analysis highlighted North American/European ethnic origins as a predictor for higher resilience levels ($p = .008$).

Conclusions: The results of this study showed that ethnic origins and major life events, such as the pandemic, influenced resilience. Curricular activities promoting resilience seemed to not necessarily impact students' resilience. Further longitudinal studies are needed to assess the curricular and non-curricular activities influence over dental students' well-being.

KEYWORDS
COVID-19 pandemic, dental curriculum, dental students, ethnic origins, mental health, psychological resilience

1 | INTRODUCTION

Undergraduate dental and medical education are perceived as sources of psychological and occupational distress for students.[1,2]

Health professions tend to attract over-achieving and competitive individuals given the highly selective admission process.[3] Additionally, the academic demands on the future health professionals are high in order to be accountable to the public whilst holding

ethical and professional standards. In particular, dental education is often posited as generating significant pressure on students to maintain theoretical knowledge, master clinical skills, and manage patient care.[2-4] Stress related to financial debt, and to the need to balance personal and professional responsibilities further add to the overall burden with potential negative mental health impact.[5,6] Whilst a certain level of stress contributes to general homeostasis, high stress levels may be hazardous and may require protective factors to neutralise their harmful impacts, including supportive networks of family and friends,[7] social events,[7] meditation and mindfulness,[8] and physical activity.[9] In Canada, some academic programmes have introduced mental health services and support for their students.[10-12] In addition, some schools have integrated wellness-promoting content in their curricula. In fact, a balanced professional lifestyle and well-being are promoted by the Association of Canadian Faculties of Dentistry's competency educational framework under "Professionalism,"[13] perhaps within the idea that the quality of patient care is directly influenced by the practitioners' overall health and well-being.[14]

Recent research on stress in the context of education has focussed on psychological resilience,[15] referred herein as resilience. Resilience has been understood as the individuals' ability to "bounce back"[16] from adverse life events and channel those adversities in a constructive manner that allows them to achieve their goals, both personally and professionally. With many definitions of resilience,[17,18] a clear consensus on how to best introduce and conceptualise it in health sciences education is yet to be developed.[19,20] Nonetheless, resilience and its relationship with chronic stress have been investigated[21,22] and evidence shows that the development of depression and anxiety disorders may result from the loss of resilience.[23] Given the value of resilience as a core component in sustaining optimal mental health, strategies that promote and nurture such attribute in academic environments have been suggested.[19,24] Furthermore, attempting to integrate mental health and resilience within the curriculum by utilising pedagogies that make use of existing resources can play a role in ensuring that adequate mental health and resilience knowledge and awareness are disseminated amongst students. However, the multifaceted nature of resilience entails an understanding of the various factors contributing to this phenomenon to design effective and timely interventions that allow students to thrive in the face of adversity. Whilst literature reports several recommendations to expand mental health and resilience support in the dental curriculum,[25,26] some gaps in knowledge remain with regards to the effectiveness of mental health and resilience curricular interventions.[25,27] Currently, it remains controversial as to whether resilience can be taught and learned within a curriculum[28]; there is no Canadian study eliciting the extent to which dental students exhibit resilience abilities. In this study, we aimed to map the mental health and well-being curricular content in the Faculty of Dentistry (FoD) at The University of British Columbia (UBC). Our second objective was to investigate factors influencing resilience levels amongst five cohorts of undergraduate dental students in the same university.

2 | METHODS

Approval from the Behavioral Research Ethics Board at UBC was obtained (ID# H20-00013). We mapped UBC FoD's curricular and noncurricular content and services on mental health and well-being by gathering information available on the faculty's website, within the curriculum database (i.e. respective courses' syllabi). The curriculum database includes comprehensive documents that are only available for internal use by students, faculty and staff members via a secured log-in portal. The search strategy for the website and the curriculum database included the keywords of 'mental health', 'resilience', 'well-being', 'stress management', and 'student support'. The documents available at the time of this study included information in terms of the instructional methods used, length and duration of such instruction, objectives and assessment methods of those modules and/or sessions and/or services that were identified.

The Connor-Davidson 10-Item Resilience Scale[29] was used to assess resilience. This 10-item scale is a short version of the original 25 items scale.[30] Each of the 10 items is answered using a Likert scale from 0—"not true at all", to 4—"true nearly all the time." Respondents are requested to base their answers to each item according to the past 30 days. The overall scores range from 0 to 40, where, according to the developers, higher scores indicate higher levels of resilience; there is no stablished cut-off value to indicate that a student has low or below optimal resilience. The Connor-Davidson 10-Item scale has shown satisfactory reliability (Cronbach's alpha = 0.85)[31] and construct validity.[29] In this study, we distributed the scale along with demographic questions using the electronic survey tool Qualtrics©. The survey also included an introductory page with the consent cover letter. Consenting students were transferred into the pages with the scale and demographic questions. The survey was distributed to all UBC's undergraduate dental students enrolled in 2019/20 academic year. The total number of enrollees in all the four cohort years of the undergraduate dental education was two hundred and twenty-seven students, who received the link for the Survey via email between March and May of 2020. In addition, on 17 September 2020 during an online didactic session, we administered the survey with the 62 first-year dental students who started their programme in the academic year 2020–2021. The survey participation was voluntary, and that data did not include any personal identifiers. Demographic information about school year, gender, ethnic origins and spoken languages were obtained for analyses. Categories of ethnic origins and language were derived from the Canadian census.[32] Ethnic origins and spoken languages (as reported by the students) were used to identify their ethnicity and group them into three groups: Asian, North American/European and Other. The latter included students who reported Middle Eastern, African, Latin, First Nations (Metis) and mixed ethnicities. The rationale behind collapsing ethnicity into three groups was to enable meaningful statistical analysis and prevent small sample sizes in some of the ethnic sub-groups. A random draw of one $50 gift card was applied to encourage participation for each student cohort.

TABLE 1 Mental health and well-being curriculum at the Faculty of Dentistry—University of British Columbia

	Interprofessional Education (IPE) "Cultivating Resilience" Workshop	Principles of Ethical Practice (PEP) Mental Health and Stress Management (MH session)
Year/term	1/term 1	1/term 2
Instructional design	Interactive Workshop preceded by a self-study online module	Didactic session[a]
Duration	1.5 h (Interactive workshop) preceded by a 40-min online module	2.5 h
Objectives	- Introduce the concept of resilience and mental health continuum model. - Help students to understand and practice resilience-building strategies. - Encourage students to be more cognizant about their mental health by recognising and acknowledging changes in self and others.	- Inform students about stress management strategies they can practice. - Discuss issues of substance use and suicidal ideation and behaviours. - Guide students to available services students can access to optimise their mental health and well-being.

[a]This session was delivered face to face in 2017/18 and 2018/19 and online in 2019/20.

We explored data pertaining to curricular mental health and well-being curricular content according to the respective academic year. We used this data to compare students' reported levels of resilience and base our assumptions whilst grouping the students as follows:

- Scores from years 3 and 4 (clinical years) were grouped together as these two classes have experienced only one part of the full mental health curriculum that was introduced to year 1 students in 2018/19. We assumed that the two cohorts might have similar resilience scores that are different from the resilience scores of junior students;
- Scores from years 1 and 2 (preclinical years) were grouped together as these two classes have experienced the full mental health curriculum introduced to year 1 students, in 2018/19. We assumed that the two cohorts might have resilience scores similar and that are different from the resilience scores of senior students;
- Scores of the year 1 class (entering for 2020/21 academic year) were analysed as a single group given that this class has not yet experienced any of the mental health curriculum and started dental school during the COVID-19 pandemic. We assumed that they might have different scores from the students who were already enrolled dental students.

2.1 | Data analysis

As suggested by the developers of the Connor-Davidson 10-item, we used whole scores for each student. There was no cut-off point to determine whether students reported low or high resilience scores. We generated descriptive and inferential statistics using the statistical software SPSS 26©. (IBM SPSS Statistics for Mac, version 26; IBM Corp.). Descriptive statistics included the range and the mean of students' resilience scores across gender, school years, ethnic origins and curricular content. Before running inferential statistics, we examined the distribution of our data and concluded that

TABLE 2 Resilience scores of students according to curricular and non-curricular variables

Variable	N	Resilience scores Mean (SD)
School year		
2019/20		
Year 1	37	24.0 (7.5)
Year 2	42	25.1 (7.6)
Year 3	27	25.0 (4.7)
Year 4	44	27.9 (7.2)
2020/21		
Year 1	47	27.7 (5.8)
Curricular content		
MH PEP I[a] session + IPE Resilience Workshop[b] (year 3 and 4 students)	83	24.6 (7.5)
MH PEP I session only (year 1 and 2 students)	65	26.8 (6.5)
No mental health content (year 1 students of 2020/21)	47	27.7 (5.8)
Non-curricular content		
Gender		
Female	101	26.6 (6.4)
Male	96	25.7 (7.3)
Ethnic origins		
Asian	94	25.5 (7.0)
European/North American	71	27.5 (5.9)
Other	25	25.9 (7.5)

Abbreviations: N, number of students; SD, standard deviation.
[a]MH PEP: Mental Health and Stress Management Session in Principles of Ethical Practice 1 course.
[b]IPE Resilience Workshop: Interprofessional Education Workshop on Resilience.

its distribution approximated normality. We utilised the following parametric testing:

- Student gender: An independent sample *t*-test was used to compare the means of resilience scores according to gender (male and female).
- Student ethnicity: Following the categorisation process of ethnic origins described above, overall resilience scores were compared across ethnic groups using one-way ANOVA and post hoc adjustments using Bonferroni's test to reduce chance of false positive.

We conducted a one-way ANOVA test with post hoc adjustment using Bonferroni's test to compare the difference in resilience scores between students who have received different curricular and non-curricular content. We also used a multiple linear regression analysis and post hoc tests to determine the change, if any, of curricular and non-curricular variables would predict the resilience scores. Statistical significance was set at a *p*-value that is <.05.

3 | RESULTS

The mental health and well-being content was addressed in two areas of the curriculum. The first was a specific didactic session, and the second was an interactive module. (Table 1).

For the resilience scale, 197 (68.2%) students responded to the survey and provided their demographic information. Table 2 shows the break down results from the resilience scale according to the variables of interest.

3.1 | Curricular variables and resilience scores

Further analyses of the Connor-Davidson 10-item scores were conducted by grouping responses into three groups, one that received both curricular components (PEP I Mental Health Session and Interprofessional Education [IPE] Resilience Workshop), one that only received the MH PEP I didactic session, and one that did not receive any mental health content. The box plot below (Figure 1) shows the distribution of the Connor-Davidson scores within the three dichotomised curricular groups. The one-way ANOVA test revealed a statistically significant difference in resilience scores between the three curricular groups (*p* = .031). To determine the groups between which significant differences in resilience scores are present, post hoc adjustments were conducted. Students who received no mental health content reported an average of 3.0 resilience scores higher than students who experienced the MH PEP session and the IPE's Resilience Workshop (*p* = .038; 95% CI = −6.02, −0.13).

3.2 | Non-curricular variables and resilience scores

The overall one-way ANOVA showed a statistically significant difference between the mean resilience scores of the five student cohorts (*p* = .031). However, upon conducting post hoc adjustments, no statistically significant differences were present between groups (*p* > .05). No statistically significant difference was observed between the mean resilience scores amongst the three ethnic groups (*p* > .05) and the two gender groups (*p* > .05).

The multiple linear regression model which included curricular and non-curricular variables was statistically significant (*p* = .044) and explained 4% of the variance in resilience scores (Table 3).
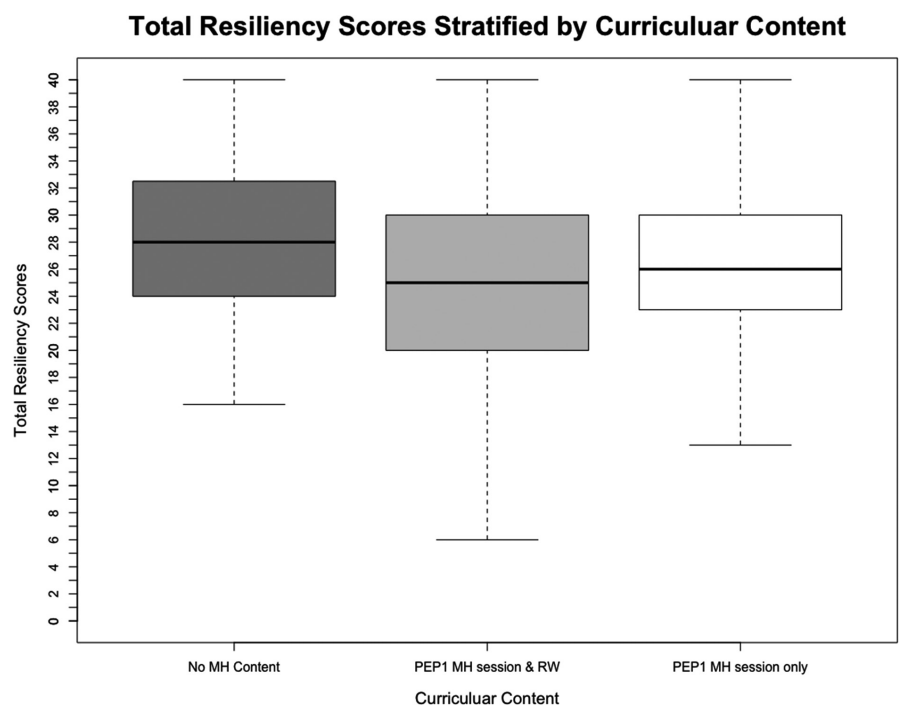

FIGURE 1 Box plot diagram of resilience scores distribution according to exposure to mental health curricular content

TABLE 3 Multiple linear regression model of resilience and curricular and non-curricular variables

Predictors	Regression coefficient (95% CI)	p-value
School year 1 (2019/2020 academic year)	−0.23 (−6.9 to −1.0)	**.008**
School year 2 1 (2019/2020 academic year)	−0.17 (−5.6 to 0.18)	.06
School Year 3 1 (2019/2020 academic year)	−0.13 (−5.7 to 0.80)	.138
North American/European ethnic origin	0.19 (0.5–4.7)	**.014**
Other ethnic origins	0.20 (−2.5 to 3.3)	.788
MH PEP 1 session only	−0.037 (−3.7 to 2.2)	.711
Gender	−0.39 (−2.3 to 1.3)	.587

Note: Correlation coefficient (R) =0.247.

Adjusted R^2 = 0.040.

Abbreviation: CI, confidence interval.

The bolded value 0.008 for the School Year 1 2019/2020 academic year variable and 0.014 for the North American/ European Ethnic Origin variable (bold italic value).

Variables of cohort year 4, year 1 (academic year of 2020/2021), Asian ethnic origin, No MH content and MH PEP 1+IPE Resilience Workshop were excluded due to the presence of multicollinearity (interdependence between variables) that affected the model.

4 | DISCUSSION

This study explored the curricular content related to mental health and well-being at UBC's Faculty of Dentistry (FoD). We analysed a number of variables that may contribute to students' resilience scores. The curricular content identified in this study was developed as suggested by educational researchers in nursing,[33] medicine[34] and other disciplines.[35] It included didactic sessions on stress management, workshop discussion on resilience and offered various services for the students to utilise. Yet, such content showed little to no impact upon resilience given that students who have received no curricular content (2020/21 freshmen students) scored higher in the resilience scale. Such an outcome might be due to the fact that freshmen students started their education after a period of time that may have allowed them to develop adaptation and coping strategies with the pandemic situation. On the contrary, all the other four cohorts experienced the direct impact of the pandemic unfolding during their undergraduate education. This may also support the argument of resilience being a trait and not a skill to acquire, much like the discussion about the teaching of ethics.[36] Furthermore, this finding highlights the speculations around one-time curricular experiences that take place early in the programme, and how they may have no impact on students' resilience and well-being development later on. This finding raises the issue of effectiveness and timing of delivering such content, and the issue of the sustainability and retention of the content.[24,37] Nonetheless, we do believe that the exposure/presentation of resilience and well-being content can indeed promote and nurture students' mental health and well-being. However, this outcome requires further investigation to assess the extent to which the amount of curricular time and its content impact the students' resilience and overall well-being.

The use of the resilience scale also led to more unexpected results. On average, our dental students scored the lowest in comparison with other studies using the same resilience scale.[38,39] Although studies showing students with higher levels of resilience scores attributed their findings to student's personalities and high achieving tendencies,[25] we were unable to make the same links. The apparent lower level of resilience of our students is alarming but can also be a reflection of the current COVID-19 pandemic when our study took place. Lockdowns due to the pandemic have interrupted classes and clinical care. The pandemic may have likely incurred anxiety in the students[40–42] and lead to a sense of uncertainty about the future.[43] Other global pandemics, such as SARS in 2003, and natural disasters were found to also contributed to the development of Post-Traumatic Stress Disorder and depression-like symptoms in people,[44,45] which have been associated with lower levels of resilience.[43]

Pandemic impact aside, the graduating class (year 4) reported the second highest average score following by the freshmen. Such finding is in contrast with the growing body of evidence that emphasises the stress and anxiety associated with clinical education in dental school, which may lower students' resilience. We argue that our findings may be attributed to the fact that senior students have progressed through the years of clinical and academic requirements and may have become more adaptive to stressors, developing a skill set that boosts their resilience even during the pandemic.[37]

Ethnic origins also presented as a significant predictor of students' resilience in the regression model, as found in several other studies.[25,46,47] Students who reported ethnic origins that are non-North American or non-European had lower resilience scores than their North American/ European counterparts corroborating other investigations.[46,47] It is possible that the minority status of selective ethnic groups may be associated with experiences of power imbalances and disempowerment, although we did not specifically require the students to self-identify as "minorities." It is also possible that the history of oppression and discrimination, which has fuelled the "Black Lives Matter" and social unrest movements in the United States and globally, contributed somewhat to the lower resilience score—a global sense of helplessness—in some students

even if they were not directly impacted by those movements.[48] Fostering resilience abilities should not be a sole individual responsibility, but rather be a systematic, collective responsibility. Co-constructing an inclusive academic environment for all students can help contribute to the enhancement of students' resilience and well-being, as well as adheres to the principles of equity and diversity.[49]

There are limitations to our study. There was no baseline resilience evaluation of students prior to enrolling in dental school, which may prevent a full assessment of the impact of the curriculum upon the current scores.[50] It is also possible that students with current low resilience scores may have scored higher if we were to apply the scale again.[45] The focus in one Canadian dental school prevents generalisation. Furthermore, the cross-sectional aspect of our design further prevents any inference of causation when comes to the impact of the mental health and resilience curriculum upon the scale scores. Whilst informative, the poor fit of the multiple regression model ($R^2 = .04$) is another limitation to our study. Student resilience and the potential impact of ethnic origins should be interpreted with caution as we employed a categorisation process to determine their associations. Groups of different ethnic origins often present with great levels of heterogeneity not only between various groups but also within the same group.[51] The impact of social desirability was not considered, as students might have answered the 10 items to feel good about themselves in the eyes of researchers, rather than answering with accuracy to reflect how they really felt. In addition, the timing of our survey during an ongoing pandemic might have impeded the levels of resilience for students compare to a situation where a pandemic does not exist. However, the use of a validated resilience scale scores enables us to assess the capacity of students to deal with a stressful time in their lives and it constitutes a first step in helping educators to understand this important component of undergraduate dental education. Further studies should explore the use of the resilience scale together with other measures of stress and/or coping skills to unravel students' ability to cope and build strengths that protect and promote well-being.

5 | CONCLUSION

In this study, we explored the mental health and well-being content at University of British Columbia FoD and investigated the factors influencing resilience levels amongst five cohorts of undergraduate dental students. The 4.5 h of mental health and well-being curricular content took place in junior years, and low levels of resilience were reported by most students. There is a need better tailor the educational experience of dental students in a manner that supports their resilience and well-being.

CONFLICT OF INTEREST
The authors of this manuscript declare that they have no conflict of interest or any other disclosures.

DATA AVAILABILITY STATEMENT
The data that support the findings of this study are available from the corresponding author upon reasonable request.

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REFERENCES
1. Basudan S, Binanzan N, Alhassan A. Depression, anxiety and stress in dental students. *Int J Med Educ*. 2017;8:179.
2. Alzahem AM, van der Molen HT, Alaujan AH, Schmidt HG, Zamakhshary MH. Stress amongst dental students: a systematic review. *Eur J Dent Educ*. 2011;15(1):8-18.
3. Murphy RJ, Gray SA, Sterling G, Reeves K. A comparative study of professional student stress. *J Dent Educ*. 2009;73(3):328-337.
4. Westerman GH, Grandy TG, Ocanto RA, Erskine CG. Perceived sources of stress in the dental school environment. *J Dent Educ*. 1993;57(3):225.
5. Deeb GR, Braun S, Carrico C, Kinser P, Laskin D, Golob DJ. Burnout, depression and suicidal ideation in dental and dental hygiene students. *Eur J Dent Educ*. 2018;22(1):e70-e74.
6. Rogers ML, Ringer FB, Joiner TE. The association between suicidal ideation and lifetime suicide attempts is strongest at low levels of depression. *Psychiatry Res*. 2018;270:324-328.
7. Laurence B, Williams C, Eiland D. Depressive symptoms, stress, and social support among dental students at a historically black college and university. *J Am Coll Health*. 2009;58(1):56-63.
8. Barbosa P, Raymond G, Zlotnick C, Wilk J, Toomey III R, Mitchell III J. Mindfulness-based stress reduction training is associated with greater empathy and reduced anxiety for graduate healthcare students. *Educ Health (Abingdon)*. 2013;26(1):9-14.
9. Rubenstein LK, May TM, Sonn MB, Batts VA. Physical health and stress in entering dental students. *J Dent Educ*. 1989;53(9):545-547.
10. Heck E, Jaworska N, DeSomma E, et al. A survey of mental health services at post-secondary institutions in alberta. *Can J Psychiatry*. 2014;59(5):250-258.
11. Faulkner G, Ramanathan S, Kwan M, et al. Developing a coordinated Canadian post-secondary surveillance system: a Delphi survey to identify measurement priorities for the Canadian campus wellbeing survey (CCWS). *BMC Public Health*. 2019;19(1):935.
12. International Conference on Health Promoting Universities & Colleges (7th: 2015: Kelowna, (B. C.)). Okanagan charter: An international charter for health promoting universities & colleges. 2015. https://open.library.ubc.ca/cIRcle/collections/53926/items/1.0132754 Accessed May 30, 2020
13. Charbonneau A, Walton JN, Morin S, Dagenais M. Association of Canadian faculties of dentistry educational framework for the development of competency in dental programs. *J Dent Educ*. 2019;83(4):464.
14. Garcia C, Abreu L, Ramos J, et al. Influence of burnout on patient safety: systematic review and meta-analysis. *Medicina (Kaunas)*. 2019;55(9):553.

15. Howe A, Smajdor A, Stöckl A. Towards an understanding of resilience and its relevance to medical training. *Med Educ*. 2012;46(4):349-356.

16. Epstein RM, Krasner MS. Physician resilience: what it means, why it matters, and how to promote it. *Acad Med*. 2013;88(3):301-303.

17. Rutter M. Implications of resilience concepts for scientific understanding. *Ann NY Acad Sci*. 2006;1094(1):1-12.

18. Young PD, Rushton CH. A concept analysis of moral resilience. *Nurs Outlook*. 2017;65(5):579-587.

19. Rogers D. Which educational interventions improve healthcare professionals' resilience? *Med Teach*. 2016;38(12):1236-1241.

20. Thompson G, Wrath A, Trinder K, Adams GC. The roles of attachment and resilience in perceived stress in medical students. *Can Med Educ J*. 2018;9(4):e69-e77.

21. Karatsoreos IN, McEwen BS. Psychobiological allostasis: resistance, resilience and vulnerability. *Trends Cogn Sci*. 2011;15(12):576-584.

22. McEwen B, Morrison J. The brain on stress: vulnerability and plasticity of the prefrontal cortex over the life course. *Neuron*. 2013;79(1):16-29.

23. McEwen BS, Gray JD, Nasca C. Recognizing resilience: learning from the effects of stress on the brain. *Neurobiol Stress*. 2015;1:1-11.

24. Fox S, Lydon S, Byrne D, Madden C, Connolly F, O'Connor P. A systematic review of interventions to foster physician resilience. *Postgrad Med J*. 2018;94(1109):162-170.

25. Smith CS, Carrico CK, Goolsby S, Hampton AC. An analysis of resilience in dental students using the resilience scale for adults. *J Dent Educ*. 2020;84(5):566-577.

26. Bhat SB, Basson WJ. Perceived stress of dental students. *J Psychol Afr*. 2013;23(4):647-649.

27. Maragha T, Donnelly L, Schuetz C, von Bergmann H, Brondani M. Mental health and wellness in canadian dental schools: findings from a national study. *J Dent Educ*. 2021;86:68-76.

28. Jacelon CS. The trait and process of resilience. *J Adv Nurs*. 1997;25(1):123-129.

29. Campbell-Sills L, Stein MB. Psychometric analysis and refinement of the Connor-Davidson Resilience Scale (CD-RISC): validation of a 10-item measure of resilience. *J Trauma Stress*. 2007;20(6):1019-1028.

30. Connor KM, Davidson JRT. Development of a new resilience scale: the connor-davidson resilience scale (CD-RISC). *Depress Anxiety*. 2003;18(2):76-82.

31. Aloba O, Olabisi O, Aloba T. The 10-item Connor-Davidson resilience scale: Factorial structure, reliability, validity, and correlates among student nurses in southwest nigeria. *J Am Psychiatr Nurses Assoc*. 2016;22(1):43-51.

32. Statistics Canada CP. Visible minority and population group reference guide, census of population. 2016. https://www12.statcan.gc.ca/census-recensement/2016/ref/guides/006/98-500-x2016006-eng.cfm Updated 2017 Accessed May 30, 2020

33. Crombie A, Brindley J, Harris D, Marks-Maran D, Thompson TM. Factors that enhance rates of completion: what makes students stay? *Nurse Educ Today*. 2013;33(11):1282-1287.

34. Tempski P, Santos IS, Mayer FB, et al. Relationship among medical student resilience, educational environment and quality of life. *PLoS One*. 2015;10(6):e0131535.

35. Stallman HM. Embedding resilience within the tertiary curriculum: a feasibility study. *High Educ Res Dev*. 2011;30(2):121-133.

36. Brondani MA, Rossoff LP. The "hot seat" experience: a multifaceted approach to the teaching of ethics in a dental curriculum. *J Dent Educ*. 2010;74(11):1220-1229.

37. Bird A, Martinchek M, Pincavage AT. A curriculum to enhance resilience in internal medicine interns. *J Grad Med Educ*. 2017;9(5):600-604.

38. Montero-Marin J, Piva Demarzo MM, Pereira JP, Olea M, García-Campayo J. Reassessment of the psychometric characteristics and factor structure of the 'Perceived stress questionnaire'(PSQ): analysis in a sample of dental students. *PLoS One*. 2014;9(1):e87071.

39. Houpy JC, Lee WW, Woodruff JN, Pincavage AT. Medical student resilience and stressful clinical events during clinical training. *Med Educ Online*. 2017;22(1):1320187.

40. Tang W, Hu T, Hu B, et al. Prevalence and correlates of PTSD and depressive symptoms one month after the outbreak of the COVID-19 epidemic in a sample of home-quarantined Chinese university students. *J Affect Disord*. 2020;274:1-7.

41. Brondani M, Donnelly L. COVID-19 pandemic: students' perspectives on dental geriatric care and education. *J Dent Educ*. 2020;84(11):1237-1244.

42. Hung M, Licari FW, Hon ES, et al. In an era of uncertainty: impact of COVID-19 on dental education. *J Dent Educ*. 2020;85(2):148-156.

43. Polizzi C, Lynn SJ, Perry A. Stress and coping in the time of COVID-19: pathways to resilience and recovery. *Clin Neuropsychiatry*. 2020;17(2):59-62.

44. Hawryluck L, Gold WL, Robinson S, Pogorski S, Galea S, Styra R. SARS control and psychological effects of quarantine, Toronto, Canada. *Emerg Infect Dis*. 2004;10(7):1206.

45. Bonanno GA, Galea S, Bucciarelli A, Vlahov D. What predicts psychological resilience after disaster? The role of demographics, resources, and life stress. *J Consult Clin Psychol*. 2007;75(5):671.

46. Marwitz JH, Sima AP, Kreutzer JS, et al. Longitudinal examination of resilience after traumatic brain injury: a traumatic brain injury model systems study. *Arch Phys Med Rehabil*. 2018;99(2):264-271.

47. Jørgensen IE, Seedat S. Factor structure of the connor-davidson resilience scale in South African adolescents. *Int J Adolesc Med Health*. 2008;20(1):23-32.

48. Weine S, Kohrt BA, Collins PY, et al. Justice for George Floyd and a reckoning for global mental health. *Glob Ment Health*. 2020;7:e22.

49. Daughrity B. Standing up, speaking out for racial justice: as part of the racial reckoning following George Floyd's brutal murder, our professions confront racism and the responsibility to tackle it. *Leader Live*. 2020;25(6):52.

50. Prince-Embury S. Review of resilience conceptual and assessment issues. In: Prince-Embury S, Saklofske DH, eds. *Resilience Interventions for Youth in Diverse Populations*. Springer; 2014:13-23.

51. Phinney JS. When we talk about American ethnic groups, what do we mean? *Am Psychol*. 1996;51(9):918-927.