Title

Longitudinal inter-relationships between dental fear and dental attendance among adult Finns in 2000–2011

Running head

Changes in dental fear and dental attendance

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Abstract

Objectives: The aim of this longitudinal study was to investigate causal pathways among as well as inter-relationships between changes in dental fear and dental attendance in a nationally representative sample of adult Finns aged 19 years or older in 2000, with 11 years of follow-up.

Methods: Data from the Health 2000 and 2011 Surveys (BRIF8901) in Finland were used. The Health 2000 survey used a stratified two-stage cluster sampling design (N=9,742). Of the participants in 2000 7,964 were eligible and invited to participate in 2011. Of the participants in 2011 (n=5,806) 3,631 (63%) responded to both dental fear and attendance questions in both years. Both fear and attendance were assessed using single questions and dichotomized. The background variables included were age, gender and education. Path analysis and logistic regression models were used.

Results: Dental fear led to non-habitual use of dental services rather than vice versa (-0.07–0.04 vs. 0.00). When confounders were considered, in both age groups (29–39 years and 40+ years) an increase in fear predicted non-habitual dental attendance. This association was stronger among the younger age group (OR = 4.91) than among those aged 40 years and older (OR = 2.88). Among the younger age group, improved dental fear decreased the risk of non-habitual dental attendance (OR = 0.16), whilst among older age group, stable fear increased the risk of non-habitual dental attendance (OR = 2.33).

Conclusions: Dental fear causes non-habitual dental attendance and decreasing dental fear increases habitual attendance. Oral health personnel should adapt measures to prevent and treat dental fear.

Introduction

Those with dental fear often report dental avoidance, which includes for example non-habitual and problem-oriented attendance, longer times since last visit, as well as delayed, cancelled and/or no-show appointments[1-21]. In cross-sectional studies, people with high dental fear were more likely than people with moderate or no dental fear to be non-habitual attenders[1-2,7-13,17,19-21]. Among adult Finns, 63% of those with high dental fear and 43% with moderate dental fear visited a dentist non-habitually in the year 2000[10]. In both Finnish and Australian studies, avoidance due to dental fear was less common among the youngest adults[4,10]. The vicious circle of dental fear[22-23] is a hypothesis that dental fear leads to an avoidance of dental treatment, which in turn results in a greater need for treatment. This hypothesis was supported among an Australian cross-sectional study[3].

Only a few longitudinal studies have examined the relationship between dental fear and habitual attendance[6,15-16]. Non-habitual visiting patterns seem to predict the onset of dental anxiety[6,16] and those reporting dental anxiety at any stage during the follow-up were more likely to be non-habitual attenders than those who did not report dental anxiety[6]. However, these studies did not examine simultaneous changes in dental anxiety and habitual attendance.

Even though there is rather strong evidence on the relationship between dental fear and dental avoidance, causality of their relationship has not yet been empirically confirmed. The aim of this longitudinal study was to investigate causal pathways among as well as inter-relationships between changes in dental fear and dental attendance.

Materials and methods

This longitudinal 11-year follow-up study was based on the nationally representative Health 2000 and 2011 Surveys conducted by the National Institute for Health and Welfare in Finland. The study has approval from the Ethical Committees of the National Public Health Institute and for Research in Epidemiology and Public Health at the Hospital District of Helsinki and Uusimaa. The original sample in 2000 consisted of 9,742 individuals aged 18 years and over living in mainland Finland. The Health 2000 Survey used a stratified two-stage cluster sampling design with standard probability sampling routines[24]. Those who were included in the survey in 2000 were invited to participate also in 2011. The sample sizes in different phases of the surveys are presented in Figure 1[25-26]. In both surveys, dental fear, dental attendance and education were assessed via interview. Of the total sample, 3,961 participants (63%) responded to the dental fear question in both years. Drop-out analyses

showed that no statistically significant baseline differences existed by dental fear, gender or education[27]. Of that sample, 330 participants (8%) did not respond to the attendance question in 2000 and were thus not included in this study. Drop-out analyses showed no differences by gender or dental fear, but those who did not respond in 2000 were more likely to be older, have lower education and be non-habitual users in 2011 than those who did respond.

Dental fear and dental attendance were the main variables and background variables were age, gender and education. Dental fear was assessed by a single question: ”How afraid are you of visiting a dentist?”[28]. The single question has been shown to be a valid and reliable measure of dental fear[29.] Response options were 1=“Not at all”, 2=“Somewhat” and 3=“Very much”. In the analyses, those responding “Not at all” were considered non-fearful and the other responses were considered fearful. Dental attendance was assessed with the question: “When do you usually visit a dentist?” Reply alternatives were 1=“Regularly for checkup”, 2=“Only when having pain or some problem” and 3=“Never”. Those responding “Regularly for checkup” were considered habitual users and the rest were considered non-habitual users. Age was first trichotomized to 29–39, 40–54 and 55+ years, and later dichotomized for modeling purposes to 29–39 and 40+ years. Categorization of age was based on the distribution of dental fear and it also reflected major changes in the provision and subsidy of Finnish oral health care. Education was categorized into three levels: basic, secondary and higher educational attainment.

The changes in dental fear were categorized into four levels: stable no-fear, stable high fear, decreased fear and increased fear by comparing the responses to the fear question in the two surveys. The changes in dental attendance were also categorized into four levels: stable habitual use, stable non-habitual use, decreased habitual use and increased habitual use.

We used path analyses to determine whether we should model how changes in fear affected dental attendance or vice versa. We also performed multiple group path analysis to test for configurable invariance; that is, the equivalence of the path model across age groups (unconstrained model). To assess metric invariance (that is invariance with respect to path estimates), a nested model with parameters constrained to be identical between age groups (structural weights model) was compared to a model where parameters were allowed to differ between age groups (unconstrained model). The fit indices used were normed chi-square (χ^2/df), normed fit index (NFI), comparative fit index (CFI), root mean square error of approximation (RMSEA) and Akaike information criterion (AIC). Values χ^2/df<5, NFI>0.90, CFI>0.90 and RMSEA<0.08 indicate reasonably good fit, and values χ^2/df<2, NFI>0.95, CFI>0.95 and RMSEA<0.05 indicate very good fit, and the best model has the smallest

AIC. Within single time points, the arrow between fear and attendance is bidirectional because they are measured simultaneously, and we did not assume the direction. For both paths and bidirectional arrows, standardized estimates were calculated, and those can be interpreted similarly to correlation coefficients. Path analyses were performed using original 3-class variables, maximum likelihood estimation and AMOS 23.0 software.

Dental fear, dental attendance and their changes were evaluated using cross-tabulations and McNemar and chi-squared tests. Logistic regression analyses were conducted separately for the two age groups. Based on the results of the path analyses, we chose to model if the change in dental fear affected dental attendance in 2011 (rather than vice versa), controlled for attendance at 2000, gender, education and age. The dependent variable was dental attendance in 2011 and the independent variables were dental attendance in 2000, gender, education and the 4-class categorical variable describing change in dental fear. Fit of the model was evaluated with Nagelkerke R^2. The level of statistical significance was set at $P<0.05$. These analyses were conducted using SPSS 23.0 software.

Results

According to the final path model, dental fear seems to affect dental attendance rather than vice versa (Figure 2). In the youngest and the oldest age groups this association was negative, but in the middle age group it was positive. Even though path coefficients were rather small (-0.07–0.04), they were statistically significant, while coefficients for the neglected path leading from attendance to dental fear were zero. There was very good fit in four of the used five indices for the unconstrained model indicating configurable invariance; that is, the same path model structure across age groups (Table 1). The difference between the unconstrained model and the nested model (structural weights) was statistically significant, indicating lack of invariance between age groups with respect to path estimates (metric invariance). This means that the model structure was the same, but the strengths of the paths differed in different age groups.

The percentages of participants with high dental fear were 9% and 6% in 2000 and 2011, respectively. Percentages of habitual users in 2000 and 2011 according to dental fear change groups are presented in Table 2 (all P values are presented in Table 2). Among those with stable no-fear during the study, over 60% were habitual users in both years, women more often than men. The habitual use increased 15 percentage points among those men whose dental fear decreased, but among the women almost 30 percentage points. In the youngest age group, among those whose dental fear decreased, the percentage of habitual users more than doubled between 2000 and 2011. However, among 40+-year-

olds habitual dental use increased 15–20 percentage points. Among those who had lower education and whose dental fear decreased six percentage points, they became habitual users between 2000 and 2011. In the medium and higher education groups, habitual dental attendance increased over 20 percentage points among those whose fear had decreased.

The percentages of participants according to changes in dental fear and attendance are presented in Table 3 (all P values <0.001). Half of participants who were in the stable no-fear group remained in the stable habitual user group. Every fourth of those whose fear increased became non-habitual users. Among those whose dental fear decreased, 6% became non-habitual users and almost every third person became habitual users. Among those aged 40years and older, over the half in the stable no-fear group were also stable habitual users. In the youngest age group among those who were in the stable no-fear group, 22% became habitual users and 23% of those who were in the stable fear group became non-habitual users. In the oldest age group among those who were in the stable fear group, 18% became habitual users. Among the 29–54-year-olds, 31–36% of those, whose fear increased became non-habitual users. In the oldest age group only 7% did so. In the oldest age group among those whose fear increased, 50% belonged to the stable non-habitual user group. However, among those aged 29–54 years, 28–36% did so. In the youngest age group over half of those whose fear decreased became habitual users when in the older age group every fourth person did so.

The outcomes of age-specific logistic regression models on the effect of change in dental fear on dental attendance in 2011 adjusted for gender, education and dental attendance in 2000 are presented in Table 4. When confounders were considered, in both age groups (29–39 years and 40 years and older) an increase in fear predicted non-habitual dental attendance. This association was stronger among the younger age group (OR = 4.91) than among those aged 40 years and older (OR = 2.88). Among the younger age group, also improved dental fear lowered the risk of non-habitual dental attendance (OR = 0.16), whilst among older age group, stable fear increased the risk of non-habitual dental attendance (OR = 2.33).

Discussion

Dental fear increased non-habitual dental attendance rather than vice versa. Stable and increasing dental fear predicted non-habitual dental attendance especially among those who were younger than 55 years of age.

These findings confirmed those of an earlier longitudinal study about the effects of development of dental fear on dental attendance[6] while other longitudinal studies have looked at attendance patterns as a predictor of dental fear[15-16]. Even though the path coefficients from dental fear to dental attendance were small, the model showed good fit and provided justification for further age-specific modelling. In the older age group non-habitual attendance in 2000 was a stronger predictor than stable or increasing dental fear for non-habitual dental attendance in 2011. However, in the younger age group, increasing dental fear was a stronger predictor than non-habitual attendance in 2000 for non-habitual attendance in 2011. Decreasing fear was an even stronger predictor for habitual attendance strongly supporting punctual treatment of dental fear.

Changes in the Finnish oral health care system such as subsidy of expenses have probably influenced dental attendance among different age groups. Free public oral health care was provided in 1957 for children 7–14 years of age and in 1972 to all under 17-year-olds[30]. Gradually from 1988 to 1990, adults born in 1956 or latter were included in partly subsidized public or private oral health care, which in 2002 was extended to cover the entire population. The 29–39-year-olds in 2011 were entitled to free public oral health care until age 18, often including regular recalls for check-ups, and to subsidized care after that. Thus, regular childhood visits and life-long subsidized care in the youngest age group might be one explanation for habitual dental attendance despite dental fear. This is supported by a previous study where the association between dental fear and dental attendance was non-significant among younger age groups but was stronger in each older age group[10]. In the oldest age group those with dental fear were almost nine times more likely to be non-habitual users than those with low or no dental fear.

A strength of this study was its large and a nationally representative follow-up sample. Over 3,600 participants responded to the valid single question of dental fear[29] and the question of dental attendance in 2000 and 2011. The question of dental fear was asked in non-dental interviews thus reaching also non-habitual users. As most drop-outs were due to death, the non-response analyses were used instead of drop-out data. Differences according to participants' dental fear, marital status, gender or education were not observed in 2000. Those who were not asked the single question about dental fear (i.e. participants taking part in the home health examination or to short postal or telephone questionnaires) were more often single, had basic education or were more often under 40 or over 74 years in age or were very afraid of dentist in 2000. Also, the long follow-up period may partly be a reason for missing values affecting the generalizability of the findings. Use of a single item with only three response options is also a weakness. The variables were assessed as raw self-report responses which increases error variance. Future longitudinal studies should consider using multi-item scale

measures to enable the assignment of latent variables to enable statistical control of systematic or error variance. This study did not assess how often users visited a dentist for check-up and whether they continued the treatment they needed due to the findings in the check-up or consider other factors such as psychological well-being which is associated with dental fear among adult Finns[31] and might also affect dental attendance.

In conclusion, dental fear causes non-habitual dental attendance, but decreasing dental fear increases habitual attendance. Dentists and other oral health personnel should adapt measures to prevent and treat dental fear.

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References

1. Goettems ML, Schuch HS, Demarco FF, Ardenghi TM, Torriani DD. Impact of dental anxiety and fear on dental care use in Brazilian women. *J Public Health Dent*. 2014;74:310-316.
2. Hill KB, Chadwick B, Freeman R, O'Sullivan I, Murray JJ. Adult dental health survey 2009: Relationships between dental attendance patterns, oral health behaviour and the current barriers to dental care. *Br Dent J.* 2013;214:25-32.
3. Armfield JM. What goes around comes around: Revisiting the hypothesized vicious cycle of dental fear and avoidance. *Community Dent Oral Epidemiol.* 2013;41:279-287.
4. Armfield J. The avoidance and delaying of dental visits in Australia. *Aust Dent J.* 2012;57:243-247.
5. Crocombe LA, Broadbent JM, Thomson WM, Brennan DS, Poulton R. Impact of dental visiting trajectory patterns on clinical oral health and oral health-related quality of life. *J Public Health Dent.* 2012;72:36-44.
6. Crocombe LA, Broadbent JM, Thomson WM, Brennan DS, Slade GD, Poulton R. Dental visiting trajectory patterns and their antecedents. *J Public Health Dent.* 2011;71:23-31.
7. Pohjola V, Lahti S, Tolvanen M, Hausen H. Dental fear and oral health habits among adults in Finland. *Acta Odontol Scand.* 2008;66:148-153.
8. Armfield JM, Stewart JF, Spencer AJ. The vicious cycle of dental fear: Exploring the interplay between oral health, service utilization and dental fear. *BMC Oral Health.* 2007;7:1.
9. Meng X, Heft MW, Bradley MM, Lang PJ. Effect of fear on dental utilization behaviors and oral health outcome. *Community Dent Oral Epidemiol.* 2007;35:292-301.
10. Pohjola V, Lahti S, Vehkalahti MM, Tolvanen M, Hausen H. Association between dental fear and dental attendance among adults in Finland. *Acta Odontol Scand.* 2007;65:224-230.
11. Sohn W, Ismail AI. Regular dental visits and dental anxiety in an adult dentate population. *J Am Dent Assoc.* 2005;136:58-66.
12. Ragnarsson B, Arnlaugsson S, Karlsson KO, Magnusson TE, Arnarson EO. Dental anxiety in Iceland: An epidemiological postal survey. *Acta Odontol Scand.* 2003;61:283-288.
13. Schuller AA, Willumsen T, Holst D. Are there differences in oral health and oral health behavior between individuals with high and low dental fear? *Community Dent Oral Epidemiol.* 2003;31:116-121.
14. Skaret E, Raadal M, Kvale G, Berg E. Gender-based differences in factors related to non-utilization of dental care in young Norwegians. A longitudinal study. *Eur J Oral Sci.* 2003;111:377-382.

15. Maggirias J, Locker D. Five-year incidence of dental anxiety in an adult population. *Community Dent Health.* 2002;19:173-179.
16. Poulton R, Waldie KE, Thomson WM, Locker D. Determinants of early- vs late-onset dental fear in a longitudinal-epidemiological study. *Behav Res Ther.* 2001;39:777-785.
17. Hägglin C, Hakeberg M, Ahlqwist M, Sullivan M, Berggren U. Factors associated with dental anxiety and attendance in middle-aged and elderly women. *Community Dent Oral Epidemiol.* 2000;28:451-460.
18. Thomson WM, Locker D, Poulton R. Incidence of dental anxiety in young adults in relation to dental treatment experience. *Community Dent Oral Epidemiol.* 2000;28:289-294.
19. Moore R, Birn H, Kirkegaard E, Brødsgaard I, Scheutz F. Prevalence and characteristics of dental anxiety in Danish adults. *Community Dent Oral Epidemiol.* 1993;21:292-296.
20. Vassend O. Anxiety, pain and discomfort associated with dental treatment. *Behav Res Ther.* 1993;31:659-666.
21. Milgrom P, Fiset L, Melnick S, Weinstein P. The prevalence and practice management consequences of dental fear in a major US city. *J Am Dent Assoc.* 1988;116:641-647.
22. Hakeberg M. Dental anxiety and health. A prevalence study and assessment of treatment outcomes. *Thesis*, Göteborg, Sweden. University of Gothenburg, 1992:12-13.
23. Berggren U, Meynert G. Dental fear and avoidance: Causes, symptoms, and consequences. *J Am Dent Assoc.* 1984;109:247-251.
24. Aromaa A, Koskinen S. Population and Methods. In: Aromaa A, Koskinen S, editors: Health and functional capacity in Finland. Helsinki, Finland. *Publications of the National Public Health Institute* B/2004:11-23.
25. Aromaa A. Introduction. In: Heistaro S, editor: Methodology report. Health 2000 Survey. Helsinki, Finland. *Publications of the National Public Health Institute* B26/2008:11.
26. Laiho J, Djerf K, Lehtonen R. Sampling design. In: Heistaro, S, editor: Methodology report. Health 2000 Survey. Helsinki, Finland. *Publications of the National Public health Institute* B26/2008:13-15.
27. Liinavuori A, Tolvanen M, Pohjola V, Lahti S. Changes in dental fear among Finnish adults: A national survey. *Community Dent Oral Epidemiol.* 2016;44:128-134.
28. Vehkalahti A, Nordblad A, Suominen-Taipale L, Arinen S, Hallikainen D, Hausen H, Knuuttila M, Söderholm A-L, Varsio S, Soikkonen K, Könönen M, Pietilä T. Introduction. In: Heistaro S, editor: Methodology report. Health 2000 Survey. Helsinki, Finland. *Publications of the National Public Health Institute* B26/2008:78-91.

29. Viinikangas A, Lahti S, Yuan S, Pietila I, Freeman R, Humphris G. Evaluating a single dental anxiety question in Finnish adults. *Acta Odontol Scand.* 2007;65:236-240.
30. Raittio E. Use of Oral Health Care Services and Perceived Oral Health after the Oral Health Care Reform Introduced during 2001–2002. Kuopio, Finland. University of Eastern Finland, Faculty of Health Sciences Publications of the University of Eastern Finland. *Dissertations in Health Sciences* 345. 2016:5-10.
31. Pohjola V, Mattila AK, Joukamaa M, Lahti S. Anxiety and depressive disorders and dental fear among adults in Finland. *Eur J Oral Sci* 2011;119:55–60.

Figure 1. Participants in different phases of the study of longitudinal inter-relationships between dental fear and dental attendance among adult Finns.

Figure 2. Standardized estimates for the path model on the effect of dental fear (1="Not at all", 2="Somewhat" and 3="Very much") on dental attendance (1="Regularly for checkup", 2="Only when having pain or some problem" and 3="Never") in age groups (age in 2011 29-39/40-54/55 + years) among adult Finns.

Table 1. Fit indices for the unconstrained and structural weights path models on the effect of dental fear on dental attendance in age specific data among adult Finns.

Model	χ^2	df	χ^2/df	NFI	CFI	RMSEA	AIC	P
Unconstrained	95.660	14	6.833	0.954	0.960	0.038	151.660	
Structural weights	217.421	22	9.883	0.895	0.904	0.047	257.421	
Difference	121.761	8						<0.001

Table 2. The percentages of habitual users of oral health services in 2000 and 2011, according to dental fear change groups among adult Finns.

	Year	All	Stable no-fear	Stable high fear	Decreased fear	Increased fear	[2)] P
All	n		**3226**	**126**	**185**	**94**	
	2000	61	63	49	42	49	<0.001
	2011	61	67	47	64	37	<0.001
	[1)] P		<0.001	0.845	<0.001	0.099	
Men	n		**1498**	**31**	**56**	**34**	
	2000	54	55	29	39	32	<0.001
	2011	55	60	36	54	23	<0.001
	[1)] P		0.005	0.687	0.096	0.549	
Women	n		**1728**	**95**	**129**	**60**	
	2000	68	70	56	43	61	<0.001
	2011	66	73	51	70	47	<0.001
	[1)] P		0.029	0.503	<0.001	0.167	
29–39	n		**425**	**15**	**22**	**26**	
	2000	48	48	54	36	48	0.660
	2011	58	58	38	84	28	<0.001
	[1)] P		<0.001	0.625	0.002	0.267	
40–54	n		**1118**	**64**	**76**	**33**	
	2000	64	65	52	48	59	0.015
	2011	67	69	44	63	41	<0.001
	[1)] P		0.042	0.344	0.078	0.267	
55+	n		**1683**	**47**	**87**	**35**	
	2000	63	66	45	38	39	<0.001
	2011	59	68	50	58	43	0.001
	[1)] P		0.201	0.774	0.001	0.999	
Low educ.	n		**680**	**20**	**46**	**19**	
	2000	54	57	17	33	28	<0.001
	2011	47	58	33	39	31	0.127
	[1)] P		0.700	0.453	0.004	>0.999	

Med	n		**1118**	**51**	**69**	**43**	
	2000	58	59	51	39	45	0.006
	2011	60	65	47	64	29	<0.001
	[1)] P		0.004	0.754	0.003	0.180	
High	n		**1428**	**55**	**70**	**32**	
	2000	68	69	58	51	73	0.015
	2011	71	73	51	73	50	<0.001
	[1)] P		0.014	0.508	0.012	0.109	

1) P values are evaluated by McNemar tests

2) P values are evaluated by chi-square tests.

Table 3. Distribution (%) of changes in habitual use of oral health services among adult Finns, separately in different groups according to changes in dental fear.

	Dental attendance		Stable no-fear	Stable high fear	Decreased fear	Increased fear	[1)] P
All		n	3226	126	185	94	
	Stable habitual		51	35	36	25	<0.001
	Stable non-habitual		21	40	30	38	
	Became habitual		16	11	28	13	
	Became non-habitual		12	14	6	24	
29–39 yrs.		n	425	15	22	26	
	Stable habitual		36	31	32	12	<0.001
	Stable non-habitual		30	38	12	36	
	Became habitual		22	8	52	16	
	Became non-habitual		12	23	4	36	
40–54 yrs.		n	1118	64	76	33	<0.001
	Stable habitual		53	39	39	27	
	Stable non-habitual		19	43	28	28	
	Became habitual		16	5	24	14	
	Became non-habitual		12	13	9	31	
55+ yrs.		n	1683	47	87	35	<0.001
	Stable habitual		54	32	35	32	
	Stable non-habitual		20	37	39	50	
	Became habitual		14	18	23	11	
	Became non-habitual		12	13	3	7	

1) P values are evaluated by McNemar test.

Table 4. Results of age-specific logistic regression models for the effect of change in dental fear on dental attendance (1=non-habitual) in 2011 controlled for gender, education and dental attendance in 2000 among adult Finns.

		P	OR	95% CI
Aged	Gender (1=male)	0.004	1.84	1.21–2.81
29–39 yrs	Attendance -00 (1=non-habitual)	<0.001	3.53	2.33–5.36
R^2=0.218	Education (ref. low)	0.213		
	Medium	0.710	0.81	0.27–2.47
	High	0.322	0.57	0.19–1.74
	Dental fear (ref. stable no-fear)	<0.001		
	Stable fear	0.085	2.87	0.86–9.52
	Decreased fear	0.002	0.16	0.05–0.53
	Increased fear	0.001	4.91	1.84–13.10
Aged 40+	Gender (1=male)	<0.001	1.50	1.25–1.80
R^2=0.244	Attendance -00 (1=non-habitual)	<0.001	5.70	4.75–6.85
	Education (ref. low)	<0.001		
	Medium	0.002	0.70	0.56–0.88
	High	<0.001	0.58	0.46–0.73
	Dental fear (ref. stable no-fear)	<0.001		
	Stable fear	<0.001	2.33	1.45–3.74
	Decreased fear	0.951	1.01	0.68–1.50
	Increased fear	0.001	2.88	1.58–5.24