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Dental trainees' mental health and intention to leave their program during the 2020 COVID-19 pandemic

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ABSTRACT

Background. Dental trainees are at increased risk for poor mental health, which may lead to intentions to leave their program, especially during the COVID-19 pandemic.

Methods. We invited 355 dental trainees at the University of Washington School of Dentistry to complete an 83-item questionnaire in August and September 2020. Trainees were pre-doctoral dental students, graduate students, and post-doctoral residents. The outcome was intention to leave their program. There were four self-reported predictors: anxiety, burnout, depression, and COVID-19 impact on overall mental health. We ran multiple variable logistic regression models to evaluate relationships between each predictor and outcome ($\alpha=0.05$) and reported odds ratios (OR) and 95% confidence intervals (CI).

Results. The survey response rate was 35.5%. Overall, 12.7% of participants reported any intention to leave. In total, 22.2% and 16.7% of participants endorsed clinically significant anxiety or depression symptomatology, respectively; 28.6% reported ≥ 1 burnout symptom; and 69.0% reported their overall mental health was impacted by COVID-19. Participants reporting anxiety (OR=8.87; 95% CI=1.80, 43.57; P=.007), depression (OR=11.18; 95% CI=1.84, 67.74; P=.009), or burnout (OR=8.14; 95% CI=1.73, 38.23; P=.008) were significantly more likely to report intention to leave than those not reporting mental health problems. All participants reporting that the COVID-19 pandemic impacted their mental health reported intention to leave.

Conclusions. Poor mental health is common among dental trainees and is associated with intention to leave their program.

Practical Implications. COVID-19 has exacerbated the prevalence and consequences of poor mental health among dental students, highlighting the importance of providing wellness resources.

Key Words: Dental Students; Anxiety Disorders; Burnout, Professional; Depressive Disorder, COVID-19

INTRODUCTION

The dental student training experience increases one's risk for poor mental health, as exemplified by the high levels of stress, anxiety, and depression reported by dental students.^{1,2} Sources of stress include exams, grades, workload, competition, and debt.³⁻⁵ While studies have not examined anxiety prevalence among U.S. dental students, international estimates of abnormal levels of anxiety are as high as 67%.⁶ Low mood was reported by 15% of students at one U.S. dental school and 27.7% of students at another U.S. school reported symptomatology suggestive of major depression, which the researchers note is significantly higher than the prevalence among the general U.S. adult population.^{7,8} Financial insecurity, minority race and ethnicity, and being a first-year student were associated with moderate-to-severe depressive symptoms.⁸

Poor mental health can lead to adverse outcomes during dental school. The 2019 American Dental Education Association Survey of Dental School Seniors, the only national survey of U.S. dental students, reported widespread burnout, which includes feeling fatigued, emotionally drained, overwhelmed, and disconnected from school.⁹ At one U.S. dental school, 40% of students met criteria for burnout, consistent with data from dental schools outside the U.S.^{10,11} Burnout can lead to poor academic performance.^{1,2,12} Another consequence of burnout is intention to leave dental school or actual attrition, though studies on this topic have not been conducted in dentistry since the late 1990s.¹³ Most concerning is the association between poor mental health and suicidal ideation, with results from one school indicating a 6% prevalence of clinically significant ideation among dental students.¹⁰

The COVID-19 pandemic has exacerbated mental health problems among those living in the U.S. and especially for 18- to 24-year-olds, the age group to which most dental trainees belong.^{14,15} Seattle was the first epicenter of the U.S. pandemic and the University of Washington (UW) was the first dental school in the nation to close its clinics in March 2020. Clinic closures introduced new uncertainties (e.g., curricular,

clinical, economic, career, health). Relatedly, swift transitions to online education, paired with sweeping closures and significant restrictions on activity in Seattle, caused major disruptions to the day-to-day lives of trainees. Other destabilizing events occurring at the same time included civil unrest following nationwide police-instigated violence targeted at Black, Indigenous, and People of Color (BIPOC) and widespread political tensions leading to the 2020 Presidential election.

A study of UW dental trainees may be particularly worthwhile for determining the impact of the COVID-19 pandemic on trainee mental health and other related outcomes like retention, especially in the context of growing concerns about dental student wellness. In this study, we administered a school-wide survey to estimate the prevalence of mental health problems and the extent to which poor mental health and the COVID-19 pandemic were related to intention to leave dental school. Ultimately, this knowledge can be used to inform the development of relevant dental trainee wellness interventions – perhaps on a national scale – aimed at addressing unmet mental health needs, mitigating the psychological effects of the COVID-19 pandemic, and reducing other adverse outcomes like dropout.

METHODS

Study Design. We administered an anonymous survey via Research Electronic Data Capture (REDCap). Those eligible to participate were all trainees at the UW School of Dentistry, including dental students (n=268), graduate students (n=15), and post-doctoral residents (n=72). Each individual was emailed an initial invitation to complete the survey followed by two reminder emails. The survey was available for completion from August 19, 2020 to September 15, 2020. Participation was voluntary and there was no incentive provided. The UW Institutional Review Board classified the study as exempt.

Survey Measures. We developed an 83-item survey that included multiple choice, check list, and open-ended items on the following topics: intentions to leave their program; general mental health (e.g.,

anxiety, depression, burnout); and impacts of the COVID-19 pandemic. The survey also assessed substance use; isolation from peers; use of professional support system; unmet needs (food insecurity and ability to pay bills); and demographics. We used previously validated items when available, adapting them when necessary to ensure relevance to trainees. We also created new items specifically for this investigation when no appropriate measure could be found in the literature.

Outcome. The outcome was intention to leave their program, measured with an adapted item from the Physician Worklife Study (PWS).¹⁶ Response alternatives were on a Likert-type scale (not at all, slightly, moderately, likely, definitely). Data were dichotomized as no intention to leave vs. any intention to leave.

Predictor variables. There were four self-reported predictors: anxiety, depression, burnout, and the impact of the COVID-19 pandemic on overall mental health. Anxiety was assessed with the 7-item Generalized Anxiety Disorder scale (GAD-7), which maps to the diagnostic criteria for generalized anxiety disorder.¹⁷ Each item was scored from 0 (not at all) to 3 (nearly every day) and a total score was calculated by summing item scores. We used the standard threshold of a total score of 10 or greater to classify individuals as likely meeting the criteria for generalized anxiety disorder. Depression was assessed with the 9-item Patient Health Questionnaire (PHQ-9), which maps to the diagnostic criteria for major depressive disorder (major depression).¹⁸ PHQ-9 scores are calculated like GAD-7 scores. Using the standard threshold, a PHQ-9 total score of 10 or greater was classified as suggestive of major depressive disorder. We measured burnout with a single item from the PWS.¹⁹ The item has 5 ordinal response alternatives. Consistent with previous use, we dichotomized responses as no burnout symptoms vs. 1 or more symptoms of burnout.²⁰ Finally, using an item created for this study, we asked participants to rank how much they agreed with the statement, “COVID-19 has impacted my mental health” on a Likert-type scale (strongly disagree, disagree, neutral, agree, and strongly agree). Responses were dichotomized as impacting mental health (agree or strongly agree) vs. not impacting mental health (strongly disagree, disagree, neutral).

Confounders and descriptive variables. We included the following variables as model confounders: demographics (gender, race, and first-generation college student status), food insecurity, ability to pay bills, alcohol use, isolation from peers, and professional support use.

Gender had three categories (man, woman, other). Race included the following categories, consistent with the U.S. Census Bureau: American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Pacific Islander, white, and other. We regrouped all categories except Asian and white as other because of small subgroups. First-generation college student status was a dichotomous variable (no/yes). To measure food insecurity, we used the existing 2-item screener described elsewhere (no/yes).²¹ We asked about the current ability to pay bills (can pay bills in full vs. cannot pay bills in full) using an item from a questionnaire developed by the Pew Research Center.²²

To measure alcohol use, we adapted the Substance Use Brief Screen (SUBS), which asks about frequency of tobacco, alcohol, and marijuana use.²³ We omitted the description of marijuana as illegal to reflect Washington state laws and altered the time frame to ask about substance use in the past three months. Because use of tobacco and marijuana was relatively low (4.0% and 16.9% used any amount of tobacco or any amount marijuana, respectively), we included only alcohol use in analyses. We created a dichotomous variable called alcohol use to indicate having 4 or more alcoholic drinks on three or more days in the past three months (yes/no).

We created a new item on social support, “Do you ever feel alone or isolated from your peers?” (no/yes), and assessed use of a professional support system by asking respondents to select from a newly-created checklist of resources which they had used while at the UW (e.g., counseling and treatment services, wellness coach, personal trainer). Professional support system use was dichotomized as never used resources vs. used one or more resources.

To further describe the study population, we asked how much the COVID-19 pandemic influenced the participant's finances, using an adapted item from the Pew Research Center questionnaire.²² We also asked about the impact of civil unrest in Seattle and in the U.S. by modifying the previous question. For both items on impact of the COVID-19 pandemic, there were three response alternatives: no impact, minor impact, or major impact. We created a new checklist from which trainees identified the educational and technological resources they needed for remote learning but did not have access to (e.g., library services, quiet workspace, tutoring services, Internet access).

Data Management and Statistical Analyses. We first summarized all data by trainee type (e.g., dental student, graduate student, post-doctoral resident) and compared across groups using the chi-square test ($\alpha=0.05$). When there were low expected cell counts, we used the Fisher's exact test. Because there were no significant differences in the outcome or predictor variables across trainee groups, we analyzed the data as a single group. We assessed the bivariate relationships between intention to leave the program and each predictor by generating unadjusted odds ratios (OR) and 95% confidence intervals (CI) using logistic regression models. Then, we used multiple variable logistic regression models to evaluate the relationship between each predictor variable and intention to leave the program. These latter models adjusted for confounders (demographics, food insecurity, ability to pay bills, alcohol use, social support, and professional support use) and we reported confounder-adjusted OR and 95% CI. Observations with missing data were excluded from the regression analyses. Survey responses were downloaded from REDCap and imported into SPSS Version 25 (IBM Corp. Released 2017. Armonk, NY: IBM Corp.) for analyses.

RESULTS

Descriptive Statistics. Of the 355 trainees who received an invitation, 126 (35.5%) completed the survey. Group response rates were 36.2% for dental students (n=97), 86.7% for graduate students (n=13), and 23.6% for post-doctoral residents (n=17) (**Table 1**). Of the dental students who responded, 38.1% were first year, 15.5% were second year, 17.5% were third year, and 26.8% were fourth year dental students.

Slightly more than half (55.6%) of all participants were women. In terms of race, 57.1% were white, 33.3% were Asian, and 7.9% self-identified with another race category. Overall, 22.2% were first-generation college graduates, 14.3% were food insecure, and 17.5% could not pay their bills in full. Alcohol use was reported by 23.8% of participants. In total, 46.8% reported feeling isolated from peers and 28.6% used one or more professional support systems. Almost 69% of participants reported that the COVID-19 pandemic had impacted their finances and 61.9% reported some impact from the civil unrest. About one-half of participants reported that their educational and technological needs were met. Library services and quiet workspace were the two most common unmet educational needs.

Outcome. Overall, 12.7% of participants reported any intention to leave their program (**Table 1**). This was similar across all three trainee types.

Predictor Variables. One-in-five (22.2%) participants had GAD-7 scores suggesting they met diagnostic criteria for generalized anxiety disorder and 16.7% had PHQ-9 scores suggesting they met diagnostic criteria for major depressive disorder. Also, 28.6% of participants reported one or more symptoms of burnout and 69.0% reported that their overall mental health was impacted by the COVID-19 pandemic (**Table 2**).

Regression Models. Because results from the unadjusted and confounder-adjusted models were similar, we report the latter (**Table 3**). Participants who were categorized as likely meeting criteria for generalized anxiety disorder were 8.87 times as likely to report intention to leave as those who were categorized as

not meeting criteria (95% CI: 1.80, 43.57; $P=0.007$). Those who were categorized as likely meeting criteria for major depressive disorder were 11.18 times as likely to report intention to leave (95% CI: 1.84, 67.74; $P=0.009$) compared to their non-depressed counterparts. Participants endorsing burnout were 8.14 times as likely as those who did not to report intention to leave (95% CI: 1.73, 38.32; $P=0.008$). All participants reporting that the COVID-19 pandemic had impacted their overall mental health also reported intention to leave.

DISCUSSION

In this study, we administered a survey to dental trainees at a single dental school to assess mental health during the COVID-19 pandemic and the effects of poor mental health on intention to leave their training program. There were two main findings.

First, poor self-reported mental health was prevalent among survey respondents and the COVID-19 pandemic is a likely contributor. Nearly 70% of respondents believed that the pandemic impacted their mental health. One-in-five participants endorsed symptoms consistent with generalized anxiety disorder and 17% endorsed symptoms consistent with major depression. These results are similar to estimates from a multinational survey of health professions trainees in which dental students were overrepresented and for which the GAD-7 and PHQ-9 were also used. That survey was completed August and September 2020, the same time as ours, and documented generalized anxiety disorder and major depression prevalence estimates of 23.4% and 22.9%, respectively.²⁴ Interestingly, our observed rates of anxiety and depression were lower than the 29% prevalence reported among the general U.S. adult population during the COVID-19 pandemic (though that study reported data from the first month of pandemic in the U.S., when the acute impact on mental health could be expected to be larger).²⁵ The rate of likely major depression we observed is consistent with rates reported in pre-pandemic studies of U.S. dental trainees.^{7,8} Nearly 30% of survey participants reported burnout, which is also lower than previously reported burnout

prevalence for dental and medical students.^{10,11} A possible explanation is that survey respondents may have been biased toward better mental health than those who did not respond.

Regardless of how they compare to estimates reported in other studies, the prevalence of anxiety and depression we observed is cause for concern. At least one-in-five trainees has clinically significant psychological symptoms that are known to be distressing and may interfere with everyday functioning. Additionally, it is important to note that individuals can experience distress and interference resulting from anxiety or depressive symptoms even if symptoms are not severe enough to meet diagnostic criteria for a psychiatric disorder. In this way, that nearly 70% of participants endorsed an impact of the COVID-19 pandemic on mental health is cause for concern.

Second, there were significant relationships between poor mental health and intention to leave. Nearly 13% of participants in our study reported any dropout intentions. While dropout intentions do not necessarily result in actual attrition, our observed prevalence of dropout intention was consistent with reported rates from an older UK study ranging from 8.4% to 16.8%.¹³ Recent work on pre-doctoral university students reported burnout as a predictor of dropout intentions.²⁶

Applying these findings to the current study, the COVID-19 pandemic may compound the effects of poor mental health – to which dental trainees are predisposed because of the rigor and intensity of training – most likely a function of the additional uncertainties regarding academic and clinical training as well as future employment and income prospects. For instance, a recent study of dental and dental hygiene students at one U.S. dental school documented changes in future career plans because of the COVID-19 pandemic among nearly 12% of those surveyed.²⁷ Moreover, to explain the somewhat paradoxical finding that younger adults have experienced worse mental health outcomes during the COVID-19 pandemic than adults in older age groups, other researchers have suggested that the reason is that younger adults have encountered greater disruptions in major life events.^{14,28} In addition to this disruption, younger adults may

have an underdeveloped repertoire of coping skills due to more limited life experience. Thus, younger adults, and especially those such as dental trainees who are already experiencing significant stress, represent a vulnerable group.

Our data suggest attention should be paid to dental trainee mental health. There are several intervention approaches that could help address the unmet mental healthcare needs of dental trainees. The first is to make professional resources available and to remove barriers to use. Over 70% of participants had never used resources like counseling services or psychological care. Accessing resources can be a challenge for dental students with inflexible schedules, which reinforces the need to make such resources available outside of training hours and close in physical proximity to the school to reduce the related barrier of time-consuming commutes. Some students may have co-payments or deductibles, which highlights the need for dental schools to eliminate cost-related barriers to care for trainees. In addition, because of embarrassment and stigma associated with accessing services and potential concerns about confidentiality, especially among health science students, services may need to be provided outside of the physical dental school space.²⁹

Another approach to addressing unmet mental healthcare needs among dental trainees is to provide comprehensive wellness programming to all trainees. Such a process should include screening and referrals for clinical depression and anxiety, monitoring for burnout, and ensuring that students are engaged with school.^{26,30} Trainee engagement could be enhanced by offering opportunities for extracurricular social activities to address isolation (46.8% of survey respondents reported feeling isolated for their peers), service learning and public health outreach, and research.^{31,32} Universal wellness programming that teaches trainees evidence-based strategies (e.g., cognitive-behavioral techniques) for stress management may be helpful, especially if delivered early in training and reinforced regularly.^{33,34} Wellness initiatives might also include the universal, consistent provision of formal opportunities for trainees to convey acute financial or educational and technological needs, such as library or tutoring

services, Internet access, or hardware needs – all of which were among the most common unmet needs for survey participants during the COVID-19 pandemic.

There were three main study limitations. First, we had a relatively low survey response rate that limits internal generalizability. We sent three survey invitation reminders but offered no incentives for participation. Incentivizing participants could increase response rates in future studies. Our sample may be biased toward healthier students, based on lower rates of anxiety and depression in our sample compared to studies of the general U.S. adult population during the COVID-19 pandemic. Second, this study focused on a single dental school, which limits external generalizability. The University of Washington is in Seattle, one of the first U.S. cities that was significantly affected by the pandemic. A national study of dental schools would generate more generalizable and representative data on U.S. dental trainee mental health. Third, our primary outcome was intention to leave the program which, as stated previously, does not necessarily translate to attrition. In fact, no trainees have left the program since start of the COVID-19 pandemic. Other outcomes like academic performance, satisfaction with work-life balance, and suicidal ideation are equally important to evaluate in the context of understanding consequences of poor mental health.

In conclusion, we found that poor mental health was common among surveyed dental trainees, which may have been exacerbated by fallout from the COVID-19 pandemic. Poor mental health was associated with dropout intentions. These findings support concerted efforts to promote wellness among dental trainees as a way to address unmet mental healthcare needs and prevent adverse outcomes associated with poor mental health.

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Table 1

Characteristics of study population of dental students, graduate students, and residents at the University of Washington School of Dentistry and corresponding p-values from bivariate analyses (N=126)

Variables	Total (N=126) N(%)	Dental students (n=97) N(%)	Graduate students (n=12) N(%)	Residents (n=17) N(%)	P-value
Gender					.35 ^a
Man	51(40.5)	41(42.3)	2(16.7)	8(47.1)	
Woman	70(55.6)	51(52.6)	10(83.3)	9(52.9)	
Other	3(2.4)	3(3.1)	-	-	
Missing	2(1.6)	2(2.1)	-	-	
Race					.56 ^a
Asian	42(33.3)	32(33.0)	6(50.0)	4(23.5)	
White	72(57.1)	56(57.7)	5(41.7)	11(64.7)	
Other	10(7.9)	7(7.2)	1(8.3)	2(11.8)	
Missing	2(1.6)	2(2.1)	-	-	
First-generation college student					.61 ^a
No	96(76.2)	75(77.3)	8(66.7)	13(76.5)	
Yes	28(22.2)	20(20.6)	4(33.3)	4(23.5)	
Missing	2(1.6)	2(2.1)	-	-	
Food insecure					.90 ^a
No	107(84.9)	83(85.6)	9(75.0)	15(88.2)	
Yes	18(14.3)	14(14.4)	2(16.7)	2(11.8)	
Missing	1(0.8)	-	1(8.3)	-	
Ability to pay bills					
Pay bills in full	104(82.5)	80(82.5)	9(75.0)	15(88.2)	.60 ^a
Cannot pay bills in full	22(17.5)	17(17.5)	3(25.0)	2(11.8)	
Alcohol use					.06 ^a
No	96(76.2)	73(75.3)	12(100)	11(64.7)	
Yes	30(23.8)	24(24.7)	-	6(35.3)	
Isolated from peers					.97
No	67(53.2)	52(53.6)	6(50)	9(52.9)	
Yes	59(46.8)	45(46.4)	6(50)	8(47.1)	
Professional support system use					.88 ^a
Never used resources	90(71.4)	70(72.2)	8(66.7)	12(70.6)	
Used one or more resources	36(28.6)	27(27.8)	4(33.3)	5(29.4)	

COVID-19 impact on finances						.97
Minor or major impact	87(69.0)	67(69.1)	8(66.7)	12(70.6)		
No impact	39(31.0)	30(30.9)	4(33.3)	5(29.4)		
Civil unrest impact						.45
Minor or major impact	78(61.9)	58(59.8)	7(58.3)	13(76.5)		
No impact	46(36.5)	38(39.2)	4(33.3)	4(23.5)		
Missing	2(1.6)	1(1.0)	1(8.3)	-		
Unmet educational and technological needs (yes responses)						
No unmet need	64(50.8)	46(47.4)	7(58.3)	11(64.7)		.36
Library services	38(30.2)	36(37.1)	-	2(11.8)		.006
Quiet workspace	35(27.8)	28(28.9)	4(33.3)	3(17.6)		.61 ^a
Tutoring services	21(16.7)	20(20.6)	1(8.3)	-		.07 ^a
Internet access	12(9.5)	9(9.3)	1(8.3)	2(11.8)		.87 ^a
Desktop computer	10(7.9)	6(6.2)	1(8.3)	3(17.6)		.14 ^a
Other (unspecified)	7(5.6)	5(5.2)	-	2(11.8)		.35 ^a
Video/audio hardware	6(4.8)	3(3.1)	1(8.3)	2(11.8)		.18 ^a
Wi-Fi	3(2.4)	2(2.1)	1(8.3)	-		.30 ^a
Laptop computer	3(2.4)	1(1.0)	1(8.3)	1(5.9)		.13 ^a

a. Fisher's exact test was used.

Table 2

Distribution of outcome and predictor variables for participating dental students, graduate students, and residents at the University of Washington School of Dentistry (N=126)

	Total (N=126) N(%)	Dental students (n=97) N(%)	Graduate students (n=12) N(%)	Residents (n=17) N(%)	P-value
Outcome: Intention to leave their program					.41 ^a
No intention to leave	110(87.3)	86(88.7)	9(75.0)	15(88.2)	
Any intention to leave	16(12.7)	11(11.3)	3(25.0)	2(11.8)	
Predictor: Anxiety					.70 ^a
No	97(77.0)	76(78.4)	9(75.0)	12(70.6)	
Yes	28(22.2)	20(20.6)	3(25.0)	5(29.4)	
Missing	1(0.8)	1(1.0)	-	-	
Predictor: Depression					.17 ^a
No	101(80.2)	82(84.5)	7(58.3)	12(70.6)	
Yes	21(16.7)	14(14.4)	4(33.3)	3(17.6)	
Missing	4(3.2)	1(1.0)	1(8.3)	2(11.8)	
Predictor: Burnout					.31 ^a
No symptoms	90(71.4)	67(69.1)	11(91.7)	12(70.6)	
One or more symptoms	36(28.6)	30(30.9)	1(8.3)	5(29.4)	
Predictor: COVID-19 has impacted my mental health					.44
Agree or strongly agree	87(69.0)	65(67.0)	8(66.7)	14(82.4)	
Neutral, disagree, or strongly disagree	39(31.0)	32(33.0)	4(33.3)	3(17.6)	

a. Fisher's exact test was used.

Table 3

Logistic regression models predicting intention to leave the program for dental trainees at the University of Washington School of Dentistry (N=126)

Predictors	Intention to leave the program					
	OR	95% CI	P-value	AOR ^a	95% CI	P-value
Anxiety	6.09	2.02, 18.38	.001	8.87	1.80, 43.57	.007
Depression	5.11	1.64, 15.93	.005	11.18	1.84, 67.74	.009
Burnout	7.48	2.37, 23.56	.001	8.14	1.73, 38.23	.008
COVID-19 has impacted mental health	*			*		

OR=Odds Ratio; CI=Confidence Interval; AOR=Adjusted Odds Ratio

a. Multiple variable logistic regression adjusted for gender, race, first-generation college student status, food insecurity, ability to pay bills, alcohol use, isolation from peers, and professional support use.

* Unable to derive Odds Ratio or Adjusted Odds Ratio because of no variation on outcome.

Wellness Survey

Survey Page 1 Introduction/Consent

Your health and well-being are important to us. We understand that COVID-19 has led to a lot of uncertainty, stress, and hardships.

We developed a Wellness Survey for two reasons. First, we want to learn how COVID-19 is impacting you as a UW dental student, graduate student, or resident. Second, we want to know what unmet needs you may have that impact your learning, health, and well-being – and to see if we can help connect you to resources. Our goal is to make sure you have what you need to learn and be well.

The Wellness Survey asks questions about stress and coping as well as unmet needs you might have, including financial, technological/educational, and caregiving needs.

The online survey will take about 10 minutes to complete. Participation is voluntary. You can skip any questions you prefer not to answer or exit the survey at any time without penalty.

There are no right or wrong answers. Your participation and the responses you provide will be completely anonymous. Survey responses cannot be linked to individuals. We will not ask for your name, and any potentially identifying information you provide will only be reported in aggregate.

Depending on your experiences, some of the questions might feel personal or bring up feelings that are upsetting. Remember, answering questions is optional. At the end of the survey, you will be provided with a list of wellness and other resources that may be helpful.

If you have questions, please contact the survey organizers, Drs. Donald Chi (dchi@uw.edu) or Cameron Randall (clr333@uw.edu).

By clicking “Begin Survey” and answering the questions, you acknowledge your consent to participate in this research project.

Thank you very much for your participation.

Survey Page 2

For each question or set of questions, please pay close attention to the timeframe specified. For instance, some questions ask about the last three months, while others ask about the last two weeks, present moment, or the entirety of your training program.

Stress Management

1. Prior to COVID-19, what do you consider to have been the most stressful aspect of your training program?

Text field

2. What do you do to help cope with stress? (examples: exercise, prayer/meditation, pets, nature, prescription medication, music, alcohol)

Text Field

3. We know there are many unknowns because of COVID-19. Please select how much you agree with the following statement: COVID-19 has impacted my mental health.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

Social Support

1a. Do you have a support system at the UW? A support system is a person or network of people who provide you with practical or emotional support.

- Yes
- No

Answered yes to 1a

1b. You answered “yes” to having a support system at the UW. Who/what would you identify as your support system? (check all that apply)

Friends
Family
Classmates
Student Organization
Religious Institution
Faculty
Staff
Counselor
Other

Answered other to 1b

1c. You selected “other” for your support system at the UW. Please specify:

Text Field

Isolation from peers

Do you ever feel alone or isolated from your peers?

- Yes
- No

Burnout

Overall, based on your definition of burnout, how would you rate your level of burnout?

1—I enjoy my work. I have no symptoms of burnout.

2—Occasionally I am under stress, and I don't always have as much energy as I once did but I don't feel burned out.

3—I am definitely burning out and have one or more symptoms of burnout, such as physical and emotional exhaustion.

4—The symptoms of burnout that I'm experiencing won't go away. I think about frustration at work a lot.

5—I feel completely burned out and often wonder if I can go on. I am at the point where I may need some changes or may need to seek some sort of help.

Intention to Leave

How likely are you to leave your program prematurely, without graduating?

- Not at all
- Slightly
- Moderately
- Likely
- Definitely

Survey Page 3

GAD-7

Over the <u>last two weeks</u> , how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious, or on edge				
2. Not being able to stop or control worrying				
3. Worrying too much about different things				
4. Trouble relaxing				
5. Being so restless that it is hard to sit still				
6. Becoming easily annoyed or irritable				
7. Feeling afraid, as if something awful might happen				

If you checked off any problems, how difficult have these made it for you to do your work, take care of things at home, or get along with other people?

- Not difficult at all
- Somewhat difficult
- Very difficult
- Extremely difficult

PHQ-9

Over the <u>last two weeks</u> , how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things				
2. Feeling down, depressed, or hopeless				
3. Trouble falling or staying asleep, or sleeping too much				
4. Feeling tired or having little energy				
5. Poor appetite or overeating				
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down				
7. Trouble concentrating on things such as reading the newspaper or watching television				
8. Moving or speaking so slowly that other people could have noticed? Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual				
9. Thoughts that you would be better off dead				

or of hurting yourself in some way				
------------------------------------	--	--	--	--

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

- Not difficult at all
- Somewhat difficult
- Very difficult
- Extremely difficult

Substance Use

Please check one option for each question	Three or more days in the past three months	One or two days in the past three months	Never in the past three months
In the <u>past three months</u> , on how many days did you use tobacco ?			
In the <u>past three months</u> , on how many days did you have 4 or more alcoholic drinks in a day , including wine or beer?			
In the <u>past three months</u> , on how many days did you use marijuana ?			

Consider a “drink” to be a can or bottle of beer (12 ounces), a glass of wine (5 ounces), a wine cooler (12 ounces), or a shot of hard liquor like gin, vodka or whiskey (1.5 ounces).

Answered three or more days OR one or two days

You stated that you used tobacco, alcohol, and/or marijuana in the last three months. Was that to cope with COVID-19-related stress you were experiencing?

- Yes
- No

HITS Screener

1. Do you live with a partner?

- Yes
- No

Answered yes to 1

Please check one option for each question	Never	Rarely	Sometimes	Fairly Often	Frequently
How often does your partner physically hurt you?					
How often does your partner insult					

or talk down to you?					
How often does your partner threaten you with physical harm?					
How often does your partner scream or curse at you?					

Journal Pre-proof

Survey Page 4**Mental Health Resources**

1a. Which of the following professional support systems have you used while being a student, trainee, or resident at UW? (check all that apply)

UW School of Dentistry Office of Student Services

UW Counseling Center (Schmitz Hall)

Hall Health's mental health services

UW Department of Psychology (Psychological Services and Training Center)

Private Counseling/Treatment Center

Health/Wellness Coach

Personal Trainer

Other

None of the Above

Answered other to 1a

1b. You selected "other" for professional support system. Please specify:

Text field

2a. What barriers do you face in getting desired mental health support? (check all that apply)

Location is not convenient

Service times offered are not convenient

Not enough time

Embarrassment

Financial/costs

Other

None

Answered other to 2a

2b. You selected "other" for barriers to getting mental health support. Please specify:

Text field

3. What could the UW SOD do to help improve your social and emotional well-being?

Text field

Survey Page 5**Financial Needs**

1. Which best describes the impact COVID-19 has had on your personal financial situation?

- No impact
- A minor impact
- A major impact

2. Which best describes your current ability to pay all of your bills?

- I can pay all of my bills in full
- I cannot pay some bills or can only make a partial payment on some of them

Technological and Educational Needs

1a. Which of the following technological and educational resources do you need for remote learning that you do **not** have access to? (check all that apply)

- Desktop computer
- Laptop computer
- Video/audio hardware (webcam, microphone, headset)
- Adequate access to internet
- Wi-Fi
- Quiet workspace
- Library services
- Tutoring services
- Other

Answered other to 1a

1b. You selected "other". What other resources do you need that would help you with remote learning?

Text field

Food Insecurity

These questions are about the food eaten in your household in the last three months, and whether you were able to buy the food you needed. Please read the statement and answer to the best of your knowledge how often these statements have been true for your household.

"We worried whether our food would run out before we got money to buy more"

Was that often, sometimes, or never true for your household in the past three months?

- Often true
- Sometimes true
- Never true
- Don't know

"The food that we bought just didn't last, and we didn't have money to get more."

Was that often, sometimes, or never true for your household in the past three months?

- Often true
- Sometimes true
- Never true
- Don't know

Caregiving Needs

1. Are you currently a caregiver to a child?

- Yes
- No

2. Are you currently a caregiver to an adult (aging parent, relative, or other family member)?

- Yes
- No

Answered yes to 1 or 2

3a. Caregiving responsibilities during the last three months have been

- Very easy
- Somewhat easy
- Somewhat difficult
- Very difficult

Answered yes to 1 or 2

3b.

Please select how important each of the following caregiver services is to you	Not very important	Somewhat important	Very important	N/A
Daytime childcare during weekday work hours				
Childcare during nights, weekends, and holidays				
Back-up or emergency childcare				
A summer camp or day camp for children				
Homeschooling services for children				
Everyday caregiving for an older adult				
Home health or other health support services for an older adult				
Respite Care				

Survey Page 6**Civil Unrest**

1a. How has the civil unrest in Seattle and the U.S. affected you?

- No impact
- A minor impact
- A major impact

Any response to 1a

1b. Please explain:

Text field

Demographics

1a. What is your primary race?

- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or Other Pacific Islander
- White
- Other

Answered other to 1a

1b. You selected "other" for your primary race. Please identify your primary race:

Text field

2. What is your ethnicity

- Hispanic or Latinx
- Not Hispanic or Latinx

3a. What is your self-identified gender?

- Man
- Woman
- Transgender Man
- Transgender Woman
- Gender non-binary/non-conforming
- Other

Answered other to 3a

3b. You selected "other" for your self-identified other. Please identify what "other" you prefer:

Text field

4. What is your age?

Text field

Student Details

1a. Which option best describes you?

- Dental student (DDS or IDDS program)
- Graduate student (MS/ MSD/ or PhD program)
- Resident (post-doctoral clinical training)

Answered dental student to 1a

1b. You chose dental student. What will be your year in dental school in the Fall 2020 quarter?

- First Year
- Second Year
- Third Year
- Fourth Year

2. Are you a first-generation college student?

- Yes
- No

3. Are you an international student or trainee?

- Yes
- No

Sources of Funding

1a. What is the primary way you are funding your education?

- Student loans
- Private loans
- Scholarships and/or grants
- Tuition waiver and/or stipend
- Military Funding
- Family funding or personal savings
- Other

Answered other to 1a

1b. You chose "other" for the primary way you are funding your education. Please specify:

Text field

2a. What other types of funding are you using for your education? (check all that apply)

- Student loans
- Private loans
- Scholarships and/or grants
- Tuition waiver and/or stipend
- Military Funding
- Family funding or personal savings
- Other

Answered other to 2a

2b. You selected "other" for sources of funding. Please specify:

Text field

Living Situation

1a. What is your living situation at the time you are completing this survey?

- Live alone
- Live with others

Answered live with others to 1a

1b. Are there any children under 18 that live at home with you?

- Yes
- No

2. Is your living situation at the time of this survey different from your living situation while you are attending school normally (i.e., pre-COVID-19)?

- Yes
- No

Closing Page

Thank you for participating in the Wellness Survey. We appreciate your perspective and time. We hope to check in with you again periodically to see if your needs have changed.

For some people, questions in the survey may have felt personal or brought up feelings that are upsetting. We are offering all participants a list of resources that can be helpful for dealing with these feelings and some of the stressors and experiences discussed in the survey. You are encouraged to access these resources and/or to share the list with classmates who might find it useful. If you are experiencing a psychological crisis, please call the UW Counseling Center Crisis Clinic at 866-427-4747.

[LINK WELLNESS RESOURCE LIST]

If you have questions about this project, you may contact the survey organizers, Drs. Donald Chi (dchi@uw.edu) or Cameron Randall (clr333@uw.edu).

////// Wellness Resource List

LOCAL RESOURCES

UW School of Dentistry Office of Student Services and Admissions

D-322/D-323
206-685-2372 or 206-616-3087
dental.washington.edu/student-life

UW Counseling Center

401 Schmitz Hall
206.543.1240 (business hours), 866.427.4747 (24hr Crisis Clinic)
washington.edu/counseling

Husky Health and Wellbeing

wellbeing.uw.edu

The Whole U

thewholeu.uw.edu

NATIONAL RESOURCES

Tools and Resources from the Accreditation Council for Graduate Medical Education

acmge.org/what-we-do/initiatives/physician-well-being/resources

Substance Abuse and Mental Health Services Administration (SAMHSA) National Helpline

800.662.HELP (4357)

SAMHSA Behavioral Health Treatment Services Locator

findtreatment.samhsa.gov

National Suicide Prevention Hotline

800.273.8255

Example Recruitment Email

We understand COVID-19 has created a lot of uncertainty and stress for students and trainees. To help identify resources that would promote wellness and health, we are asking you to participate in a voluntary survey. Your responses are completely anonymous. It should take no longer than 10 minutes. If you are interested, please click on the link below. If you have questions, please call or email us. We hope you are staying healthy and safe.

[LINK TO REDCAP SURVEY]

Journal Pre-proof