Comparative Dental Caries Activity in Dropouts and Non-Dropouts from a Three-Year Study

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Design of a clinical study to determine the impact of an experimental agent or regimen on dental caries activity must balance a number of interacting variables to yield meaningful results. At the outset, caries experience must be determined for each subject to permit sample stratification that will, in addition to age and sex, divide dental caries risk equally between the experimental groups. Unfortunately, some individuals discontinue participation during the course of the study. How damaging this will be to group caries risk equality depends on several factors, some obvious and others inapparent. For example, a correlation might exist between those habits or attitudes that are expressed overtly in discontinuance of participation and the measure under examination—dental caries activity. Could it be that dropouts have a peculiar or unusual dental caries rate or risk, and, by withdrawing unequally from experimental groups, do they destroy otherwise legitimate sample comparability? This study examines comparability of dental caries experience during a one-year period in two study samples; one group subsequently discontinued participation and the other completed all three years of the study.

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Ann Arbor seventh grade public school children of both sexes were enrolled into a permissive dental caries prevention study by parental consent. Dental caries activity was determined initially and annually thereafter. Examinations were conducted by two experienced dentists. One conducted all clinical examinations; the other conducted all radiographic examinations at the 0, 12, 24, and 36 month intervals. Participants were instructed individually in oral hygiene by a hygienist; this was followed by supervised brushing. The participant was seated in a head-rest-equipped portable dental chair and teeth were examined with a mirror and explorer. High intensity light was carried uniformly to each of the individual's teeth by a fiber optic light catheter within a hollow-handled mouth mirror. Verbalized observations were recorded on IBM forms (by another dentist). Seven X rays (bitewing and anterior) were taken per individual per year. Of the participants, 544 were examined at both the initial and one-year anniversary. Those present at examinations one and two, but who subsequently discontinued participation, comprised the dropout sample (188 individuals). The remaining 356 individuals continued participation for three years.

The table indicates the similarity between the two groups. No statistically significant differences were found between groups in initial, final, or incremental DMF teeth or DMF surfaces.

Discontinuance of participation thus was unrelated to caries activity.

DENTAL CARIES ACTIVITY IN DROPOUTS AND NON-DROPOUTS

	Dropouts (188) Mean	Participants (356) Mean	Dropouts SD*	Participants SD	Difference	Percent	*t*
Age (in years)	13.14	13.09	0.43	0.38	−0.05	0.39	−1.36
Sex	0.54†	0.51†	0.50	0.50	−0.03	−6.13	−0.69
Initial DMF teeth	4.74	4.59	3.36	2.89	−0.15	−3.31	−0.53
Initial DMF surfaces	6.61	6.26	5.15	4.60	−0.35	−5.51	−0.77
Final DMF teeth	5.73	5.71	3.91	3.33	−0.02	−0.37	−0.06
Final DMF surfaces	8.01	7.60	6.40	5.27	−0.40	−5.28	−0.74
Increments DMF teeth	1.51	1.59	1.54	1.58	0.08	4.82	0.55
Increments DMF surfaces	2.55	2.35	2.72	2.42	−0.20	−8.72	−0.87

* SD, standard deviation.

† Male = 1; female = 0.