

Participation Rates in 11 National Dental Practice-Based Research Network Surveys 2014-2022

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INTRODUCTION

Surveys of health professionals typically have low response rates, which have decreased in recent years.

METHODS

We report on the methods used, participation rates, and study time for 11 national questionnaire studies of dentists conducted from 2014-2022.

RESULTS

Participation rates decreased (87%-25%). Concurrent with this decrease was a decrease in the intensity with which the practitioners were recruited. Participation rates were higher when postal mail invitation and paper options were used (84% vs. 58%, $p < .001$). Completion rates were nearly twice as high in studies that recruited in waves than those that did not (61% vs. 35%, $p = .003$). Study time varied from 2.6 to 28.4 weeks. Study time was longest when postal mail and completion on paper were used (26.0 vs. 11.3 weeks, $p = .01$). Among studies using only online methods, study time was longer when invitations were staggered than when all invitations went out in one bolus (means 12.0 and 5.2, $p = .04$). Study time was positively correlated with participation rates (Spearman $r = .80$, $p = .005$). General dentists participated at an average of 12% higher rates than specialists.

Table 2. Number of Practitioners Invited to and Eligible for Studies, Who Partially Completed and Who Fully Completed Each National Questionnaire Study Conducted by the National Dental Practice-Based Research Network 2014-2022.

Study Name	Number of Practitioners						Calendar Time
	Invited	Eligible ^a	Partially Completed ^b	Completed	N	%	
Earlier funding cycle 2012-2019							
Isolation techniques used when performing root canal treatment (ISO)	1876	1716	3	<1	1488	87	01/31/2014 – 07/15/2014
Factors for successful crowns questionnaire (crowns)	2299	2264	16	<1	1847	82	02/17/2015 – 09/04/2015
Understanding dental information-knowledge networks (KN)	2236	2221	131	6	1290	58	08/23/2016 – 12/20/2016
Reducing prescription opioid misuse (opioid)	1428	1389	49	4	822	59	08/30/2016 – 12/05/2016
Common practices of head & neck examinations in U.S. dental offices (OCE)	1994	1918	48	2	1073	56	04/12/2017 – 09/18/2017
Prophylactic use of antibiotics in dental office (AP)	3584	3572	NR ^c		2180	61	02/06/2018 – 05/22/2018
Later funding cycle 2019-2026							
National dental PBRN COVID-19 research registry (CORE1)	5486	5450	322	6	1391	26	01/05/2021 – 02/14/2021
Deep caries removal strategies (DCRS)	698	668	29	4	468	70	02/22/2021 – 05/17/2021
Treatment of patients on anticoagulants (TOP-AC)	1815	1813	108	6	829	46	07/20/2021 – 08/29/2021
Coronavirus vaccine acceptability and readiness among dentists (CARAD)	2079	2079	38	2	514	25	01/06/2022 – 01/24/2022
Community accommodation and dental treatment among patients with special needs (CADTAPS)	1108	1082	94	9	491	45	03/28/2022 – 05/15/2022

^aOf invited.
^bPartially: Did not answer last question on compensation, viz., group or individual.
^cOf eligible.
^dNR: Not recorded.

RESULTS

Table 1. Literature Reviews of Strategies to Increase Physician Participation in Surveys

Article	# of Studies	Years Studies Published	Mode(s)	Summary Finding
Asch et al., 1997	321	1991	Postal	Reminders (postal or telephone) increased response, monetary incentive did not
Cummings et al., 2001	257	1985 to 1995	Postal	Response rates constant at ~61%; only 54% any follow-up reminders; only 44% discussed possible bias
Kellerman and Herold, 2001	24	1967 to 1999	Postal	Pre-notification, personalizing mailout package, and nonmonetary incentives did NOT affect response rates. Monetary incentives and short questionnaires increased response rates. Few differences between telephone and mail, or between demographics and practice characteristics of early and late survey respondents
Field et al., 2002	62	1973 to 2001	All	Assessed whether Dillman's total design approach was applicable to physicians. Confirmed effectiveness of prepaid incentives, special contacts, and personalization. Multiple contacts suggestive. Optimal number of contacts and incentives not determined. Little work on questionnaire length and design
Braithwaite et al., 2003	17	1999 to 2002	Web	Among general practitioners: Reminders increased response; concern that web-based studies are biased, sample not representative and low response rate
Cull et al., 2005	50	1994 to 2002	Postal	Pediatricians: 4-6 mails each survey; response rates declined; younger and females responded more, though average response bias small
VanGeest et al., 2007	66	1975 to 2006	Postal	Monetary, especially if pre-paid increased; short survey, physician contact
Flanigan et al., 2008	136	1987 to 2007	All	Set of best practices: Personalized pre-notification, pre-paid incentive, short survey, postal or mix-mode (postal & web), follow-up (telephone most effective especially if by physician)
Cook et al., 2009	350	1996 to 2005	Postal	Decrease in response rates from prior decade; response rates higher when reminders sent, with smaller studies (<1000); varied across countries
Martins et al., 2012	38	2000 to 2010	All	Web lower than postal; monetary incentive increased, greater if pre-paid
Cho et al., 2013	48	1958 to 2013	All	Decrease in response rates last 50 years; postal versus, web, monetary incentive, 1 or 2 follow-up reminders each increased response rate
McLeod et al., 2013	117	2000 to 2010	All	AMA most common sampling frame. Postal was the most common mode for initial contact and data collection. Modest decrease in response rates over time (measured as % with >60% response rate)
Pit et al., 2014	23	1979 to 2013	All	Monetary incentive, more if pre-paid and larger amount, and registered mail had higher response. Web less than postal or telephone. No consistent findings re mail versus telephone. Pre-contact had no/little effect except telephone by physician peer
Brtnikova et al., 2018	13	2008 to 2013	All	3 pre-recruited MD networks: MD chose mode (postal or web), response declined over 7 years; web higher than postal; middle age [40-60] higher than younger/older
Audibert et al., 2020	200	2013 to 2015	Web	Transparency index constructed from 15 methodologic aspects. Source and type of sample often discussed, along with ethics. In contrast, use of incentives, potential coverage and processing errors were less frequently reported
Barnhart et al., 2021	11	2017 to 2018	Web	Most (9/11) were brief. High versus low interest greater response; predicted response after 6 weekly contacts, 23.7%. Greatest response with initial, 8.9%, decreased response with each additional follow-up
de Koning et al., 2021	255	1984 to 2021	All	Increase in number of surveys during COVID and decrease in response rates after COVID.
Abdelazeem et al., 2023	46	1984 to 2021	All	All studies reviewed were trials of incentives. Money was the most efficient way to increase the response rate compared to voucher and lottery

Table 3. Study Protocol Characteristics Among the 11 Questionnaire Studies Conducted by the National Dental Practice-Based Research Network 2014-2022

Study Acronym	Date Began	Funding Cycle	Paper Option	Recruited in Waves	Frequency of Email Reminders	Number of Email Reminders	Length of Study (in Weeks)
ISO	1/31/2014	2012-2019	Yes	Yes	Bi-weekly	3	23.6
Crowns	2/17/2015	2012-2019	Yes	Yes	Bi-weekly	3	28.4
KN	8/23/2016	2012-2019	No	Yes	Bi-weekly	2	17.0
Opioid	8/30/2016	2012-2019	No	Yes	Weekly	3	13.9
OCE	4/12/2017	2012-2019	No	Yes	Bi-weekly	2	22.7
AP	2/6/2018	2012-2019	No	Yes	Bi-weekly	2	15.0
CORE1	1/5/2021	2019-2026	No	No	Weekly	2	5.7
DCRS	2/22/2021	2019-2026	No	Yes	Weekly	2	12.0
TOP-AC	7/20/2021	2019-2026	No	No	Weekly	2	5.7
CARAD	1/6/2022	2019-2026	No	No	Weekly	2	2.6
CADTAPS	3/28/2022	2019-2026	No	No	Weekly	2	6.9

DISCUSSION & CONCLUSION

Recruitment methodology, such as recruiting in waves or stages, should be considered when designing surveys.