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Effects of the COVID-19 pandemic on dentists' workforce confidence and workflow

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ABSTRACT

Background. The COVID-19 pandemic has affected the US economy and workforce, including marked effects on small businesses. Researchers have evaluated workers' views of financial confidence and advancement, but there has been limited focus on the dental industry.

Methods. To extend investigations to dentistry, the authors used published scales and pretested questions to determine workforce confidence and workflow changes among dentists. Data were evaluated using descriptive and bivariate statistics. In the wake of the pandemic, surveys were distributed to the memberships of the American Dental Association and American Association of Orthodontists (n = 656).

Results. Dentists' top concern was increased cost of providing treatment (57.4%; 95% CI, 53.5% to 61.3%), associated with widely adopted workflow changes including reduced patient volumes (66.0%; 95% CI, 62.4% to 69.6%) and increased safety protocols and equipment (health screening: 75.5%; 95% CI, 72.2% to 78.8%; KN/N95 respirators: 76.7%; 95% CI, 73.5% to 80.0%). However, most respondents did not expect their personal or practice finances to be negatively affected after the pandemic, as only 18.5% (95% CI, 15.4% to 21.7%) predicted their practice's gross revenue would decrease.

Conclusions. Dentists were optimistic in the wake of vaccinations and lifting restrictions. Most expected their finances and practice performance to remain the same or grow in the short term and expected long-term improvements postpandemic.

Practical Implications. Results suggest that despite shutdowns and workflow changes, dentists have rebounded financially and anticipate future growth.

Key Words. COVID-19; pandemic; dentistry; financial outlook; Workforce Confidence Index; practice management; business; workflow; personal protective equipment.

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The COVID-19 pandemic has changed perceptions of financial security and career trajectories among the US workforce.¹ Frontline health care workers face concerns about workplace exposures, higher volumes of acutely ill patients, and potential economic insecurity.²⁻⁴ Investigators exploring nurses' experiences of stress early in the pandemic found 51% of responses related to workplace problems, including failure of leadership to meet safety and training needs, and 22% cited fear of the unknown, including financial hardship.⁵ Small businesses, notably medical and dental practices, experienced dramatic economic and workflow disruptions.^{6,7} Surveyed physicians reported decreased patient visits, which directly correlated to reduced revenue and often led to staffing reductions.⁸ Primary care practices were estimated to have lost \$67,000 in gross revenue per full-time equivalent physician throughout 2020.⁹

Dentists, in particular, faced heightened risk of infection because of their proximity to the oral cavity.¹⁰ Following recommendations from the American Dental Association (ADA) and Centers for Disease Control and Prevention, dentists closed their offices to all but emergency appointments from March through May 2020.¹¹ Collections for most dentists were down more than 95% during this shutdown.¹² As practices reopened, many were forced to make changes to their workflow,

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adding new safety procedures, products, and personal protective equipment (PPE), and altering patient scheduling and staffing to meet safety recommendations.¹³ Although these changes were widely recognized, the pandemic's immediate and long-term effects on dentists' financial security are poorly understood. Dentists' concerns about treating patients and their emotional and financial well-being were explored early in the pandemic, but not during the vaccination and recovery period.^{14,15}

More studies evaluated the pandemic's effects on dental patient volumes and on the broader health care sector, without polling dentists' workforce confidence.^{16,17} LinkedIn's Workforce Confidence Index (WCI) poll suggested that health care workers' confidence increased during the past year to levels higher than the general workforce nationally.^{17,18} With limited responses from dentists, it is difficult to ascertain where dental care professionals fall in these statistics. The ADA's Health Policy Institute has conducted biweekly surveys of dental practices since March 2020. March 2021's report indicated that approximately one-half of practices reported lower patient volume and some staff members were still receiving unemployment benefits.^{16,19} Collections have been increasing steadily, but have not fully recovered to prepandemic levels.^{16,20} These ADA data inform about practices' financial states without including dentists' attitudes and confidence levels regarding job security, future success, and personal financial stability.

Shifts in workforce confidence and workflow are key drivers behind economic recovery and are important to evaluate as a barometer of dentists' financial future.¹⁷ To enhance knowledge of dentists' financial confidence and workflow changes, we developed and distributed a national survey to the memberships of the ADA and American Association of Orthodontists (AAO). We hypothesized that substantial workflow changes have occurred for more than one-half of dentists and that outlooks are increasingly optimistic as mass vaccination progresses and restrictions are loosened. As one of the first surveys to our knowledge to explore these topics on a national level, our results provide insight into dentists' professional and financial perspectives in the shadow of the COVID-19 pandemic.

METHODS

Survey development

We developed a cross-sectional survey to assess dentists' workforce confidence. It included validated questions adapted from LinkedIn's WCI and our pretested questions.¹⁰ With the permission of LinkedIn, their questions were adapted for dental audiences ([Appendix](#); available online at the end of this article). Additional questions on practice workflow were written and revised with a survey expert at the University of North Carolina's Odum Institute for Research in Social Science before pretesting. Two general dental faculty (retired from private practice), 4 dental students, 8 orthodontic faculty, and 6 residents pretested the survey a total of 20 times. Revisions occurred iteratively until the survey expert and team approved a final draft. The final survey consisted of 35 questions, including 8 validated WCI questions, 4 pretested questions about workflow changes, and 11 demographics questions ([Appendix](#); available online at the end of this article).

Survey distribution and sample

The survey was distributed from February 15, 2021, through April 26, 2021, to the registered email addresses of 9,000 ADA and 1,305 AAO members via a secure Qualtrics account (6.37% response rate; n = 656 total [613 ADA members, 43 AAO members]). Email addresses were derived from an ADA email list obtained from Dunhill International List Company and AAO emails sent from the AAO Partners in Research Program. Dentists received an email containing a link to the survey, beginning with consent forms. Dentists who did not fill out the survey received a reminder email, which was distributed at a different time and day 1 through 3 weeks later. Our sample included general dentists and dental specialists who were members of the ADA or AAO in the United States, with 45 states (all except for Alaska, Arkansas, North Dakota, South Dakota, and Wyoming) and 9 geographic regions (defined per the Bureau of Economic Analysis²¹) represented. Screening questions ensured that participants met inclusion criteria, with prior participants excluded ([eBox](#); available online at the end of this article). The University of North Carolina Institutional Review Board approved this research and its digital consent forms (16-2743); all respondents consented to participate.

ABBREVIATION KEY

- AAO:** American Association of Orthodontists.
- ADA:** American Dental Association.
- PPE:** Personal protective equipment.
- WCI:** Workforce Confidence Index.

Table 1. Sample demographic characteristics.

CHARACTERISTIC	DATA, NO. (%)
Gender	
Male	69.4 (391)
Female	28.4 (160)
Nonbinary/third gender	0.2 (1)
Prefers not to respond	2.0 (11)
Race	
White	73.3 (473)
Asian/Pacific Islander	6.8 (44)
Black	1.9 (12)
Native American	0.3 (2)
Ethnicity	
Hispanic/Latino	2.8 (18)
Ownership Status	
Sole owner	76.7 (437)
Co-owner/partner	10.9 (62)
Associate/nonowner employee	4.6 (26)
Independent contractor/nonowner employee	3.7 (21)
Other	2.6 (15)
Transitioning roles (currently selling or buying)	1.6 (9)
Practice Model	
General dentistry practice with 1 office	82.1 (468)
General dentistry practice with 2 offices	7.0 (40)
Other	5.4 (31)
Private multispecialty group practice	2.8 (16)
General dentistry practice with 3 or more offices	1.2 (7)
Dental service organization, general dentistry only	1.4 (8)
Setting of Primary Practice Location (Population)	
Large city (≥ 250,000)	28.9 (164)
City suburb (25,000-100,000)	24.3 (138)
Small/medium city (100,000-250,000)	18.5 (105)
Small/medium town (25,000-100,000)	15.5 (88)
Rural (≤ 25,000)	12.7 (72)
Region	
Mid-Atlantic	25.1 (164)
Southeast	18.5 (121)
Far West	17.3 (113)
Great Lakes	15.0 (98)
Southwest	7.8 (51)
New England	6.9 (45)
Plains	5.8 (38)
Rocky Mountain	3.5 (23)
Age, Mean (Standard Deviation)	57.5 (10.3)
Age Group, Y	
61-70	34.8 (192)

Table 1. Continued

CHARACTERISTIC	DATA, NO. (%)
51-60	32.6 (180)
41-50	18.3 (101)
≤ 40 y	6.7 (37)
> 70 y	6.5 (42)
General Dentists	84.0 (544)
Specialty (of the Specialists Who Responded)	
Orthodontics and dentofacial orthopedics	54.1 (59)
Pediatric dentistry	10.1 (11)
Prefer not to respond	9.2 (10)
Periodontics	7.3 (8)
Dental public health	6.4 (7)
Oral and maxillofacial surgery	7.3 (8)
Prosthodontics	4.6 (5)
Endodontics	1.8 (2)
Dental anesthesiology	0.9 (1)
Oral medicine	0.9 (1)
Received a COVID-19 Vaccine?	
Yes	86.0 (518)
No	14.0 (84)
Has Been Offered a COVID-19 Vaccine	61.9 (52)
Has Not Been Offered a COVID-19 Vaccine	38.2 (32)

Statistical analyses

Data were evaluated using descriptive and bivariate statistics. Owing to common trends and few significant differences (eTables 1-3; available online at the end of this article), the responses of general dentists ($n = 544$) and specialists ($n = 112$) across age groups were pooled for most analyses, totaling 656 responses. Statistical analyses were conducted using SAS software, Version 9 (SAS Institute). Cross tabulation was used to examine the associations among categorical variables. Hypotheses of no association were tested using Pearson χ^2 test. P values less than .05 were considered significant. Graphs were made using Prism software, Version 9 (GraphPad Software), and figures were created using Adobe Suite (Adobe).

RESULTS

Sample demographics

Participants ($n = 656$) were practicing general dentists (544 from the ADA email list) or specialists (112 from the ADA or AAO email lists) in the United States. Because the AAO membership was emailed, specialist data included a high proportion of orthodontists (54.1%), in addition to other dental specialists from the ADA (Table 1). Self-reported demographic data include age, gender, race, ethnicity, ownership status, state, geographic region, practice model, primary practice location, and specialty, when applicable (Table 1).

Perceptions of COVID-19 impact

Respondents were asked to choose their top 3 concerns regarding operating in a changed business environment owing to the pandemic. Most (57.4%; 95% CI, 53.5% to 61.3%) reported increased costs of providing dental treatment (operating expenses) as 1 of their top 3 concerns (Table 2 and Figure 1). This was followed by concerns for a new wave of COVID-19 infections resulting in another shutdown (31.2%; 95% CI, 27.7% to 35.0%), and employees' inability to come to work

Table 2. Dentists' top 3 concerns regarding operating in a changed business environment due to COVID-19.

QUESTION AND ANSWER OPTIONS	DATA, % (NO.) [95% CI]
Of the Following Options, What Are Your Top 3 Concerns Regarding Operating in a Changed Business Environment With Respect to COVID-19? Please Select Only Your Top 3 Concerns (Appendix, Question 3*)	
Increased costs of providing dental treatment	57.4 (375) [53.5 to 61.3]
A new wave of COVID-19 infections resulting in another shutdown	31.2 (204) [27.7 to 35.0]
Employees inability to come to work, for example, illness and lack of childcare	28.2 (184) [24.8 to 30.9]
Your personal financial situation	27.3 (178) [23.9 to 30.9]
Contracting COVID-19 yourself	25.1 (164) [21.8 to 28.6]
Reduced demand for oral health care	23.1 (151) [19.9 to 26.6]
Decrease in consumer confidence in their safety at the office	20.8 (136) [17.8 to 24.2]
Your personal job security and/or practice viability	15.6 (102) [12.9 to 18.6]
Ability to make a practice transition, for example, buy/sell a practice or find a new position	13.3 (87) [10.8 to 16.2]
Management and/or long-term impact of new human resources regulation, for example, unemployment claims	11.5 (75) [9.1 to 14.2]
Lack of employee confidence in their ability to keep themselves and their families safe if they go to work	9.3 (61) [7.2 to 11.8]
Increased personal responsibilities for you, for example, childcare and caring for elderly or sick family members	7.0 (46) [5.2 to 9.3]

* Available online at the end of this article.



Figure 1. Dentists' top 3 concerns regarding practicing in a changed business environment due to COVID-19. Respondents were allowed to only select their top 3 concerns (Table 2, eTable 1 [available online at the end of this article], and question stem in Appendix question 3 [available online at the end of this article]).

(28.2%; 95% CI, 24.8% to 30.9%). Responses were consistent across age groups (eTable 1; available online at the end of this article).

Changes in practice safety protocols and workflow

To understand how clinical dentistry has changed during the pandemic, respondents were asked to report changes in PPE, safety products, and workflow. The most prevalent PPE additions included KN/N95 respirators (76.7%; 95% CI, 73.5% to 80.0%), face shields (72.4%; 95% CI, 69.0% to 75.9%), and gowns (51.6%; 95% CI, 47.8% to 55.5%) (Table 3 and Figure 2A). The most frequently adopted safety products included thermometers (83.9%; 95% CI, 81.1% to 86.7%), clear plastic barriers (63.6%; 95% CI, 59.9% to 67.3%), and air filtration systems (61.1%; 95% CI, 57.4% to 64.9%) (Table 3 and Figure 2B). Finally, common workflow changes included health screening

Table 3. Dental practice safety and workflow changes due to the COVID-19 pandemic.

QUESTION AND ANSWER OPTIONS	DATA, % (NO.) [95% CI]
What New Personal Protective Equipment Have You Incorporated Into Your Clinical Practice That You Did Not Use Before the COVID-19 Pandemic? Please Select All That Apply (Appendix Question 6*)	
KN/N95 respirators	76.7 (501) [73.5 to 80.0]
Face shields	72.4 (473) [69.0 to 75.9]
Gowns	51.6 (337) [47.8 to 55.5]
Hair coverings	48.9 (319) [45.0 to 52.7]
Other	22.8 (149) [19.6 to 26.0]
Positive pressure respirator	6.6 (43) [4.7 to 8.5]
None	3.4 (22) [2.0 to 4.8]
What New Safety Products Have You Incorporated Into Your Clinical Practice That You Did Not Use Before the COVID-19 Pandemic? Please Select All That Apply (Appendix Question 7*)	
Thermometers	83.9 (548) [81.1 to 86.7]
Clear plastic barriers	63.6 (415) [59.9 to 67.3]
Air filtration	61.1 (399) [57.4 to 64.9]
Additional suction devices	44.0 (287) [40.1 to 47.8]
Acid fogging	17.3 (113) [14.4 to 20.2]
In-office washer and dryer	13.8 (90) [11.1 to 16.4]
Other	9.3 (61) [7.1 to 11.6]
Commercial laundry service	8.3 (54) [6.2 to 10.4]
None	1.1 (7) [0.3 to 1.9]
What New Workflow Changes Have You Incorporated Into Your Clinical Practice That You Did Not Use Before the COVID-19 Pandemic? Please Select All That Apply (Appendix Question 8*)	
Health screening questionnaires	75.5 (493) [72.2 to 78.8]
More physical distance between patients	72.0 (470) [68.5 to 75.4]
Reduced patient volume per day	66.0 (431) [62.4 to 69.6]
Prophylactic mouthrinses	59.3 (387) [55.5 to 63.0]
More patients seen in private treatment areas	20.8 (136) [17.7 to 23.9]
Virtual visits	15.2 (99) [12.4 to 17.9]
Other	9.3 (61) [7.1 to 11.6]
None	1.2 (8) [0.4 to 2.1]

* Available online at the end of this article.

questionnaires (75.5%; 95% CI, 72.2% to 78.8%), physically distancing patients (72.0%; 95% CI, 68.5% to 75.4%), and reducing patient volume per day (66.0%; 95% CI, 62.4% to 69.6%) (Table 3 and Figure 2C).

Short-term expectations

To explore short-term effects of the pandemic, respondents were asked to make predictions about their financial situation in the next 6 months (Figure 3A). Dentists were asked whether they believed their total earned income (for example, salary and dividends), personal savings, contributions to investments, and personal spending would decrease, stay the same, or increase over this time span (Appendix, question 4; available online at the end of this article). Approximately one-half of dentists believed their personal savings (50.6%; 95% CI, 46.6% to 54.6%), earned income (47.3%; 95% CI, 43.3% to 51.3%), and contributions to investments (53.7%; 95% CI, 49.7% to 57.7%) would stay the same (Table 4 and Figure 3A). Regarding personal spending, a plurality

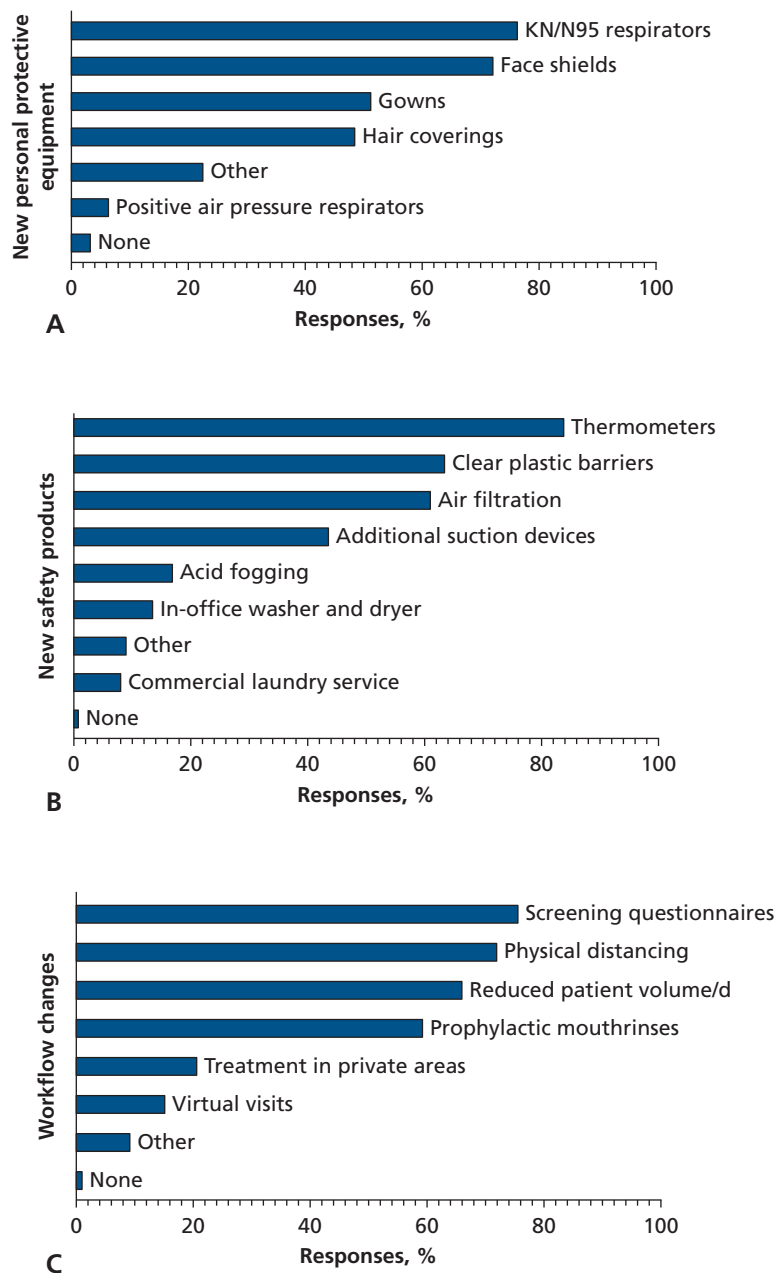


Figure 2. Additions to clinical dental practice due to the COVID-19 pandemic. **A.** New personal protective equipment incorporated into clinical practice since the start of COVID-19, not used before the pandemic. **B.** New safety products incorporated since the start of the pandemic. **C.** New workflow changes incorporated since the start of the pandemic (Table 3 and question stems in Appendix questions 6-8 [available online at the end of this article]).

anticipated it staying the same (46.2%; 95% CI, 42.2% to 50.2%), with a similar number expecting it to decrease (46.0%; 95% CI, 42.0% to 50.0%). Although most participants expected unchanged earnings and savings in the next 6 months, approximately one-third expected a decrease in their personal savings (30.2%; 95% CI, 26.5% to 33.9%), earned income (34.7%; 95% CI, 30.9% to 38.5%), and contributions to investments (32.5%; 95% CI, 28.7% to 36.3%) (Table 4 and Figure 3A). A minority anticipate increases in personal savings (19.2%; 95% CI, 16.0% to 22.4%), earned income (18.0%; 95% CI, 14.9% to 21.1%), contributions to investments (13.8%; 95% CI, 11.1% to 16.6%), and personal spending (7.8%; 95% CI, 5.7% to 10.0%) (Table 4 and Figure 3A). There were no significant differences when accounting for ownership status (solo owner, partner, nonowner employee), location (large, medium, or small city; suburb, rural setting), and region (Table 4 and data not shown). More specialists anticipated the same or greater investment contributions (same: 67.9%; 95% CI, 55.2% to 80.5%; greater: 17.9%; 95% CI, 7.5% to 28.2%) than

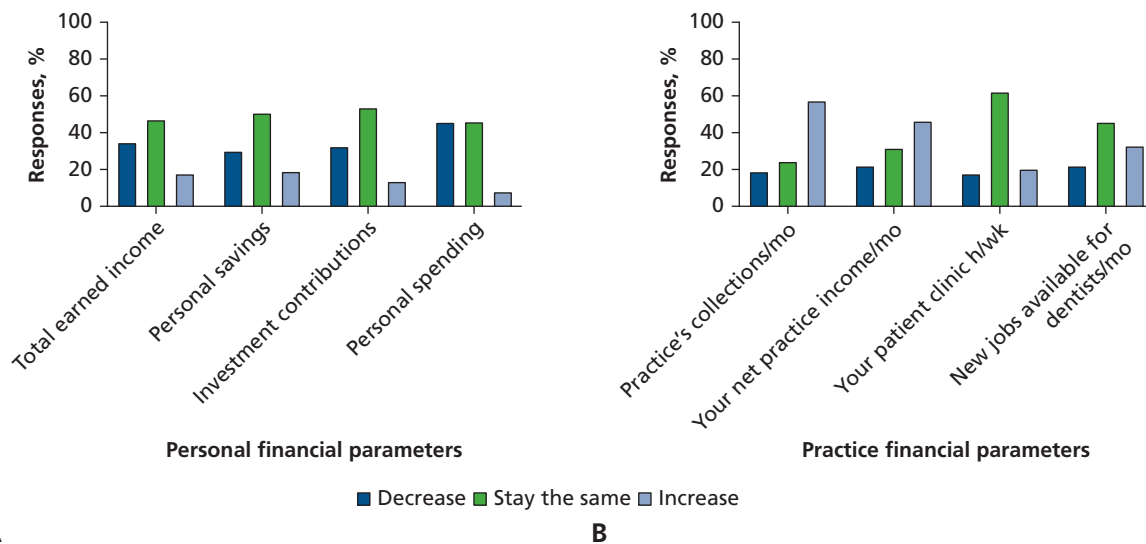


Figure 3. Dentists' short- and long-term outlook on personal finances and career advancement. **A.** Current financial outlook. Percentage of respondents expecting aspects of their personal financial situation to decrease (dark blue), stay the same (green), or increase (light blue) over the next 6 months (Table 4, question stem in Appendix question 4 [available online at the end of this article]). **B.** Postpandemic financial outlook. Percentage of respondents expecting aspects of their finances and career to decrease (dark blue), stay the same (green), or increase (light blue), assuming it is the year 2022 and the pandemic is over (Table 5, question stem in Appendix questions 5A and 5B [available online at the end of this article]).

general dentists (same: 52.3%; 95% CI, 48.1% to 56.6%; greater: 13.5%; 95% CI, 10.6% to 16.4%), with fewer specialists decreasing their personal spending (30.4%; 95% CI, 17.9% to 42.8%) than generalists (47.9%; 95% CI, 43.6% to 52.1%) (eTable 2; available online at the end of this article). Most dentists anticipated the same or greater savings (69.8%), income (65.3%), investment contributions (67.5%), and personal spending (54.0%) (Table 4 and Figure 3A).

Long-term outlook

To understand practicing dentists' long-term outlooks, respondents were asked to assume it was the year 2022 and the COVID-19 pandemic was over. Respondents were then asked to compare this scenario with their situations in 2019, before the start of the pandemic, with regard to their practices' gross revenue (collections), take-home income (net practice income), patient clinic hours, and the number of new jobs available for dentists (Appendix, questions 5A and 5B; available online at the end of this article). Results showed that dentists were optimistic, with 57.2% (95% CI, 53.2% to 61.2%) anticipating their practice's collections increasing and 46.6% (95% CI, 42.6% to 50.7%) expecting net practice income to increase postpandemic (Figure 3B and Table 5). Most (62.1%; 95% CI, 58.2% to 66.1%) believed their weekly clinic hours would remain the same. Among specialists, orthodontists are particularly optimistic, with most anticipating increased average monthly take-home income (57.9%; 95% CI, 33.4% to 82.3%) (eTable 3; available online at the end of this article). Respondents were also hopeful regarding the dental job market, with 78.6% believing the number of new jobs for dentists would either remain the same or increase (Figure 3B and Table 5). When data were segregated according to practice location, ownership status, and region, sentiments were consistent across groups (Table 5 and data not shown).

DISCUSSION

The dental profession experienced an unprecedented national shutdown with the emerging COVID-19 pandemic as appointments were restricted to emergency care.¹¹ Early in the pandemic, dentists worldwide believed that they would be affected profoundly; on a Likert scale in which 1 indicated little financial impact and 5 indicated substantial impact, surveyed dentists averaged 4.8.¹⁴ A separate June through July 2020 survey of endodontists and general dentists found greater than 90% reported that the pandemic had had a negative financial impact, with one-quarter indicating loss of more than one-half of their business.²² In subsequent months, offices reopened with substantial changes and evolved toward a new normal. It could be expected that this disruption would

Table 4. Expectations for the next 6 months.

IN THE NEXT 6 MONTHS, DO YOU EXPECT THE FOLLOWING TO INCREASE, STAY THE SAME, OR DECREASE? (APPENDIX QUESTION 4*)	DECREASE	STAY THE SAME	INCREASE
Your Earned Income/Wages, for Example, Salary and Dividends			
All, % (no.) [95% CI]	34.7 (208) [30.9 to 38.5]	47.3 (284) [43.3 to 51.3]	18.0 (108) [14.9 to 21.1]
Setting ($P = .58^\dagger$), % (no.)			
Large city	38.4 (63)	46.3 (76)	15.2 (25)
Small/medium city	31.4 (33)	45.7 (48)	22.9 (24)
City suburb	36.2 (50)	43.5 (60)	20.3 (28)
Small/medium town	29.6 (26)	53.4 (47)	17.1 (15)
Rural	33.3 (24)	52.8 (38)	13.9 (10)
Ownership status ($P = .24^\dagger$), % (no.)			
Sole Owner	36.8 (161)	45.3 (198)	17.9 (78)
Partner	27.9 (17)	55.7 (34)	16.4 (10)
Employee	23.4 (11)	57.5 (27)	19.2 (9)
Region ($P = .30^\dagger$), % (no.)			
Southwest	35.6 (16)	40.0 (18)	24.4 (11)
Southeast	31.6 (37)	49.6 (58)	18.8 (22)
Rocky Mountain	13.6 (3)	45.5 (10)	40.9 (9)
Plains	37.8 (14)	46.0 (17)	16.2 (6)
New England	30.0 (12)	45.0 (18)	25.0 (10)
Mid-Atlantic	38.9 (56)	45.8 (66)	15.3 (22)
Great Lakes	37.4 (34)	48.4 (44)	14.3 (13)
Far West	34.6 (36)	51.0 (53)	14.4 (15)
Your Personal Savings (Nonretirement)			
All, % (no.) [95% CI]	30.2 (181) [26.5 to 33.9]	50.6 (303) [46.6 to 54.6]	19.2 (115) [16.0 to 22.4]
Setting ($P = .49^\dagger$), % (no.)			
Large city	30.5 (50)	48.8 (80)	20.7 (34)
Small/medium city	29.5 (31)	46.7 (49)	23.8 (25)
City suburb	34.1 (47)	50.0 (69)	15.9 (22)
Small/medium town	26.1 (23)	59.1 (52)	14.8 (13)
Rural	23.6 (17)	56.9 (41)	19.4 (14)
Ownership status ($P = .41^\dagger$), % (no.)			
Sole owner	31.1 (136)	49.9 (218)	19.0 (83)
Partner	21.3 (13)	62.3 (38)	16.4 (10)
Employee	25.5 (12)	55.3 (26)	19.2 (9)
Region ($P = .20^\dagger$), % (no.)			
Southwest	28.9 (13)	55.6 (25)	15.6 (7)
Southeast	32.5 (38)	45.3 (53)	22.2 (26)
Rocky Mountain	13.6 (3)	40.9 (9)	45.5 (10)
Plains	24.3 (9)	56.8 (21)	18.9 (7)
New England	27.5 (11)	55.0 (11)	17.5 (7)
Mid-Atlantic	35.0 (50)	45.5 (65)	19.6 (28)
Great Lakes	28.6 (26)	58.2 (53)	13.2 (12)
Far West	29.8 (31)	52.9 (55)	17.3 (18)
Your Contributions to Your Investments, for Example, Stocks and Mutual Funds			
All, % (no.) [95% CI]	32.5 (195) [28.7 to 36.3]	53.7 (322) [49.7 to 57.7]	13.8 (83) [11.1 to 16.6]
Setting ($P = .46^\dagger$), % (no.)			
Large city	33.5 (55)	51.8 (85)	14.6 (24)

* Available online at the end of this article. † P values calculated using Pearson χ^2 test; significance defined as $P < .05$.

Table 4. Continued

IN THE NEXT 6 MONTHS, DO YOU EXPECT THE FOLLOWING TO INCREASE, STAY THE SAME, OR DECREASE? (APPENDIX QUESTION 4*)	DECREASE	STAY THE SAME	INCREASE
Small/medium city	27.6 (29)	53.3 (56)	19.1 (20)
City suburb	31.9 (44)	53.6 (74)	14.5 (20)
Small/medium town	36.4 (32)	54.6 (48)	9.1 (8)
Rural	29.2 (21)	62.5 (45)	8.3 (6)
Ownership status ($P = .52^1$), % (no.)			
Sole owner	32.7 (143)	54.2 (237)	13.0 (57)
Partner	27.9 (17)	59.0 (36)	13.1 (8)
Employee	31.9 (15)	46.8 (22)	21.3 (10)
Region ($P = .58^1$), % (no.)			
Southwest	28.9 (13)	57.8 (26)	13.3 (6)
Southeast	34.2 (40)	47.0 (55)	18.8 (22)
Rocky Mountain	22.7 (5)	59.1 (13)	18.2 (4)
Plains	32.4 (12)	56.8 (21)	10.8 (4)
New England	32.5 (13)	52.5 (21)	15.0 (6)
Mid-Atlantic	39.6 (57)	47.9 (69)	12.5 (18)
Great Lakes	25.3 (23)	63.7 (58)	11.0 (10)
Far West	30.8 (32)	56.7 (59)	12.5 (13)
Your Personal Spending, for Example, Cash and Credit			
All, % (no.) [95% CI]	46.0 (276) [42.0 to 50.0]	46.2 (277) [42.2 to 50.2]	7.8 (47) [5.7 to 10.0]
Setting ($P = .50^1$), % (no.)			
Large city	43.9 (72)	47.6 (78)	8.5 (14)
Small/medium city	43.8 (46)	42.9 (45)	13.3 (14)
City suburb	49.3 (68)	44.9 (62)	5.8 (8)
Small/medium town	46.6 (41)	47.7 (42)	5.7 (5)
Rural	43.1 (31)	51.4 (37)	5.6 (4)
Ownership status ($P = .21^1$), % (no.)			
Sole owner	48.5 (212)	44.2 (193)	7.3 (32)
Partner	39.3 (24)	54.1 (33)	6.6 (4)
Employee	40.4 (19)	44.7 (21)	14.9 (7)
Region ($P = .11^1$), % (no.)			
Southwest	51.1 (23)	48.0 (22)	0.0 (0)
Southeast	41.0 (48)	49.6 (58)	9.4 (11)
Rocky Mountain	31.8 (7)	63.6 (14)	4.6 (1)
Plains	35.1 (13)	56.8 (21)	8.1 (3)
New England	35.0 (14)	57.5 (23)	7.5 (3)
Mid-Atlantic	51.4 (74)	43.1 (62)	5.6 (8)
Great Lakes	55.0 (50)	34.1 (31)	11.0 (10)
Far West	45.2 (47)	44.2 (46)	10.6 (11)

negatively affect dentists, materially and psychologically, yet in our study, conducted February through April 2021, we found a more optimistic outlook.²³

To explore dentists' financial confidence, workflow changes, and future perspectives, a national survey was distributed to practicing dentists in early 2021. Data indicated that after reopening, most dentists reported substantial workflow changes (98.8%) and added safety products (98.9%) and PPE (96.6%) (Figures 2A, 2C, and Table 3). Considering the added costs associated with these changes, higher operating expenses were a concern among respondents (Figure 1 and Table 2). ADA data from December 2020 indicated that approximately one-third of dentists were paying at least 3 times more for all types of PPE.²⁴ Despite added costs, dentists' outlooks on their financial futures were optimistic; most expected their personal finances and practice performance to remain the same or

Table 5. Expectations for year 2022 postpandemic.

ASSUME IT IS THE YEAR 2022 AND THE COVID-19 PANDEMIC IS OVER. DO YOU EXPECT THE FOLLOWING TO INCREASE, STAY THE SAME, OR DECREASE COMPARED WITH AN AVERAGE MONTH IN 2019 (BEFORE THE COVID-19 PANDEMIC)? (APPENDIX QUESTIONS 5A AND 5B*)

	DECREASE	STAY THE SAME	INCREASE
The Practice's Gross Revenue in an Average Month of 2022			
All, % (no.) [95% CI]	18.5 (109) [15.4 to 21.7]	24.3 (143) [20.8 to 27.8]	57.2 (337) [53.2 to 61.2]
Setting ($P = .73^\dagger$), % (no.)			
Large city	21.5 (35)	23.9 (39)	54.6 (89)
Small/medium city	16.2 (17)	23.9 (25)	60.0 (63)
City suburb	14.5 (20)	22.5 (31)	63.0 (87)
Small/medium town	19.3 (17)	22.7 (20)	58.0 (51)
Rural	15.3 (11)	30.6 (22)	54.2 (39)
Ownership status ($P = .55^\dagger$), % (no.)			
Sole owner	17.9 (78)	24.3 (106)	57.9 (253)
Partner	11.5 (7)	24.6 (15)	63.9 (39)
Employee	21.3 (10)	17.0 (8)	61.7 (29)
Region ($P = .001^{†‡}$), % (no.)			
Southwest	20.0 (9)	28.9 (13)	51.1 (23)
Southeast	17.1 (20)	15.4 (18)	67.5 (79)
Rocky Mountain	13.6 (3)	18.2 (4)	68.2 (15)
Plains	22.2 (8)	33.3 (12)	44.4 (16)
New England	5.0 (2)	25.0 (10)	70.0 (28)
Mid-Atlantic	29.9 (40)	17.9 (24)	52.2 (70)
Great Lakes	15.4 (14)	28.6 (26)	56.0 (51)
Far West	12.5 (13)	34.6 (36)	52.9 (55)
Your Take-Home Income in an Average Month of 2022			
All, % (no.) [95% CI]	21.7 (128) [18.4 to 25.0]	31.7 (187) [27.9 to 35.5]	46.6 (275) [42.6 to 50.7]
Setting ($P = 1.00^\dagger$)			
Large city	21.3 (35)	32.9 (54)	45.7 (75)
Small/medium city	18.1 (19)	32.4 (34)	49.5 (52)
City suburb	20.3 (28)	32.6 (45)	47.1 (65)
Small/medium town	23.9 (21)	29.6 (26)	46.6 (41)
Rural	19.4 (14)	31.9 (23)	48.6 (35)
Ownership status ($P = .19^\dagger$), % (no.)			
Sole owner	22.2 (97)	30.9 (135)	46.9 (205)
Partner	9.8 (6)	39.3 (24)	50.8 (31)
Employee	21.3 (10)	25.5 (12)	53.2 (25)
Region ($P = .02^{†‡}$), % (no.)			
Southwest	22.2 (10)	40.0 (18)	37.8 (17)
Southeast	18.8 (22)	23.9 (28)	57.2 (67)
Rocky Mountain	9.1 (2)	22.7 (5)	68.2 (15)
Plains	27.0 (10)	37.8 (14)	35.1 (13)
New England	7.5 (3)	35.0 (14)	57.5 (23)
Mid-Atlantic	29.9 (40)	26.1 (35)	44.0 (59)
Great Lakes	20.9 (19)	37.4 (34)	41.8 (38)
Far West	21.2 (22)	37.5 (39)	41.4 (43)
Your Patient Clinic Hours Worked Per Week in an Average Month of 2022			
All, % (no.) [95% CI]	17.7 (104) [14.6 to 20.7]	62.1 (366) [58.2 to 66.1]	20.2 (119) [17.0 to 23.5]

* Available online at the end of this article. † P values calculated using Pearson χ^2 test; significance defined as P value < .05. ‡ Significant.

Table 5. Continued

ASSUME IT IS THE YEAR 2022 AND THE COVID-19 PANDEMIC IS OVER. DO YOU EXPECT THE FOLLOWING TO INCREASE, STAY THE SAME, OR DECREASE COMPARED WITH AN AVERAGE MONTH IN 2019 (BEFORE THE COVID-19 PANDEMIC)? (APPENDIX QUESTIONS 5A AND 5B*)			
	DECREASE	STAY THE SAME	INCREASE
Setting ($P = .45^{\dagger}$), % (no.)			
Large city	20.9 (34)	57.1 (93)	22.1 (36)
Small/medium city	14.3 (15)	62.9 (66)	22.9 (24)
City suburb	15.2 (21)	70.3 (97)	14.5 (20)
Small/medium town	15.9 (14)	64.8 (57)	19.3 (17)
Rural	13.9 (10)	63.9 (46)	22.2 (16)
Ownership status ($P = .99$), % (no.)			
Sole owner	16.9 (74)	63.1 (276)	19.9 (87)
Partner	14.8 (9)	63.9 (39)	21.3 (13)
Employee	14.9 (7)	66.0 (31)	19.2 (9)
Region ($P = .22^{\dagger}$), % (no.)			
Southwest	15.6 (7)	64.4 (29)	20.0 (9)
Southeast	12.0 (14)	70.1 (82)	18.0 (21)
Rocky Mountain	18.2 (4)	63.6 (14)	18.2 (4)
Plains	22.2 (8)	66.7 (24)	11.1 (4)
New England	2.5 (2)	65.0 (26)	32.5 (13)
Mid-Atlantic	27.6 (37)	56.0 (75)	16.4 (22)
Great Lakes	16.5 (15)	63.7 (58)	19.8 (18)
Far West	17.3 (18)	55.8 (58)	26.9 (28)
No. of New Jobs Available in an Average Month of 2022 in the United States, for Example, Associate or Independent Contractor			
All, % (no.) [95% CI]	21.4 (126) [18.1 to 24.8]	45.7 (269) [41.7 to 49.8]	32.8 (193) [29.0 to 36.6]
Setting ($P = .22^{\dagger}$), % (no.)			
Large city	19.6 (32)	43.5 (71)	36.8 (60)
Small/medium city	22.9 (24)	47.6 (50)	29.52
City suburb	18.1 (25)	55.1 (76)	26.8 (37)
Small/medium town	27.3 (24)	37.5 (33)	35.2 (31)
Rural	20.8 (15)	40.3 (29)	38.9 (28)
Ownership status ($P = .24^{\dagger}$), % (no.)			
Sole owner	20.9 (91)	45.4 (198)	33.7 (147)
Partner	18.0 (11)	57.4 (35)	24.6 (15)
Employee	27.7 (13)	36.2 (17)	26.2 (17)
Region ($P = .65^{\dagger}$), % (no.)			
Southwest	28.9 (13)	42.2 (19)	28.9 (13)
Southeast	18.8 (22)	46.2 (54)	35.0 (41)
Rocky Mountain	18.2 (4)	40.9 (9)	40.9 (9)
Plains	24.3 (9)	40.5 (15)	35.1 (13)
New England	5.0 (2)	55.0 (22)	40.0 (16)
Mid-Atlantic	25.8 (34)	43.9 (58)	30.3 (40)
Great Lakes	22.0 (20)	48.4 (44)	29.7 (27)
Far West	21.2 (22)	46.2 (48)	32.7 (34)

grow in the near future (Figure 3A and Table 4). In the long term, most expected additional fiscal improvements postpandemic and did not believe that their personal or practice finances would be affected negatively (Figure 3B and Table 5). Results suggest that, despite the shutdown and ensuing workflow changes, many dentists were rebounding financially and anticipated future growth.

Results from health care surveys earlier in the pandemic had more dire outlooks than results from those distributed later, like ours. In April through May 2020, results gathered from the general health care sector found that the COVID-19 pandemic affected the financial security of 1 in 3 respondents.^{25,26} Reduced income was reported most among physicians, physician assistants, and nurse practitioners in a survey of hospital workers.^{25,26} As the pandemic progressed, dentists embraced workflow changes and patients resumed oral health care.²⁷ Infection control protocols proved effective at preventing transmission in dental settings, and COVID-19 cases among US-practicing dentists have remained notably low.²⁸ Results of analysis of practice management data found that oral health care use has fully rebounded to prepandemic levels among privately insured patients.²⁹ These later studies, indicating adaptation to new safety procedures and rebounding dental demand, are consistent with our optimistic findings.

Our survey was distributed from February through April 2021, and 65.3% of participants anticipated their income staying the same or increasing during the next 6 months. These findings are consistent with those of the health care field, as evaluated via LinkedIn through their biweekly survey starting in April 2020. The LinkedIn survey is distributed to approximately 5,000 US workers across many industries. It assesses employees' sense of job security, financial confidence, and prospects of career advancement to calculate an aggregated WCI.¹⁷ Data from March 2021 indicated a substantial increase in health care workers' WCI compared with April 2020, and health care's WCI was well above the US overall WCI.¹⁸ Similarly, most of our dental respondents anticipated that their personal finances and career advancement would either remain the same or increase between the time the survey was administered and the summer of 2022 (Figures 3A, 3B, and Tables 4 and 5).

The events of 2020 were not as catastrophic for dental practices as expected. In June 2020, the ADA predicted annual dental practice revenue would decrease 38%; the actual decrease in revenue in 2020 was only 6%.³⁰ The top 10% of dental practices performed better in 2020 than 2019 in terms of revenue, average patient value, and patient growth.³⁰ There also had been growth in the stock market, buoying personal investment returns.³¹ This suggests multiple factors may underlie dentists' positive outlooks on their financial futures and the resilience of the dental profession.

Timing may, in part, explain our survey findings. Distribution occurred when the vaccine rollout was gaining traction and most dentists had been offered the vaccine. Most of our survey respondents (86.0%) reported receiving the vaccine and, of those 14.0% who had not been vaccinated, 61.9% reported being offered the vaccine (Table 1). During that same period, the stock market had a strong performance and restrictions were beginning to lift as businesses began returning to more normal practices.³² Understandably, respondents were more optimistic about their financial future at the time of survey distribution than immediately after shutdown.

Our data suggest that the changes that resulted from the pandemic are expected to linger. Although 57.2% of respondents predicted higher gross practice revenue in 2022, only 46.6% expected higher net income (Figure 3B and Table 5). This suggests approximately 10% of respondents anticipated increased operating expenses to persist even after the pandemic has subsided.

Our study's sample size ($n = 656$) was a limitation. However, data were consistent among subgroups when broken down according to age, gender, ownership status, and practice location, indicating trends were broadly applicable across groups. Respondents included dentists from all regions and age groups, suggesting our sample was representative of the 201,117 dentists in the United States.¹⁶ Our sample had overrepresentations of particular groups, with more responses from men (69.4%), older respondents (67.4% were > 50 years), and solo owners (76.7%) relative to partners (10.9%) and associates (4.6%) (Table 1). There were also more participants from large cities and suburbs than small towns and rural populations (Table 1). Regionally, our representation was approximately proportional to the population demographics of practicing dentists provided by the ADA, although certain regions were slightly overrepresented, such as the Mid-Atlantic (Table 1).³³ The survey was distributed via email, favoring dentists who were digitally capable and had email addresses registered with the ADA and AAO.

Our population consisted of 84% general dentists and 16% specialists; this is consistent with the percentage of specialists nationwide (21.2%) (Table 1).³³ However, orthodontists were disproportionately represented among specialists' data, as the AAO Partners in Research Program disseminated the survey, and digital distribution of our online survey was unavailable through many specialty organizations. As a result, nonorthodontist specialists were underrepresented, with

overrepresentation of the orthodontists' perspectives and business model. This is a weakness of our data, although few differences were found between specialists and general dentists and between orthodontists and other specialists (eTables 2 and 3; available online at the end of this article). We were unable to draw robust conclusions for all specialists and acknowledge that specialist data were skewed toward orthodontists. An additional limitation is the overall response rate of 6.37%, which may be due to our email lists' lack of prescreening for participants' desire to participate in research. However, our response rate and total number of respondents were fairly consistent with similar surveys.³⁴⁻³⁶

To our knowledge, this is the first investigation of changes in dentists' workforce confidence and workflow in response to the COVID-19 pandemic. Our results provide insight into the repercussions of the pandemic on the dental field and indicate broad optimism among dentists for their short-term and long-term professional prospects. These findings are valuable for understanding the economic recovery and future of oral health care.

CONCLUSIONS

Most respondents (57.9%) reported increased costs of providing dental treatment in their top 3 concerns regarding operating in a changed business environment owing to the pandemic. Most of the survey respondents reported increasing use of PPE, safety products, and safety-oriented workflow changes. Those most frequently adopted include KN/N95 respirators (73.3%), thermometers (84.6%), and health screening questionnaires (76.1%). Most of the dentists anticipated the same or greater savings (65.4%), total earned income (70.4%), investment contributions (68.1%), and personal spending (54.5%) in the short term. Dentists were optimistic about their careers postpandemic in 2022, anticipating the same or greater monthly collections (81.5%) and net practice income (78.3%). These results suggest broad optimism for oral health care as the COVID-19 pandemic draws to a close. ■

SUPPLEMENTAL DATA

Supplemental data related to this article can be found at: <https://doi.org/10.1016/j.adaj.2021.11.011>.

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APPENDIX

Survey questions

Thank you for participating in our survey on how COVID-19 is affecting dentists' workforce confidence and workflow.

The survey takes 3 to 5 minutes to complete. If your browser times out, simply reload the survey to resume where you left off.

1. Are you an actively practicing general dentist?

- Yes
- No

2. What is your specialty?

- Dental anesthesiology
- Dental public health
- Endodontics
- Oral and maxillofacial pathology
- Oral and maxillofacial radiology
- Oral and maxillofacial surgery
- Oral medicine
- Orofacial pain
- Orthodontics and dentofacial orthopedics
- Pediatric dentistry
- Periodontics
- Prosthodontics
- Prefer not to respond

3. Of the following options, what are your top 3 concerns regarding operating in a changed business environment with respect to COVID-19? Please select only your top 3 concerns.

- Contracting COVID-19 yourself
- Increased personal responsibilities for you, for example, childcare or caring for elderly or sick family members)
- Your personal financial situation
- Your personal job security and/or practice viability
- Ability to make a practice transition, for example, buy or sell a practice or find a new position)
- Management and/or long-term impact of new human resources regulation, for example, unemployment claims)
- Lack of employee confidence in their ability to keep themselves and their families safe if they go to work
- Employees' inability to come to work, for example, illness or lack of childcare
- A new wave of COVID-19 infections resulting in another shutdown
- Decrease in consumer confidence in their safety at the office
- Reduced demand for oral health care
- Increased costs of providing dental treatment
- Other. Please specify: _____

4. In the next 6 months, do you expect the following to increase, stay the same, or decrease?

	Decrease	Stay the same	Increase
Your earned income/wages, for example, salary and dividends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your personal savings (nonretirement)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your contributions to your investments, for example, stocks and mutual funds	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your personal spending, for example, cash and credit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:

If Are you an actively practicing general dentist? = Yes

5A. Assume it is the year 2022 and the COVID-19 pandemic is over. Do you expect the following to increase, stay the same, or decrease compared with an average month in 2019 (before the COVID-19 pandemic)?

Please answer about the practice where you spend most of your time.

	Decrease compared with 2019	Stay the same	Increase compared with 2019
The practice's gross revenue in an average month of 2022	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your take-home income in an average month of 2022	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your patient clinic hours worked per week in an average month of 2022	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
No. of new jobs available for general dentists in an average month of 2022 the United States, for example, associate or independent contractor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Display This Question:

If Are you an actively practicing general dentist? = No

5B. Assume it is the year 2022 and the COVID-19 pandemic is over. Do you expect the following to increase, stay the same, or decrease compared with an average month in 2019 (before the COVID-19 pandemic)?

Please answer about the practice where you spend most of your time.

	Decrease compared with 2019	Stay the same	Increase compared with 2019
The practice's gross revenue in an average month of 2022	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your take-home income in an average month of 2022	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your patient clinic hours worked per week in an average month of 2022	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
No. of new jobs available for dentists in your specialty in an average month of 2022 in the United States, for example, associate or independent contractor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. What new personal protective equipment have you incorporated into your clinical practice that you did not use before the COVID-19 pandemic? Please select all that apply.

- Face shields
- KN/N95 masks
- Positive pressure respirator
- Gowns
- Hair coverings
- Other. Please specify: _____
- None

7. What new safety products have you incorporated since into your clinical practice that you did not use before the COVID-19 pandemic? Please select all that apply.

- Thermometers
- Plexiglass barriers
- Additional suction devices
- Air filtration
- Acid fogging
- Commercial laundry service
- In-office washer and dryer
- Other. Please specify: _____
- None

8. What new workflow changes have you incorporated into your clinical practice that you did not use before the COVID-19 pandemic? Please select all that apply.

- Health screening questionnaires
- Prophylactic mouthrinses
- Reduced patient volume per day
- Virtual visits
- More physical distance between patients
- More patients seen in private treatment areas
- Other. Please specify: _____
- None

9. Have you received a COVID-19 vaccine?

- Yes
- No

Display This Question:

If Have you received a COVID-19 vaccine? = No

10. Have you been offered a COVID-19 vaccine?

- Yes
- No

11. What is your ownership status?

- Sole owner
- Co-owner/partner
- Associate/nonowner employee
- Independent contractor/nonowner employee
- Transitioning roles (currently selling or buying-out)
- Other. Please Specify: _____

Display This Question:

If Are you an actively practicing general dentist? = Yes

12A. Which of the following best describes your practice model?

- General dentistry practice with 1 office
- General dentistry practice with 2 offices
- General dentistry practice with 3 or more offices
- Private multispecialty group practice
- Dental service organization, general dentistry only
- Dental service organization multispecialty group practice
- Other. Please specify: _____

Display This Question:

If Are you an actively practicing general dentist? = Yes

12B. Which of the following best describes your practice model?

- Specialty practice with 1 office
- Specialty dentistry practice with 2 offices
- Specialty dentistry practice with 3 or more offices
- Private multispecialty group practice
- Dental service organization, 1 specialty only
- Dental service organization multispecialty group practice
- Other. Please specify: _____

13. In what state do you practice?

▼ Alabama (1) ... Wyoming (50)

14. What is the setting of your primary practice location?

- Large city, population of 250,000 or more
- Small/medium city, population of 100,000-250,000
- City suburb, population between 25,000-100,000
- Small/medium town, population 25,000-100,000
- Rural, population 25,000 or less

15. What is your age?

16. How would you best describe your identified gender?

- Female
- Male
- Nonbinary/third gender
- Prefer to self-describe
- Prefer not to respond

17. What is your ethnic background or race? Please mark all that apply.

- Caucasian
- African American
- Native American
- Asian/Pacific Islander
- Hispanic/Latino
- Other. Please specify: _____
- I prefer not to say.

eBox. Survey inclusion and exclusion criteria.

CRITERIA

Inclusion

Member of the American Dental Association with a registered email address or member of the American Association of Orthodontists with a registered email address

Dentist who is older than 20 years

Dentist who is actively practicing

Exclusion

Current dental residents

Dentist who is not actively practicing (retired)

Table 1. Respondents' top 3 concerns regarding operating in a changed business environment with respect to COVID-19 according to age.

QUESTION AND ANSWER OPTIONS	AGE GROUPS, % (NO.)				
	≤ 40 Y	41-50 Y	51-60 Y	61-70 Y	> 70 Y
Of the Following Options, What Are Your Top 3 Concerns Regarding Operating in a Changed Business Environment With Respect to COVID-19? Please Select Only Your Top 3 Concerns (Appendix Question 3)					
Increased costs of providing dental treatment	51.4 (19)	65.3 (66)	62.2 (112)	59.9 (115)	54.7 (23)
Employees inability to come to work, for example, illness or lack of childcare	48.6 (18)	38.6 (39)	32.8 (59)	25.0 (48)	21.4 (9)
Contracting COVID-19 yourself	32.4 (12)	20.8 (21)	22.8 (41)	28.6 (55)	42.9 (18)
A new wave of COVID-19 infections resulting in another shutdown	29.7 (11)	26.7 (27)	33.9 (61)	35.4 (68)	38.1 (16)
Decrease in consumer confidence in their safety at the office	24.3 (9)	22.8 (23)	25.0 (45)	19.3 (37)	21.4 (9)
Reduced demand for oral health care	24.3 (9)	18.8 (19)	22.2 (40)	30.2 (58)	28.6 (12)
Your personal financial situation	21.6 (8)	37.6 (38)	32.8 (59)	26.0 (50)	21.4 (9)
Increased personal responsibilities for you, for example, childcare or caring for elderly or sick family members	18.9 (7)	14.9 (15)	5.6 (10)	3.1 (6)	7.1 (3)
Your personal job security and/or practice viability	13.5 (5)	16.8 (17)	20.6 (37)	15.6 (30)	11.9 (5)
Ability to make a practice transition, for example, buy/sell a practice or find a new position	10.8 (4)	3.9 (4)	10.0 (18)	22.4 (43)	26.2 (11)
Lack of employee confidence in their ability to keep themselves and their families safe if they go to work	8.1 (3)	9.9 (10)	8.9 (16)	9.4 (18)	11.9 (5)
Management and/or long-term impact of new human resources regulation, for example, unemployment claims	8.1 (3)	19.8 (20)	10.6 (19)	13.5 (26)	4.8 (2)

eTable 2. Expectations for the next 6 months.

IN THE NEXT 6 MONTHS, DO YOU EXPECT THE FOLLOWING TO INCREASE, STAY THE SAME, OR DECREASE? (APPENDIX QUESTION 4)	DECREASE, % (NO.) [95% CI]	STAY THE SAME, % (NO.) [95% CI]	INCREASE, % (NO.) [95% CI]
Your Earned Income/Wages, for Example, Salary and Dividends (P = .30*)			
General dentists	35.3 (189) [31.3 to 39.4]	46.7 (250) [42.5 to 51.0]	17.9 (96) [14.7 to 21.2]
Specialists	25.0 (14) [13.3 to 36.7]	21.4 (30) [40.1 to 67.1]	21.4 (12) [10.3 to 32.5]
Your Earned Income/Wages, for Example, Salary and Dividends (P = .29*)			
Orthodontists	30.0 (6) [8.0 to 52.0]	40.0 (8) [16.5 to 63.5]	30.0 (6) [8.0 to 52.0]
Nonorthodontist specialists	22.2 (8) [8.0 to 36.5]	61.1 (22) [44.4 to 77.8]	16.7 (6) [3.9 to 29.5]
Your Personal Savings (Nonretirement) (P = .19*)			
General dentists	31.3 (167) [27.3 to 35.2]	49.6 (265) [45.4 to 53.9]	19.1 (102) [15.8 to 22.5]
Specialists	19.6 (11) [8.9 to 30.4]	58.9 (33) [45.6 to 72.2]	21.4 (12) [10.3 to 32.5]
Your Personal Savings (Nonretirement) (P = .23*)			
Orthodontists	45.0 (9) [21.1 to 68.9]	45.0 (9) [21.1 to 68.9]	25.0 (5) [4.2 to 45.8]
Nonorthodontist specialists	13.9 (5) [2.0 to 25.8]	66.7 (24) [50.5 to 82.8]	19.4 (7) [5.9 to 33.0]
Your Contributions to Your Investments, for Example, Stocks and Mutual Funds (P = .01*†)			
General dentists	34.2 (183) [30.2 to 38.2]	52.3 (280) [48.1 to 56.6]	13.5 (72) [10.6 to 16.4]
Specialists	14.3 (8) [4.8 to 23.7]	67.9 (38) [55.2 to 80.5]	17.9 (10) [7.5 to 28.2]
Your Contributions to Your Investments, for Example, Stocks and Mutual Funds (P = .03*†)			
Orthodontists	25.0 (5) [4.2 to 45.8]	45.0 (9) [21.1 to 68.9]	45.0 (9) [21.1 to 68.9]
Nonorthodontist specialists	8.3 (3) [0.0 to 17.8]	80.6 (29) [67.0 to 94.1]	11.1 (4) [0.3 to 21.9]
Your Personal Spending, for Example, Cash and Credit (P = .01*†)			
General dentists	47.9 (256) [43.6 to 52.1]	43.9 (235) [39.7 to 48.1]	8.2 (44) [5.9 to 10.6]
Specialists	30.4 (17) [17.9 to 42.8]	66.1 (37) [53.3 to 78.9]	3.6 (2) [0.0 to 8.6]
Your Personal Spending, for Example, Cash and Credit (P = .52*)			
Orthodontists	35.0 (7) [12.1 to 57.9]	65.0 (13) [42.1 to 87.9]	0 (0%)
Nonorthodontist specialists	27.8 (10) [12.4 to 43.2]	66.7 (24) [50.5 to 82.8]	5.6 (2) [0.0 to 13.4]

* P values calculated using Pearson χ^2 test; significance defined as P value < .05. † Significant.

eTable 3. Expectations for year 2022 post pandemic.

ASSUME IT IS THE YEAR 2022 AND THE COVID-19 PANDEMIC IS OVER. DO YOU EXPECT THE FOLLOWING TO INCREASE, STAY THE SAME, OR DECREASE COMPARED WITH AN AVERAGE MONTH IN 2019 (BEFORE THE COVID-19 PANDEMIC)? (APPENDIX QUESTIONS 5A AND 5B)	DECREASE, % (NO.) [95% CI]	STAY THE SAME, % (NO.) [95% CI]	INCREASE, % (NO.) [95% CI]
The Practice's Gross Revenue in an Average Month of 2022 (P = .92*)			
General dentists	18.0 (95) [14.7 to 21.3]	24.5 (129) [20.8 to 28.2]	57.5 (303) [53.3 to 61.7]
Specialists	17.0 (9) [6.5 to 27.4]	22.6 (12) [11.0 to 34.3]	60.4 (32) [46.8 to 74.0]
The Practice's Gross Revenue in an Average Month of 2022 (P = .95*)			
Orthodontists	15.8 (3) [0.0 to 33.8]	21.1 (4) [0.9 to 41.2]	63.2 (12) [39.3 to 87.0]
Nonorthodontist specialists	17.7 (6) [4.2 to 31.2]	23.5 (8) [8.5 to 38.6]	58.8 (20) [41.4 to 76.3]
Your Take-Home Income in an Average Month of 2022 (P = .44*)			
General dentists	21.8 (115) [18.3 to 25.4]	31.3 (165) [27.3 to 35.3]	46.9 (247) [42.6 to 51.1]
Specialists	14.8 (8) [5.0 to 24.6]	37.0 (20) [23.7 to 50.3]	48.2 (26) [34.4 to 61.9]
Your Take-Home Income in an Average Month of 2022 (P = .03*†)			
Orthodontists	26.3 (5) [4.5 to 48.1]	15.8 (3) [0.0 to 33.8]	57.9 (11) [33.4 to 82.3]
Nonorthodontist specialists	8.6 (3) [0.0 to 18.3]	48.6 (17) [31.2 to 66.0]	42.9 (15) [25.6 to 60.1]
Your Patient Clinic Hours Worked per Week in an Average Month of 2022 (P = .23*)			
General dentists	17.5 (92) [14.2 to 20.7]	63.4 (334) [59.3 to 67.5]	19.2 (101) [15.8 to 22.5]
Specialists	18.9 (10) [8.0 to 29.8]	52.3 (28) [39.0 to 66.7]	28.3 (15) [15.8 to 40.8]
Your Patient Clinic Hours Worked per Week in an Average Month of 2022 (P = .68*)			
Orthodontists	21.1 (4) [0.9 to 41.2]	57.9 (11) [33.4 to 82.3]	21.1 (4) [0.9 to 41.2]
Nonorthodontist specialists	17.7 (6) [4.2 to 31.2]	50.0 (17) [32.3 to 67.7]	32.4 (11) [15.8 to 48.9]
No. of New Jobs Available in an Average Month of 2022 in the United States, for Example, Associate or Independent Contractor (P = .84*)			
General dentists	21.1 (111) [17.6 to 24.6]	45.6 (240) [41.4 to 49.9]	33.3 (175) [29.2 to 37.3]
Specialists	20.4 (11) [9.3 to 31.5]	48.2 (26) [34.4 to 61.9]	31.5 (17) [18.7 to 44.3]
No. of New Jobs Available in an Average Month of 2022 in the United States, for Example, Associate or Independent Contractor (P = .83*)			
Orthodontists	21.1 (4) [0.9 to 41.2]	52.6 (10) [27.9 to 77.4]	26.3 (5) [4.5 to 48.1]
Nonorthodontist specialists	20.0 (7) [6.1 to 33.9]	45.7 (16) [28.4 to 63.1]	34.3 (12) [17.7 to 50.8]

* P values calculated using Pearson χ^2 test; significance defined as P value <.05. † Significant.