

Utilization of dental services by Finnish seamen

Tiina Holttinen, Heikki Murtomaa, Heikki Saarni, Jaana Pentti and Ilpo Alvesalo

Department of Dental Public Health, Institute of Dentistry, University of Helsinki, Helsinki, and Regional Institute of Occupational Health, Turku, Finland

Holttinen T, Murtomaa H, Saarni H, Pentti J, Alvesalo I. Utilization of dental services by Finnish seamen. *Acta Odontol Scand* 1994;52:77-81. Oslo. ISSN 0001-6357.

Utilization of dental services by Finnish seamen was surveyed late in 1990. Three hundred and sixty-five respondents on different vessels at sea for more than 5 days returned a pretested questionnaire. A randomly drawn control group of 230 workers at a ventilation-equipment-producing plant was also surveyed. Fifty-five per cent of the seamen studied and 73% of the control group stated they had visited a dentist within the year before the survey. One-third of the seamen stated that an acute dental condition had been the reason for their last dental visit. Almost one-third of the seamen and 5% of the control group reported having last visited a dentist at a health center. When questioned separately, 14% of the seamen stated that they had not received dental treatment fast enough when needed. One-third of the seamen surveyed offered ideas for improving their dental services, half of them suggesting an increase in facilities and personnel at health centers for seamen. Periodic oral examinations for and full use of oral health self-care procedures by seamen are recommended. □ *Occupational health; oral health care; questionnaires*

Heikki Murtomaa, Department of Dental Public Health, Institute of Dentistry, P.O.B. 41, FIN-00014 University of Helsinki, Helsinki, Finland

According to International Labour Organization (ILO) convention 73/1946, seamen should be medically examined every 2nd year (1). These medical examinations are to ensure that every seaman is fit for service at sea, that work aboard ship can be safely undertaken, and that any seaman at risk of falling ill or becoming unable to work aboard ship is identified. Seamen whose health is at risk are to be excluded from service at sea.

One of the deck officers is nowadays in charge of medical treatment aboard Finnish ships. These officers receive medical training but almost no dental training. In case of dental emergency they receive their dental knowledge from the medical guide that must form part of the medical equipment under international regulations relating medical equipment aboard ship (2). The aim of emergency treatment is to relieve pain and to prevent deterioration of the seaman's condition until dental treatment ashore is available (3).

It is commonly believed that regular dental visits have positive effects on oral health. The long journeys and irregular working hours of seamen greatly hinder use of dental

care. The present study was conducted to establish more information about the utilization of dental services by Finnish seamen.

Materials and methods

Three hundred and sixty-five Finnish seamen representing people working on different vessels responded late in 1990 to a survey mapping out their dental health behavior and health care for seamen. The questionnaires were sent to the Finnish shipping companies, which passed them on to all seagoing employees. Response rate was 66%. The vessels included tankers, cargo ships, containers, ferries, and icebreakers. Ships at sea less than 5 days in traffic were excluded. The mean age of the subjects was 39.9 years (SD, 9.4 years), and 74% of the surveyed were men. Thirty-eight per cent of all the surveyed were officers, and 62% were crew. Twelve per cent of the respondents worked on tankers, 13% on cargo ships, 18% on containers, 29% on ferries, and 28% on icebreakers. The working period aboard ship ranged between 5 to 15 days in the case of 44% of

seamen, 16 to 30 days in the case of 31%, and 31 to 240 days in the case of 25%.

For the age group from 35 to 44 years—corresponding to the average age of the respondents—a control group was randomly drawn from the personnel in a ventilation-equipment-producing plant with a total of 800 employees. The control group of 230 persons consisted of all workers, both blue and white collar, at this plant. The distribution of age, education, and sex was equivalent between the groups.

The following aspects were surveyed by a pretested questionnaire: time since last dental appointment and possible waiting time for it, usual reason for visiting the dentist, and last place of dental treatment. The seamen surveyed were further asked to present either ideas or suggestions about how dental care for seamen might be improved.

Suggestions for the improvement of dental care given by the respondents were in analysis classified into four groups: 1) subsidy—that is, subsidy for use of private dentists or free dental care at a health center for seamen; 2) company's involvement—that is, obligatory dental check-ups, dental check-up as part of general medical check-ups, or arrangements for dental treatment by the shipping company; 3) dental personnel—that is, increase in dental personnel or increase in facilities for seamen only; and 4) information—that is, dissemination of dental-health-related information.

The data were analyzed by cross-tabulation. The statistical significance of differences between background variables was tested by using the chi-square test. Values of $p < 0.05$ were accepted as statistically significant.

Results

Fifty-five per cent of the 365 seamen studied and 73% of the 230 controls reported that they had seen a dentist within the year before the survey ($p < 0.01$). Twenty-nine per cent of the seamen reported that they had seen a dentist within the preceding 2 years. Women at sea reported a significantly shorter mean period since the last dental appointment than

Table 1. Time since last dental visit reported by 365 Finnish seamen, by sex, rank, type of vessel, and work period (%)

	Respondents		<1 year	1-2 years	>2 years
	n	%			
Sex					
Man	270	74	52	29	19
Woman	95	26	64*	27	8
Rank					
Officer	140	38	53	32	15
Crew member	225	62	57	27	16
Type of vessel					
Tanker	44	12	52	27	20
Cargo ship	46	13	48	28	20
Container	64	18	53	30	17
Ferry	105	29	56	32	11
Icebreaker	105	28	60	32	14
Working period					
5-15 days	160	44	57	30	13
16-30 days	115	31	57	28	15
31-240 days	90	25	50	28	22

* $p < 0.05$.

men (Table 1). Those who had removable dentures visited dentists less frequently than those who did not in both groups. Sixty-three per cent of the seamen with removable dentures reported having last seen a dentist more than 1 year previously.

Nearly one-third of the visits by the seamen to a dentist had been made only because of a need for emergency care (Table 2). Such visits were significantly more common among crew than among officers. Seamen who worked on cargo ships visited a dentist significantly more often ($p = 0.05$) because of a need for emergency care than those sailing on other vessels. If a seaman had last seen a dentist more than 2 years previously, 74% of the visits had been because of emergency care only.

Almost one-third of the seamen reported having last visited a dentist at a health center for seamen, 22% had attended a public health center, 46% a private dentist, and 4% had seen a dentist elsewhere. Five per cent of the control group had visited a dentist at a health center, whereas 24% had visited a private dentist. The differences between the groups are highly significant ($p < 0.0001$).

Table 2. Usual reason for the Finnish seamen surveyed to have visited a dentist, by sex, rank, type of vessel, and work period (%) ($n = 358$)

	Respondents		Only for emergency care	Other reasons
	<i>n</i>	%		
Sex				
Man	265	74	29	71
Woman	93	26	24	76
Rank				
Officer	135	38	20	80
Crew member	223	62	32*	68
Type of vessel				
Tanker	43	12	26	74
Cargo ship	45	13	42	58
Container	65	18	34	66
Ferry	104	29	26	74
Icebreaker	101	28	20	80
Working period				
5-15 days	160	45	28	72
16-30 days	111	31	23	78
31-240 days	88	24	33	67

* $p < 0.05$.

Officers and those working on cargo ships had visited private dentists more often than the others ($p < 0.001$) (Table 3).

When questioned separately, 14% of the seamen stated that they had not received

dental treatment fast enough when needed. The largest group of them sailed on tankers (23%). Seventeen per cent of the respondents reported that they had sought aid for dental problems while at sea, the largest

Table 3. Last place of dental treatment, by sex, rank, type of vessel, and work period, as reported by the Finnish seamen surveyed (%) ($n = 365$)

	Respondents		Health center for seamen	Public health center	Private dentist	Elsewhere
	<i>n</i>	%				
Sex						
Men	271	74	28	20	48	3
Women	94	26	30	27	37	6
Rank						
Officer	140	38	19	19	60***	2
Crew member	225	62	35	24	36	5
Type of vessel						
Tanker	44	12	9	43	43	5
Cargo ship	46	13	9	33	54***	4
Container	64	18	27	22	48	3
Ferry	106	29	32	21	42	6
Icebreaker	104	28	44	9	44	3
Working period						
5-15 days	161	44	30	21	44	5
16-30 days	114	31	41	11	45	3
31-240 days	90	25	10***	37	49	4

*** $p < 0.001$.

Table 4. Suggestions offered by the Finnish seamen surveyed about how their dental care might be improved, by rank and type of vessel (%) ($n = 117$)

	Respondents		Subsidies	More dental personnel	More information	Company support
	<i>n</i>	%				
Rank						
Officer	56	48	25	50	13	13
Crew member	61	52	34	47	11	6
Type of vessel						
Tanker	20	17	40	45	10	5
Cargo ship	16	14	6	56	19	19
Container	26	22	31	42	12	15
Ferry	27	23	26	59	7	7
Icebreaker	28	24	39	42	14	4

group of whom (27%) were working on tankers. Seventy-two per cent of those who had sought aid for dental problems while at sea had had to wait more than 6 days before receiving help, compared with 32% of the control group ($p < 0.001$).

One-third of the seamen surveyed disagreed and one-third agreed that dental services for seamen were adequate. When asked separately how dental services for seamen might be improved, one-third of all the respondents offered suggestions (Table 4).

Discussion

In Finland, children and teenagers have received priority in relation to the development of oral health services. At present, dental care is provided free of charge to those less than 19 years old at the community-based public dental health centers. Most adults pay a fee for services out of their own pocket to dentists in private practice. Public health centers are, however, also obliged to deliver dental services to particular groups at a subsidized fee. Since 1985, Finnish seamen have been eligible for low-cost dental care in health centers for seamen provided by 12 communities under the Public Health Act of 1972. The number of seamen has been declining in recent years in Finland, but there are still some 12,000 (4).

The yearly utilization of dental services by Finnish seamen was of the same magnitude as found earlier in national studies (5). However, it was greater than that found by Kovari (6) in her survey of Finnish seamen visiting health centers for seamen. This discrepancy may be explained by the relatively high frequency of visits to privately practicing dentists by seamen in the present study. This frequency was particularly high among officers, probably due to their higher financial status. Moreover, the relatively small number of health centers for seamen may not have been adequate to meet the needs of all those eligible. In any case, the seamen seemed to have better access to dental care provided by the communities than their controls.

The pattern of dental treatment in Finland (5, 7) and other countries (8, 9) is changing. Increases in preventive care and decreases in frequency of tooth extractions and supply of prostheses are evident. With this in mind, there should be particular concern among health care professionals about the high number of dental visits for emergency care found among seamen. It has not been customary for seamen to visit a dentist regularly (10). Formation of a pattern of regular treatment is a complex behavioral process. Seamen need to be encouraged to visit a dentist systematically. On the basis of the present study it would seem desirable to adopt a

recommendation such that the seamen could not leave for their missions unless they had received periodic oral examinations and any subsequent necessary treatment (11).

Despite routine and periodic dental examinations, oral diseases cannot be totally eliminated aboard a ship. Dental problems can be tackled in various ways during a voyage. The training of deck officers, who are responsible for medical care, has been criticized in relation to dental knowledge and training (12). However, circumstances aboard ship are not necessarily conducive to provision of adequate dental treatment, even by professionals. Bäter (13) examined the diaries of Fishery Protection physicians working on a special vessel for emergency treatment for German fishermen. These diaries showed that every second emergency mission was linked to dental problems. Fishermen asked for help only in urgent cases, and problems were normally solved by extraction.

One-third of the seamen surveyed expressed ideas about how to improve their dental care. The most significant was more than 12 health centers for seamen. Whereas caries and periodontal disease are increasingly regarded by dental professionals as diseases reflecting behavior, the seamen surveyed seemed to prefer low-cost restorative care to individual preventive care. In developing and organizing dental care for seamen the possibilities of oral health self-care (for a review, see for example, Glavind & Nyvad (14)) should be considered. Oral diseases seem to be the most common single health problem of seamen worldwide (15). It needs to be tackled accordingly.

Acknowledgements.—This study was supported by grants from the Finnish Dental Society and the Finnish Seamen's Pension Fund.

Received for publication 14 June 1993

Accepted 3 September 1993

References

1. Joint ILO/WHO. Convention no. 73. Geneva: ILO/WHO, 1946.
2. Joint ILO/WHO. Committee on the Health of Seamen. International medical guide for ships. Geneva: ILO/WHO, 1988:184-7.
3. Bäter H. Dental problems in seafaring. In: Goethe WHG, Watson EN, Jones DT, editors. Handbook of nautical medicine. Berlin: Springer-Verlag, 1984.
4. Merimieseläkekassa. Toimintakertomus. Helsinki, 1991.
5. Murtomaa H, Laine P, Masalin K. Dental health practices among Finnish adults. Community Dent Health 1984;1:131-9.
6. Kovari H. Merimiesten hammashuolto terveyskeskuksissa—tutkimus palvelujen käytöstä. Proc Finn Dent Soc 1987;34:1122-3.
7. Murtomaa H, Ainamo J. Role of health education among services rendered by dental personnel in Finland. Community Dent Oral Epidemiol 1977; 5:164-8.
8. Helöe LA, Holst D, Rise J. Development of dental status and treatment behavior among Norwegian adults 1973-85. Community Dent Oral Epidemiol 1988;16:52-7.
9. Hugoson A, Koch G, Bergendal T, Hallonsten A-L, Laurell L, Lundgren D, et al. Oral health of individuals aged 3-80 years in Jönköping, Sweden, in 1973 and 1983. A review of clinical and radiographic findings. Swed Dent J 1986;10:175-94.
10. Sandbekk OW. Sjöfartsmedicinisk forskning. Stockholm: Nordisk utredningsserie, 1976.
11. Tomaszunas S. The work of ship's doctor on Polish ocean lines. Bull Inst Marit Trop Med Gdynia 1985;36:51-8.
12. Schaetzing G, Laban CH, Goethe WHG. The paradontium in seamen. Bull Inst Marit Trop Med Gdynia 1989;40:193-200.
13. Bäter H. Wenn beim Fischfang der Zahn schmerzt. Zahnärztl Mitt 1991;81:1464-5.
14. Glavind L, Nyvad B. The scientific basis for oral health recommendations for self care. In: Gjermo P, editor. Promotion of self care in oral health. Oslo: Scandinavian Working Group for Preventive Dentistry, 1986:77-96.
15. Vucsanovic P, Goethe WHG. The occurrence, frequency and aetiology of diseases and trauma among seamen. In: Goethe WHG, Watson EN, Jones DT, editors. Handbook of nautical medicine. Berlin: Springer-Verlag, 1984.