

Behavioral Health Within Primary Care Postgraduate Dental Curricula: A Mixed Methods Study

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ABSTRACT

PURPOSE This study evaluated the integration of behavioral health topics (anxiety disorder, depressive disorder, eating disorders, opioid use disorder, and intimate partner violence) into primary care postgraduate dental curricula.

METHODS We used a sequential mixed methods approach. We sent a 46-item online questionnaire to directors of 265 Advanced Education in Graduate Dentistry programs and General Practice Residency programs asking about inclusion of behavioral health content in their curriculum. Multivariate logistic regression analysis was used to identify factors associated with inclusion of this content. We also interviewed 13 of the program directors, conducted content analysis, and identified themes pertaining to inclusion.

RESULTS A total of 111 program directors completed the survey (42% response rate). Less than 50% of programs taught their residents to identify anxiety disorder, depressive disorder, eating disorders, and intimate partner violence (86% taught identification of opioid use disorder). From the interviews, we identified 8 main themes: influences on the inclusion of behavioral health in the curriculum; training strategies; reasons for incorporating the training strategies; training outcomes (ie, ways in which residents were evaluated); training outputs (ie, ways in which a program's success was quantified); barriers to inclusion; solutions to barriers; and reflections on how the current program can be made better. Programs housed in settings with no to minimal integration were 91% less likely (odds ratio = 0.09; 95% CI, 0.02-0.47) to include identifying depressive disorder in their curriculum compared with programs in settings with close to full integration. Other influences for including behavioral health content were organizational/government standards and patient populations. Barriers to including behavioral health training included organizational culture and lack of time.

CONCLUSIONS Advanced Education in General Dentistry and General Practice Residency programs need to make greater efforts to include in their curricula training on behavioral health conditions, particularly anxiety disorder, depressive disorder, eating disorders, and intimate partner violence.

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INTRODUCTION

Behavioral health (BH), according to the Substance Abuse and Mental Health Services Administration, is described as “the promotion of mental health, resilience and well-being; the treatment of mental and substance use disorders; and the support of those who experience and/or are in recovery from these conditions, along with their families and communities.”¹ BH disorders can have a severe impact on an individual's physical, social, and financial well-being.² Based on the 2019 National Survey on Drug Use and Health, 61.2 million adults had a BH condition in that year. Some common disorders affecting the population were anxiety and depressive disorders.³ Additionally, substance use disorders, especially opioid use disorder (OUD), result in thousands of US deaths every year. Approximately 107,000 people died from drug overdoses in 2021, of whom almost 75% had deaths related to opioid use.⁴

The arrival of the COVID-19 pandemic has also increased the prevalence of several BH issues.⁵ Multiple environmental stressors for depressive disorders, anxiety disorder, and OUD such as emotional grief, interpersonal isolation, and financial constraints due to mass unemployment overwhelmed a burdened health care system and increased inequity across racial and socioeconomic lines.⁶⁻⁸ Prolonged periods of lockdown and shelter-at-home orders posed a grave threat to those at

risk for intimate partner violence (IPV), which 33% of Americans experience in their lifetime.⁹

The increase in mental health disorders requires diverse settings and care professionals to screen and refer patients for BH concerns. Several within the dental profession have long advocated for dentists taking greater responsibility for patients' overall health, including mental health.^{10,11} Dental settings provide a unique opportunity to integrate BH into their practice, particularly as many issues such as IPV and eating disorders present with oral findings. For example, 75% of the head and neck trauma associated with IPV manifests with oral injury.¹² Moreover, some mental health disorders may prevent patients from seeking dental care, further incentivizing screening, management, and referral for these conditions.^{13,14}

In light of the opioid epidemic, some dental schools undertook efforts to incorporate new competencies into their curricula to prevent opioid misuse and identify patients at risk for OUD.^{15,16} Apart from inclusion of these competencies in some predoctoral programs, little is known about the current landscape of BH training in primary care dental programs and the preparedness of the dental workforce in this regard. Data from the American Dental Association suggest that more dental graduates choose Advanced Education in General Dentistry (AEGD) and General Practice Residency (GPR) compared with other specialties.¹⁷ Additionally, many of these programs are located within hospitals and primary care settings, ensuring an optimal opportunity to close gaps in access to care.

In this study, we examined the integration of training on BH topics into AEGD and GPR programs. We also explored the influences of facilitators of and barriers to integration.

METHODS

We used a mixed methods design with an explanatory sequential approach: an online survey followed by one-to-one interviews. The study was guided by the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines¹⁸ and was reviewed, approved, and given an exempt determination by the Harvard Longwood Medical Area Office of Human Research and Administration Institutional Review Board (IRB 18-1935).

Survey

Participants

We developed a 46-item questionnaire and distributed it to AEGD and GPR program directors across the United States. We obtained contact information for all 270 programs through the Commission on Dental Accreditation. Of the 270 programs, 179 (66%) were GPR programs. Five programs were omitted because of incorrect contact information, leaving a total of 265 programs that were surveyed.

Questionnaire Development and Data Collection

We developed a questionnaire based on published literature¹⁹⁻²¹ and a previous questionnaire created by the National

Center for Integrated Behavioral Health, an academic unit funded by the Health Resources and Services Administration, and we further modified it after interviews and subject matter expert review.^{22,23} Respondents were asked questions regarding the integration of systemic health, social determinants of health, and BH topics into their postgraduate curriculum. Specifically for BH, the questionnaire included questions on curricular content, mode of delivery, barriers to teaching the content, evaluation technique, and graduate competence in BH. Additionally, the questions included assessing the level of integration of the primary training site and the demographics related to their program. The questionnaire was administered in February 2019 using Qualtrics survey software (Qualtrics Experience Management). We sent 2 e-mail reminders at 2-week intervals, and followed them with telephone calls to enhance the response rate.

Measures

To understand associations between inclusion of BH and program factors, we used various program-level and individual-level factors as predictors in the final analyses. Our main outcome variable was dichotomous: inclusion in the program curriculum of 3 or more BH topics out of our 5 topics of interest (anxiety disorder, depressive disorder, eating disorders, OUD, and IPV).

We assessed 7 program-level factors: (1) type of program (GPR or AEGD); (2) number of new residents matriculating into the program each year; (3) clinical setting of the program (university based or multisetting); (4) level of BH integration in the program's primary clinical site based on the Substance Abuse and Mental Health Services Administration's level of integrated care²⁴; (5) percentage of patients with financial hardship affecting dental care and compliance in the population served, using a cutoff of 50%; (6) geographic location (rural, urban, or suburban); and (7) Census region (Midwest, Northeast, South, or West). The individual-level factors assessed were related to the program director: sex, age, and number of years in the position.

Data Analysis

We analyzed the survey data with STATA version 15.1 (Stata-Corp). Univariate statistics (eg, frequencies, percentages) were calculated for all items on the questionnaire. Multivariate logistic regression modeling was used to identify factors contributing to the outcome measure, the inclusion of at least 3 BH topics in a program's curriculum.

Qualitative Interviews

We used the Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist to ensure methodologic rigor.²⁵ A semistructured interview guide was developed using the Theory of Change to frame each program's experience in integrating BH into their curriculum.²⁶ The guide included topics such as influences, barriers, training strategies, outcomes (ie, ways in which residents were evaluated),

outputs (ie, ways in which program's success was quantified), and the impact of content inclusion. The final guide, developed by 4 team members (C.A.R., R.A.H., S.T., and T.J.), included 14 questions in each topic area with prompts.^{27,28}

A total of 44 survey respondents were also willing to be interviewed. After sending e-mails to all of them, we selected a convenience sample of 13 respondents. They were informed of the study goals and interviewed by telephone between June and December 2019 until thematic saturation was achieved. The first 2 interviews were conducted by one author who is a behavioral scientist and an experienced qualitative researcher (C.A.R.). Two other authors (S.T. and T.J.), researchers in the same department, observed the interview process and conducted the remaining 11 interviews.

The interviews lasted 90 minutes and were audio recorded, and transcripts were developed verbatim for analysis using a professional transcription service. A mixed methods qualitative content analysis was used including both an inductive approach (conventional approach) and a theory-driven approach for the coding process (directed approach). We used published literature and the theory-based interview guide to develop the coding framework. An initial set of themes was added based on the review of 4 transcripts by 3 research team members (C.A.R., S.T., and T.J.). As subsequent interviews were coded and new themes emerged, these themes were added to the coding manual to reflect the full interview narrative with respect to the Theory of Change domains outlined in the interview guide. Two team members (S.T. and T.J.) served as the primary coders, coding all the transcripts, and 2 other research members (H.A. and N.A.) provided input when consensus/decision making was needed and to ensure codes were applied consistently. Themes were identified and summarized based on group consensus. All interviews were manually coded.^{29,30}

Table 1. Characteristics of AEGD and GPR Program Directors and Their Programs

Characteristic	Surveyed Respondents, No. (%)	Interviewed Respondents, No. (%)
Program-level characteristics		
Program type and duration		
GPR, 12 months	67 (60.4)	9 (69.2)
GPR, 24 months	5 (4.5)	0 (0)
AEGD, 12 months	32 (28.8)	3 (23.1)
AEGD, 24 months	7 (6.3)	1 (7.7)
Time program has been training residents		
0-5 years	4 (3.6)	1 (7.7)
6-10 years	7 (6.3)	1 (7.7)
11-15 years	10 (9.0)	2 (15.4)
≥16 years	90 (81.0)	9 (69.2)
Number of new residents matriculated into program each year		
1-5	56 (50.5)	5 (38.5)
6-10	39 (35.1)	6 (46.2)
≥11	16 (14.4)	2 (15.4)
Clinical setting		
Public hospital	29 (26.1)	4 (30.8)
Private hospital	25 (22.5)	2 (15.4)
University-based clinic	29 (26.1)	2 (15.4)
Other setting	31 (27.9)	5 (38.5)
Level of integrated BH care at residency's primary clinical training site ^a		
None	4 (3.6)	0 (0)
Minimal collaboration (eg, referrals and responses by fax only)	21 (18.9)	3 (23.1)
Basic collaboration at a distance (occasional direct communication)	24 (21.6)	1 (7.7)
Basic collaboration on site (BH professionals and dentists operate in parallel in same building with occasional face-to-face consultation)	24 (21.6)	2 (15.4)
Close collaboration on site with some systemic integration (same building, shared EHR, frequent face-to-face consultation)	24 (21.6)	5 (38.5)
Close collaboration approaching an integrated practice (formal same-day BH consultant, basic shared systems design for patient flow)	5 (4.5)	1 (7.7)
Full collaboration in a transformed/merged practice (fully integrated systems including population management, day-to-day care, and workflows)	9 (8.1)	1 (7.7)
Patients having social or economic hardships affecting dental care and compliance		
0%-24%	19 (17.1)	3 (23.1)
25%-49%	16 (14.4)	0 (0)
50%-74%	47 (42.3)	6 (46.2)
75%-100%	29 (26.1)	4 (30.8)

continues

AEGD = Advanced Education in General Dentistry; BH = behavioral health; EHR = electronic health record; GPR = General Practice Residency.

Note: Analyses are based on 111 surveyed respondents and 13 interviewed respondents, except for age of program director, for which the values are 102 and 11, respectively.

^a According to Substance Abuse and Mental Health Services Administration criteria.²⁴

Table 1. Characteristics of AEGD and GPR Program Directors and Their Programs
(continued)

Characteristic	Surveyed Respondents, No. (%)	Interviewed Respondents, No. (%)
Program-level characteristics (continued)		
Geographic location		
Rural	3 (2.7)	1 (7.7)
Urban	42 (37.8)	8 (61.5)
Suburban	66 (59.5)	4 (30.8)
Census region		
Midwest	20 (18.0)	4 (30.8)
Northeast	41 (36.9)	3 (23.1)
South	29 (26.1)	5 (38.5)
West	21 (18.9)	1 (7.7)
Individual-level characteristics		
Age of program director		
30-39 years	18 (17.7)	1 (9.1)
40-49 years	29 (28.4)	5 (45.5)
50-59 years	27 (26.5)	1 (9.1)
60-70 years	28 (27.5)	4 (36.4)
Sex of program director		
Male	71 (64.0)	10 (76.9)
Female	32 (28.8)	3 (23.1)
Prefer not to say	8 (7.2)	0 (0)
Time program director has been in position		
5 years	57 (51.4)	6 (46.2)
10 years	22 (19.8)	4 (30.8)
15 years	10 (9.0)	0 (0)
≥16 years	22 (19.8)	3 (23.1)

AEGD = Advanced Education in General Dentistry; BH = behavioral health; EHR = electronic health record; GPR = General Practice Residency.

Note: Analyses are based on 111 surveyed respondents and 13 interviewed respondents, except for age of program director, for which the values are 102 and 11, respectively.

^a According to Substance Abuse and Mental Health Services Administration criteria.²⁴

acquired content through lectures (80%) followed by patient encounters (64%), and most (87%) were taught by dentists (Table 3). When the directors were asked whether residents were competent in identifying BH conditions, their responses varied across the conditions. Most believed that their graduates were competent in identifying and knowing community resources for OUD (83% and 86%, respectively); however, only about one-half of program directors believed that their residents could identify IPV (48%). Just 9% of respondents indicated that their program did not include content on identifying BH conditions in its curriculum. Their reported main barriers to inclusion were lack of time followed by BH not being part of accreditation standards. Among directors of programs that included at least 1 of the 5 BH conditions, 32% stated barriers to teaching more BH content such as lack of time and content experts.

Among the 101 programs that trained their residents on at least 1 of the BH conditions, 54 programs (53%) included 3 or more BH conditions. Compared with programs housed in clinical settings with a close to full level of collaboration, those housed in settings with no to minimal collaboration were 78% less likely to train their residents to identify 3 or more BH conditions after adjustment for the individual- and program-level

factors previously listed (odds ratio = 0.22; 95% CI, 0.05-0.92) (Table 4); however, the findings were not significant after Bonferroni correct. The odds ratio for including training to identify depressive disorders was 0.09 (95% CI, 0.02-0.47) in clinical settings having no to minimal collaboration compared with those having close to full collaboration.

Interview Findings

A total of 13 AEGD and GPR program directors were interviewed for deeper exploration of their programs. Characteristics of these program directors and their programs are shown in Table 1.

Using the Theory of Change framework,²⁵ we identified 8 main themes pertinent to our topic from the interviews: (1) influences for including BH in the curriculum; (2) training strategies; (3) reasons for incorporating the training strategies; (4) training outcomes; (5) training outputs; (6) barriers to

RESULTS

Survey Findings

Out of the 265 directors of AEGD and GPR programs, 111 responded (response rate of 42%); the majority (65%) were from GPR programs. Table 1 provides the characteristics of the program directors and their programs.

Nearly 70% of program directors agreed when asked whether it is important for residents to receive training to identify BH conditions (eg, anxiety, depressive, and eating disorders, OUD, and IPV) (Table 2). Similarly, a large majority (more than 75%) agreed when asked whether residents should know of resources to provide referrals for these conditions. Although almost 85% of programs had a curriculum to identify OUD, less than one-half included content to identify the other BH conditions.

When program directors were asked how residents acquired BH content, a majority reported that their residents

including BH in the curriculum; (7) solutions to barriers; and (8) reflections on how the current program can be made better. These themes and associated subthemes are summarized in Table 5 and discussed below; examples of quotes are given in [Supplemental Appendix 1](#).

Factors Influencing Content Inclusion

There were various drivers/influences when it came to including BH in postgraduate dental programs (Table 5). A common driver cited by most programs was adhering to standards or requirements placed by accrediting bodies (ie, interprofessional education standards), the organization, or the government. Needs of the patient population was another common influence; for example, the opioid epidemic was the main reason to include OUD-related content.

Several internal influences, such as interest of residents, personal relationships, and interests and experiences of the program director, were also seen as drivers to include BH

training. One program director recounted her personal experience with a patient that prompted the inclusion of IPV in the curriculum:

“I said, ‘... Somebody hit you. What happened?’ She never told me and I said, ‘Okay, but you need to leave wherever you are.’ Two weeks later, she was stabbed 17 times. I should have pushed that further... I have never forgotten that.”

Training Strategies

The training strategies subthemes identified by program directors were materials used, teaching personnel, method of content delivery, location of teaching, and when the content was taught. Fully 10 of the 13 program directors used “experiential content” such as their own experiences and patient and community interactions to inform their curricular content. More than one-half of the programs used established tools or approaches (eg, the Screening, Brief Intervention, and Referral to Treatment

Table 2. Program Directors’ Assessments of the Integration of Behavioral Health Training Into Their Curricula

Statement and Level of Agreement	Respondents, No. (%)				
	Eating Disorder	OUD	Depressive Disorder	Anxiety Disorder	IPV
Important for residents to receive training to identify the condition					
Strongly disagree	2 (1.8)	4 (3.6)	4 (3.6)	4 (3.6)	5 (4.5)
Disagree	8 (7.2)	1 (0.9)	8 (7.2)	8 (7.2)	8 (7.2)
Neutral	26 (23.4)	9 (8.1)	21 (18.9)	21 (18.9)	26 (23.4)
Agree	29 (26.1)	21 (18.9)	30 (27.0)	35 (31.5)	32 (28.8)
Strongly agree	46 (41.4)	76 (68.5)	48 (43.2)	43 (38.7)	40 (36.0)
Important for residents to know community and/or health system resources to provide referrals					
Strongly disagree	2 (1.8)	3 (2.7)	3 (2.7)	3 (2.7)	5 (4.5)
Disagree	7 (6.3)	5 (4.5)	6 (5.4)	6 (5.4)	5 (4.5)
Neutral	15 (13.5)	6 (5.4)	17 (15.3)	16 (14.4)	13 (11.7)
Agree	39 (35.1)	22 (19.8)	29 (26.1)	34 (30.6)	35 (31.5)
Strongly agree	48 (43.2)	75 (67.6)	56 (50.5)	52 (46.9)	53 (47.8)
Program includes curriculum that teaches resident to identify the condition					
Yes	49 (44.1)	95 (85.6)	44 (39.6)	53 (47.8)	46 (41.4)
No	62 (55.9)	16 (14.4)	67 (60.4)	58 (52.3)	65 (58.6)
On graduation, residents are competent in identifying the condition^a					
Strongly disagree	1 (2.4)	0 (0)	0 (0)	1 (2.4)	1 (2.4)
Disagree	4 (9.5)	2 (4.8)	6 (14.3)	4 (9.5)	6 (14.3)
Neutral	14 (33.3)	5 (11.9)	10 (23.8)	10 (23.8)	15 (35.7)
Agree	14 (33.3)	13 (31.0)	17 (40.5)	15 (35.7)	14 (33.3)
Strongly agree	9 (21.4)	22 (52.4)	9 (21.4)	12 (28.6)	6 (14.3)
On graduation, residents are competent in knowing community and/or health system resources to provide referrals^a					
Strongly disagree	1 (2.4)	1 (2.4)	1 (2.4)	1 (2.4)	1 (2.4)
Disagree	3 (7.1)	1 (2.4)	3 (7.1)	2 (4.8)	4 (9.5)
Neutral	12 (28.6)	4 (9.5)	9 (21.4)	11 (26.2)	14 (33.3)
Agree	16 (38.1)	13 (31.0)	17 (40.5)	14 (33.3)	14 (33.3)
Strongly agree	10 (23.8)	23 (54.8)	12 (28.6)	14 (33.3)	9 (21.4)

AEGD = advanced education in graduate dentistry; BH = behavioral health; GPR = general practice residency; IPV = intimate partner violence; OUD = opioid use disorder.

Note: Analyses based on 111 respondents, unless otherwise noted.

^a Question limited to the 42 respondents who reported that their residents were evaluated on BH content.

tool, the Alcohol Use Disorder Identification Test, the Prescription Drug Monitoring Program) or added questions into the medical history to screen for BH conditions. Other subthemes under training strategy are outlined in Table 5.

Training Outcomes

Some subthemes identified under training outcomes were techniques used by programs to evaluate their residents and

the general impact of including BH in their curriculum on the way residents practice. Program directors stated various ways in which BH inclusion would affect their residents' future practice. Five of them hoped that including this training would lead to more comprehensive patient care. Others hoped it would lead to interprofessional practice opportunities and an understanding of the role dentists play in the addiction continuum. As one of them said:

"I also hope that they will be able to have a network where they can make sure these people are being taken care of. And that they can have a really decent conversation with the caretaker or whoever the physician is about how to best treat that patient."

Table 3. Program Directors' Description of the Integration of Behavioral Health Content in Their Program's Curriculum

Aspect of BH Content	Respondents, No. (%)
How are the residents acquiring the BH content?	
Lecture	81 (80.2)
Webinar/online modules	22 (21.8)
Case-based conferences	40 (39.6)
Grand rounds	17 (16.8)
Experiential learning through patient encounters	65 (64.4)
Other	6 (5.9)
Who is teaching the BH content?	
Psychiatrist	12 (11.9)
Psychologist	15 (14.9)
Social worker	18 (17.8)
Licensed counsellor	8 (7.9)
Nonpsychiatrist board-certified physician	38 (37.6)
Medical resident	0 (0)
Nurse practitioner	7 (6.9)
Physician assistant	4 (4.0)
Dentist	88 (87.1)
Other	9 (8.9)
Are you evaluating the residents on BH content?	
Yes	42 (41.6)
No	59 (58.4)
How are the residents evaluated on BH content?	
Written/computer testing	10 (23.8)
OSCE or equivalent	3 (7.1)
Case presentation	21 (50.0)
Direct observation in clinical setting	37 (88.1)
Review of clinical documentation	26 (61.9)
What barriers prevent teaching of more BH content?	
Lack of time in the curriculum/competing priorities	28 (27.7)
Lack of content experts	13 (12.9)
Lack of interest from faculty	4 (4.0)
Lack of department support	2 (2.0)
Not part of dental residency accreditation standards	10 (9.9)
Lack of university/hospital resources	3 (3.0)
Lack of community resources	3 (3.0)
Other	3 (3.0)

BH = behavioral health; OSCE = Objective Structured Clinical Examination.

Notes: Based on responses of 101 program directors, except for the questions about how residents are evaluated (42 program directors) and barriers (32 program directors). Respondents for each question may vary as the questionnaire followed a skip logic format.

Training Outputs

Training outputs encompassed subthemes on ways in which programs quantified and attributed contributors to their success in integrating BH into their curricula. The programs measured their success using feedback from faculty, staff, patients, and residents, from alumni questionnaires, and from awards given to a specific program as a "best practice." Other ways whereby programs quantified their success were assessing whether their curricular model was adopted elsewhere and whether it changed clinician practices for the better.

Several subthemes emerged regarding the factors to which programs attributed their success in integrating BH: supportive leadership, interest from residents, and grants/funding received to sustain the curriculum. One-quarter of the program directors said support from faculty/staff and foundational relationships developed by the director or the program within and outside the organization helped in successfully integrating BH. One program director also attributed the state government and state dental society for successful integration of a BH condition (OUD) into the curriculum.

"... the dedication of (name of state withheld), our local dental society, and our hospital to combat the opioid abuse. I think them having spearheaded that, it was very easy to fall in line, and just develop a program... We've had some good leadership from them."

Barriers

The program directors cited multiple barriers to including more BH content in their curricula. A majority said that time was a barrier. More than one-half reported the culture of the dental profession as a barrier; for example, they mentioned stigma attached to BH conditions or lack of understanding about the relevance of BH to dentistry. As noted by one program director,

"...It's got to relate it back to dentistry. Other than a referral to a primary health care provider..., how does behavioral health relate to filling a tooth?"

DISCUSSION

Dentists play an important role in the overall health of a patient and sometimes are the only point of contact with the larger health care system. The nature of dental care allows longer appointment times and follow-up visits, creating ample opportunity for screening and referral for BH conditions. This study, through a survey and interviews, evaluated the current state of integration of BH in primary care postgraduate dental training curricula, including barriers and facilitators. Most of the AEGD and GPR program directors agreed that it is important that residents be able to identify patients with BH disorders; however, less than one-half had trained their residents to identify anxiety, depressive and eating disorders, and IPV, leaving OUD as the exception. Understanding barriers cited by the programs may be the first step to

comprehend this dichotomy. Programs that did not include BH in their curriculum listed lack of time, lack of accreditation standards in dental education, and lack of resources such as content experts. The interviews also highlighted the culture of the profession, which either considers BH as not within the purview of dental practice or speaks to the difficulty of navigating the stigma attached to BH conditions.

Lessons may also be learned from facilitators identified by programs that successfully include BH into their curricula. We found that although the program directors' interest contributed to inclusion, external influences also played a major role. Programs that existed in a setting integrated with BH were found to give their residents more training on identifying depressive disorders compared with programs that were housed in settings with no to minimal collaboration. This

finding highlights the important role organizations can play in creating a culture of integration for training emerging clinicians and removing the bias that BH is not under the purview of primary care dentists. There are other ways organizations can influence programs through mandates (eg, resident training for OUD), culture, and leadership. Even so, these facilitators for inclusion are largely unique to each program. Efforts such as mandates by the Commission on Dental Accreditation to incorporate BH into accreditation standards and changes in state policies, such as licensure requirements, may be more sustainable to ensure their inclusion in resident training. For example, several local, state, and national measures were instated recently because of the opioid epidemic, and our research indicates they have influenced OUD curricular inclusion.^{16,31,32}

Our interviews suggested that external funding by foundations and government agencies can also help to facilitate inclusion of BH into resident training. The Health Resources and Services Administration, for example, funded the National Network of Oral Health Access to conduct learning collaboratives that included depression screenings at community health centers.³³ Similar funding for residency programs can provide a strong incentive for integration. Finally, advocacy by key stakeholders within and outside the dental profession is critical to counter stigma, increase awareness, and provide momentum for curricular change.

Programs that included BH content in their curricula used various methods of content delivery. A considerable portion

Table 4. Factors Associated With Integration of Behavioral Health Content in the Curriculum

Outcome and Factor	Odds Ratio (95% CI)	P Value
Training to identify 3 or more BH conditions^a		
Level of BH Integration in program's primary training site ^b		
Close to full collaboration (referent)	1.00	
Basic collaboration	0.66 (0.22-2.01)	.47
No to minimal collaboration	0.22 (0.05-0.92)	.04 ^c
Age of program director		
30-39 years (referent)	1.00	
40-49 years	1.14 (0.26-5.03)	.86
50-59 years	7.57 (1.33-42.98)	.02 ^c
≥60 years	2.88 (0.42-19.74)	.28
Training to identify depressive disorder		
Level of BH Integration in program's primary training site ^b		
Close to full collaboration (referent)	1.00	
Basic collaboration	0.39 (0.13-1.21)	.10
No to minimal collaboration	0.09 (0.02-0.47)	.004
Clinical setting		
University-based setting (referent)	1.00	
Multiple clinical settings	8.03 (1.03-62.83)	.047 ^c
Training to identify anxiety disorder		
Level of BH Integration in program's primary training site ^b		
Close to full collaboration (referent)	1.00	
Basic collaboration	0.74 (0.24-2.23)	.59
No to minimal collaboration	0.17 (0.04-0.73)	.02 ^c
Age of program director		
30-39 years (referent)	1.00	
40-49 years	2.27 (0.47-11.03)	.31
50-59 years	6.70 (1.10-40.63)	.04 ^c
≥60 years	4.50 (0.49-41.66)	.18

BH = behavioral health.

^a Out of 5 conditions (anxiety disorder, depressive disorder, eating disorder, opioid use disorder, intimate partner violence).

^b See Table 1 for definitions. For this analysis, we combined the 2 basic categories and combined the 2 close categories.

^c After applying Bonferroni correction, the P value was no longer statistically significant.

Table 5. Major Themes and Subthemes From Program Director Interviews

Theme and Subthemes	Respondents, No. (%)	Theme and Subthemes	Respondents, No. (%)
Influence		Training outcomes	
Internal		Evaluation technique	
Content driven by residents	2 (15.4)	Observation in a clinical setting	6 (46.2)
Personal relationships	3 (23.1)	Preevaluation and postevaluation	1 (7.7)
Content driven by program director	7 (53.8)	Postcourse examination	1 (7.7)
External		No evaluation	1 (7.7)
Proximity of clinics	6 (46.2)	Observation in nonclinical setting	2 (15.4)
Patient population	10 (76.9)	Impact	
Standardization	11 (84.6)	Treating patients comprehensively	5 (38.5)
Organizational influences	5 (38.5)	Opportunities to participate as part of the interpro- fessional team	1 (7.7)
Funding/grants	2 (15.4)	Make clinicians more empathetic	2 (15.4)
Training strategies		Share expertise in their future communities	1 (7.7)
Materials used		Understand the role played by the dentist	1 (7.7)
Literature	6 (46.2)	Inclusive practice	1 (7.7)
Experiential content	10 (76.9)	Training output—success	
Standards	7 (53.8)	Quantify success	
Screening tools	7 (53.8)	Feedback from faculty and staff	1 (7.7)
Teaching personnel		Alumni questionnaire	1 (7.7)
Interprofessional	3 (23.1)	Feedback from residents	1 (7.7)
Medical	2 (53.8)	Presenting at meetings	1 (7.7)
Dental	6 (46.2)	Awards	1 (7.7)
Behavioral health	9 (69.2)	Models adopted elsewhere	1 (7.7)
Public health official	2 (15.4)	Change in clinician practices	1 (7.7)
Community health worker	1 (7.7)	Successful treatment of patients with minimal supervision	1 (7.7)
Method of content delivery		Feedback from patients	1 (7.7)
Presentation	11 (84.6)	Contributors to success	
Direct patient care	10 (76.9)	Physical proximity to physicians	1 (7.7)
Research project	1 (7.7)	Foundational relationships	3 (23.1)
Webinar	2 (15.4)	Interest from resident	1 (7.7)
Community interaction	2 (15.4)	Various teaching methodology	1 (7.7)
Interprofessional sessions	4 (30.8)	Supportive leadership	1 (7.7)
Location of teaching		Grants/funding	1 (7.7)
Classroom	12 (92.3)	Faculty and staff	3 (23.1)
Clinical setting	10 (76.9)	Program structure	2 (15.4)
Online	2 (15.4)	State dental society	1 (7.7)
When/how much in curriculum		State government	1 (7.7)
Training boot camp before start of residency	2 (15.4)		
Uniformly throughout the year	4 (30.8)		
Once a year	2 (15.4)		
Amount of time in curriculum	5 (38.5)		

continues

Note: Based on responses of 13 program directors.

of the content, however, was delivered in a clinical setting through either direct patient care or observation. Incorporating the content into clinical delivery may make the material more meaningful/relevant to learners, as well as reduce the burden on the didactic portion of the curriculum. Although some of this training may take place during clinical rotations in medical and BH specialties, greater focus also needs

to be placed on interprofessional education sessions with a dedicated BH focus. This may be easier to facilitate in residencies located in settings with integrated BH. Additionally, instruction through patient interactions without an explicit educational objective communicated to the resident may be difficult to standardize across residents, hindering evaluation of learners. A majority of the GPR and AEGD programs did

Table 5. Major Themes and Subthemes From Program Director Interviews (continued)

Theme and Subthemes	Respondents, No. (%)	Theme and Subthemes	Respondents, No. (%)
Reasons for training strategies		Solutions to barriers	
Teaching personnel		Educate around stigma, for cultural change	1 (7.7)
Using subject matter experts	2 (15.4)	Collaborate with subject matter expert	1 (7.7)
Method of content delivery		Pique resident interest	1 (7.7)
Rooted in patient care	3 (23.1)	Reflections	
Competencies used/not used		Incorporate new training methods	1 (7.7)
Current competencies ambiguous	1 (7.7)	Understands future potential of content inclusion in curriculum	3 (23.1)
Barriers			
Not important to residents	4 (30.8)		
Lack of faculty expertise/subject matter knowledge	6 (46.2)		
Patient population	4 (30.8)		
No referral source	3 (23.1)		
Covered by state licensure	1 (7.7)		
No reimbursement in organized dentistry	1 (7.7)		
Culture	7 (53.9)		
Organizational barrier	4 (30.8)		
Cost	1 (7.7)		
Time	10 (76.9)		
Miscellaneous	1 (7.7)		

Note: Based on responses of 13 program directors.

not evaluate their residents on BH competence, and of those that did, a majority used clinical observation as the primary method. Rigorous evaluation of residents, and of the program, will help identify and disseminate best practices that other programs can successfully emulate.

Although it is imperative for dental primary care programs to integrate training on BH conditions, meaningful impact cannot be made without bridging the divide between training and practice. Future dental practitioners need to work in a collaborative environment with the larger health care system to ensure timely intervention and appropriate treatment of these conditions. Additionally, screening for BH conditions in the absence of referral and treatment can prove to be an ethical dilemma for practitioners. Health care organizations incorporating integrative practice models can help provide a template. For example, Asian Health Services in California provides holistic medical, dental, and mental health services to its patients, including depression screenings conducted during dental visits and appropriate referral pipelines for treatment of patients.³⁴ Concurrent strides within training and practice need to be made to support practitioners in integration of BH to help alleviate the burden of BH issues and promote whole-person care.

Our study is not without limitations. Survey responses, self-reported by the AEGD and GPR program directors, could not assess the residents' perception of their training. Additionally, although our response rate was adequate for a health professions survey, the findings may not reflect the training of all GPR and AEGD residency programs.

Moreover, this study assesses only the presence of BH education; further research is needed to evaluate its quality. Finally, the study examines the inclusion of BH only in postdoctoral dental programs. Additional studies are needed to understand its inclusion in predoctoral dental curriculum.

In conclusion, AEGD and GPR programs need to make greater efforts to include training on BH conditions, particularly anxiety disorder, depressive disorder, eating disorders, and IPV. The barriers and facilitators that we have identified may assist programs in integrating this important content in their curricula and better preparing their residents to deliver comprehensive patient care.

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 [Supplemental materials](#)

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