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Recruiting Rural Dentally – Avoidant Adolescents into an Intervention Study

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Abstract

AIM—To carry out a study designed to test an intervention to increase dental attendance in rural dentally-avoidant adolescents, to identify and recruit eligible adolescents.

STUDY DESIGN AND METHODS—This study used a cross-sectional design to identify eligible adolescents. A total of 2,762 adolescents (60% of the enrolled students) from junior high and senior high schools in a rural county in Washington State (USA) were given a dental examination with a light and mirror by calibrated dental examiners using WHO criteria. Parents of children with serious dental needs were urged to seek dental care for their adolescent children. They were offered the chance to enrol their child in a study comparing two programs designed to help the adolescent decide whether to seek out dental care. A second group of emancipated adolescents and young adults (aged < 26 years) receiving services at the local college and health department was also screened, and eligible individuals were also offered the chance to enrol.

RESULTS AND STATISTICS—Only 23 (6%) of 357 eligible junior and senior high school adolescents enrolled, compared with 24 (67%) of the 36 eligible emancipated adolescents and young adults. A second follow-up letter was sent to the 85 parents of un-enrolled adolescents with the most severe caries, offering direct assistance in obtaining dental care for their children; only 3 families responded.

CONCLUSIONS—This study illustrates the difficulty in engaging adolescents in their oral health and utilization of oral health interventions. The results also suggest that slightly older rural individuals are more interested in and/or able to overcome barriers to seeking out dental care. Alternative strategies are suggested for recruiting avoidant adolescents.

Keywords

dental avoidance; adolescent; rural population; research subject recruitment

Introduction

Lack of dental treatment leads to serious dental problems and a lowered quality of life [Berggren and Meynert, 1984]. Rural children in North America, as elsewhere, have higher rates of dental disease than the rest of the population [Caplan and Weintraub, 1993], making it particularly important to ensure that they attend the dentist regularly. Among rural children, adolescents are an important target group as they are no longer under direct parental supervision and may decide on their own to stop making dental appointments [Gatchel 1989; Todd and

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Lader, 1991; Hawley and Holloway, 1992; Adekoya-Sofowora et al., 1996]. Further, as adolescents may soon be parents themselves, their dental behaviours are likely to influence the dental health of the next generation.

Dental caries penetrating into dentine may be an indication that the adolescent has elected not to visit a dentist for at least a year, in that caries of this magnitude has likely been present for at least a year [Shwartz et al., 1984; Mejàre et al., 1999], and is likely to have been noticed by the adolescent him/herself. Using this criterion for dental avoidance, cases (adolescents with dentine or more severe caries) were matched with controls (adolescents with a similar history of treated caries but no current dentinal caries) in a rural area in Washington state [Skaret et al., 2004]. Cases rated both their own oral health and that of their mothers as being significantly poorer than that of a control group of children. Furthermore, those adolescents stated that they did not plan to go to a dentist, although they recognized that they had severe dental problems [Skaret et al., 2004]. A second study with adolescent dental avoiders demonstrated the feasibility of using a brief counselling technique as an intervention to increase the likelihood that such adolescents would decide to go to a dentist [Skaret et al., 2003].

The aims of the research were firstly to screen adolescents in a rural county in Washington State in the USA and to estimate the prevalence of severe untreated dental caries. The second aim was to recruit adolescents with more severe untreated visible caries into an intervention study; and finally to compare the effectiveness of two brief counselling interventions to increase the number of adolescents who decide to seek out dental care. This preliminary paper will report the results of the first two aims only (screening and recruitment efforts).

Materials and Methods

Junior High and Senior High Schools

Consent letters were mailed to all parents describing the dental screening, and also stated that some adolescents would be eligible for another dental project (i.e., the intervention study) for which they would be paid. Parents were directed to inform their school if they did not want their child to be screened. Students whose parents had not declined to allow them to participate in the screening gave verbal assent at the time of the screening.

Students were screened at school during school hours using the WHO criteria [World Health Organization, 1979] by dental examiners who had been calibrated previously (kappa values ranged from 0.85 to 1.00). Each tooth was rated as Sound (S), Filled (F), Missing (M), or Decayed (D). The level of decay was based on the WHO criteria as follows: D1 = initial caries, D2 = caries of enamel, D3 = caries of dentine, D4 = caries of probable pulpal involvement. If a tooth showed evidence of both a restoration and current decay, it was scored FD and the decay level was also noted. Students received a toothbrush or similar item as an incentive. Also, students were told that some of them might be invited to participate in another dental project (i.e., the intervention study) and could earn $20.

Recruitment into the intervention study

Because almost all of the students were minors, the Institute Review Board required that both parents and adolescents sign consent/assent forms to participate in the intervention study. In the first year, eligibility was defined as having at least one tooth coded D3 (or higher). As recruitment was low, in the second year the criterion was lowered to having at least one tooth coded D2 (or higher).

After the school-based screening, all parents received letters describing the extent of their children's dental needs. Parents of children who met the eligibility criterion were urged to seek dental care for their children and were offered the chance to enrol their child in the intervention

study. The study was described as a comparison of two different methods, both of which were designed to encourage adolescents to seek dental care. Adolescents would be paid $20 for their participation. Interested parents signed consent forms. Eligible adolescents also received information about the study; those who were interested signed assent forms.

For ethical reasons, free dental care was arranged for those adolescents who enrolled in the intervention study and decided to go to a dentist but did not have the resources to pay for care. (This was not disclosed to the adolescents or their parents in recruitment materials.) However, as recruitment was less successful than anticipated (see Results), some of the free dental care was allocated to those adolescents with the most severe caries (D3 or D4) who had refused to participate in the intervention study. After recruitment ended, the parents of these adolescents were sent a new letter offering assistance in obtaining dental care for their child.

Other Special Adolescent and Young Adult Populations

When initial recruitment efforts were not as successful as had been hoped (see Results), two additional groups of older adolescents and young adults, thought to be likely to have serious dental problems due to low income, were screened. The groups included adolescents in at-risk programs from a local college and young clients (under age 26 yrs) from the local health department. Screening and recruitment procedures were similar, except that these individuals were screened at either the college or the local health department, and did not require parental consent for either the screening or enrolment into the study as they were of legal age or emancipated.

Results

Junior and Senior High School Screenings and Recruitment

The superintendents of all 22 junior high and senior high schools in the county agreed to participate. A total of 2,762 adolescents from 20 of the 22 schools were screened, representing 60% of the junior and senior high school population in the county. As seen in Table 1, 357 (13%) of them had severe caries and qualified for the intervention study of whom 23 agreed to be in the study. One additional parent gave consent for her adolescent, but the adolescent refused to participate. Of the adolescents who had refused to enrol 85 had caries of D3 or D4, and a letter offering direct assistance in obtaining dental care was mailed to their parents. Only 3 of the 85 parents responded to the offer.

Special Adolescent Screenings and Recruitment

There were 63 individuals screened from the special adolescent at-risk programs at the local college. As summarized in Table 1, 16 individuals qualified for the study but only 7 enrolled in the study.

Health Department Screenings and Recruitment

A total of 59 young adults under age 26 years were screened at the local health department. As seen in Table 1, 20 individuals qualified for the study, and 17 of these agreed to be in the study. Thus, a total of 36 out of 122 (30%) of the older adolescents (from the at-risk special adolescent programs) and young adults (health department clients) were eligible for the study. Of these 36, 24 (67%) agreed to be in the study.

Discussion

Adolescents

These results of traditional screening examinations of adolescents in school-based settings were not encouraging. Others have reported similar difficulties. For example, Hattne and colleagues [2007] found that fewer than 40% of adolescents would even participate in a study of oral health attitudes, while Östberg and colleagues [2002] found an even lower rate of participation in a qualitative study of adolescent attitudes. Craven and others [1994] reported that incentives were ineffective and found apathy and a lack of a felt need for dental care in their adolescent sample. Further, even adolescents who recognize that they have serious dental problems are likely to state that they do not plan to go to a dentist [Skaret et al., 2004].

There are considerable data that indicate human development may play a significant role in understanding the motivation of adolescents in the study. Adolescents take risks older individuals would not. This is attributed to a lack of self-regulatory competence, which is not fully mature until early adulthood [Steinberg, 2004]. Younger adolescents are especially likely to demonstrate a sense of ‘invincibility’, and may claim that the logical outcome of certain choices, such as poor oral health resulting from refusing to seek out dental care ‘can’t happen to me’ [Arnett, 1992; Rolinson and Scherman, 2002]. Health choices and behaviours typically become more mature by later adolescence, as the older adolescent’s sense of invincibility lessens and longer-term outcomes of behaviours are more likely to be considered [Michaud et al., 2006].

Adolescent-parent Dyad

Other researchers have noted that school-based dental screenings do not increase children’s dental attendance rates or reduce their caries rates [Milsom et al., 2006; Milsom, 2007]. Thus, alerting parents to their children’s dental needs does not necessarily mean that the parents will act to obtain dental care for the children. In this study, only 3 of the 85 parents responded to the letter offering assistance in getting needed dental work for their adolescents. Not only were the adolescents not ready to receive dental care, the lack of parental response to the letter supports Skaret et al.’s [2004] findings that parental beliefs are important in predicting adolescents’ oral behaviours. This means that any study with dentally-avoidant adolescents requires changing the behaviour/attitudes of two people: the adolescent and the parent! This was beyond the scope of this study.

Alternative Approaches

Many of the adolescents in the at-risk adolescent programs, and most of the young adults in the Health Department sample, were young parents or were expecting a child. It is noteworthy that a greater percentage of eligible individuals from these samples enrolled in the study, compared with the adolescents screened in the schools, which may be related to the developmental changes described previously and/or to factors related to being a young or expectant parent.

Studies of behaviour change during pregnancy are often positive. Pregnancy is viewed as a ‘window of opportunity’ with regular contact with health professionals, as well as a time for re-evaluating lifestyle and modifying habits [Ruggiero et al., 2000]. For example, the Cochrane Database review of the smoking cessation literature concludes that programs offered during pregnancy reduce the proportion of women who smoke [Lumley et al., 2004].

Future studies with dentally-avoidant adolescents should recognize that attitudes towards dentistry may affect both participation in a study and desire to visit the dentist or engage in health-related behaviours. Rather than screen (i.e., examine) adolescents prior to recruitment

and then trying to recruit those with serious dental needs, it may be more effective to recruit subjects into a multi-staged study: i.e., first assess dental attitudes, and then ask about willingness to participate in the next stage of the research, which may involve a dental exam depending on the study design. As adolescents progress through the protocol, variations in attitudes can be used to assign them to specific conditions or other aspects of the protocol. Grembowski's model of decision-making stages [Grembowski et al., 1989] can facilitate the development of a multi-staged protocol. Such a study would be economic in terms of the use of the time of dental professionals and would personalize the appeal to adolescents, an approach that is necessary given the failure of mass appeals to participate in health-related activities.

Conclusion

This study showed poor success in recruiting adolescents with serious caries into the intervention project. While there was better success recruiting emancipated adolescents and health department clients, one-third of those who were eligible refused to participate. These results are similar to those reported by others, who note the difficulties involved in eliciting interest in dental studies among dentally-avoidant adolescents.

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Table 1

Screened Individuals, Eligible Individuals, and Enrolled Individuals by Source in a study of adolescents in Washington County (USA).

Source	Number Screened	Number Eligible for Intervention Study (% of Individuals Screened)	Number Enrolled in Intervention Study (% of Eligible Individuals)
Junior High and High Schools	2,762	357 (13%)	23 (6%)
At-Risk Programs	63	16 (25%)	7 (44%)
Health Department	59	20 (34%)	17 (85%)