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Demographic profile of patients who present for emergency treatment at Wits' Dental School

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Keywords: demographic profile; emergency treatment; dental school.

SUMMARY

The faculties of dentistry and medicine at the University of the Witwatersrand will soon amalgamate into a faculty of health sciences. To help plan service provision a demographic profile was determined for 500 patients who attended for emergency treatment in the dental faculty over all four seasons. Mean daily rates were Autumn 7,7, Winter 8,8, Spring 7,8 and Summer 3,3. Most patients (45 per cent) arrived by car, 23 per cent came by bus while 19% walked to the dental school. Over three-quarters (77 per cent) came directly from home and the same proportion had endured symptoms for more than 48 hours. Many (60 per cent) had been treated previously at the dental school of whom 31 per cent had received this within the previous month. No less than 85 per cent had no regular dentist. A third of patients had no symptoms, 26 per cent had chronic pain and in 10 per cent the pain was acute in onset. The most frequent treatments were temporary restorations (39 per cent) and pulp extirpation (34 per cent). An irregular daily work load, together with endurance of symptoms by patients, indicates that an emergency service Monday to Friday during normal working hours is adequate.

OPSOMMING

Om die lewering van dienste na die samesmelting van die fakulteite tandheelkunde en geneeskunde van die Universiteit van die Witwatersrand in 'n enkele Fakulteit Gesondheidswetenskappe te beplan, is 'n demografiese profiel bepaal vir 500 pasiënte wat vir noodbehandeling by die Fakulteit Tandheelkunde oor al vier seisoene aangemeld het. Gemiddelde daaglikse koerse was herfs 7,7, winter 8,8, lengte 7,8 en somer 3,3. Die meeste pasiënte (45 persent) het per motor gereis, 23 persent per bus en 19 persent het per voet aangekom. Meer as drie-kwart (77 persent) het direk vanaf die huis gekom en dieselfde persentasie het simptome vir meer as 48 uur gehad. Baie (60 persent) is voorheen by die tandheelkundige hospitaal behandel, waarvan 31 persent gedurende die vorige maand. Soveel soos 85 persent van pasiënte het nie 'n gereëlde tandarts gehad nie. 'n Derde van pasiënte het geen simpotome gehad nie, 26 persent het chroniese pyn ondervind, en in 10 persent was die pyn akuut. Die algemeenste behandeling was tydelike vulsels (39 persent) en ekstirpasie van die pulpa (34 persent). 'n Onreëlmatige daaglikse werklas, tesame met die uithouvermoë van pasiënte, dui daarop dat 'n nooddiens van Maandae tot Vrydae gedurende normale werkure voldoende is.

INTRODUCTION

Emergency dental care is something we all understand yet it is difficult to clearly define. The American Association of Oral and Maxillo-facial Surgeons have said that "emergency dental care is the management of treatment of haemorrhage, upper airway impairment, trauma, infection or acute inflammation involving the oral and maxillofacial structures (including teeth and dento-alveolar processes) which threatens the person's life or substantially impairs the functioning of such structures" (Deluke, 1976). That required 44 words but was an improvement on a earlier 155 word definition of the American Dental Association (Deluke, 1976). No generally accepted definition exists but patients' perceptions of an emergency are important. Pain is an obvious emergency to a patient but a badly chipped incisor tooth in a national figure about to speak in public, could easily be interpreted as an emergency.

Patients present for emergency care to private practices or to public institutions. Gift (1984) carried out a quite remarkable review of over 300 articles on the utilization of professional dental services. Only 2 of these dealt with services in a dental school, one of which concerned an emergency service. Berger and Mock (1980) examined the efficiency and utilization of a 24 hour dental emergency service in a large teaching hospital in a 6 month sample of 354 patients. They showed that an emergency service was justified but abuses of this occurred. Majewski, Snyder and Bermat (1988) described dental care provided to 222 children and adolescents over one year in a children's hospital. The majority of childrens' dental emergencies was trauma to anterior teeth in contrast to posterior tooth dental caries in adults.

Provision of emergency care in South African dental schools varies. At the time of this study the situation was as follows. At the Universities of Stellenbosch and Western Cape emer-

gency care was on a 24 hour rotation. At the University of Pretoria emergencies were treated at the nearby HF Verwoerd General Hospital while at the University of the Witwatersrand emergency care was provided Monday to Friday during office hours. We were unable to find any published information on these services.

In SouthAfrica transformation of health services is in progress. At the University of Witwatersrand the faculty of dentistry will soon amalgamate with the faculty of medicine into a faculty of health sciences and will move from its present site on the main University campus to the Johannesburg Hospital. Information is needed to plan various future services in the new faculty. The present study was carried out to determine the demographic characteristics of patients presenting for emergency dental treatment at the Oral and Dental Teaching Hospital, University of the Witwatersrand.

MATERIALS AND METHODS

Prior to starting the study the protocol was approved by the University's Committee for Research on Human Subjects (clearance 130690).

Sampling for the investigation was done over 7 months to include each of the four seasons based on Whitaker's almanac (1991). The seasons (and sample numbers) were Autumn June 4 - 19 (n=100) Winter July 30 - August 21 (n=114) Spring August 22 - September 26 (n=186) and Summer November 27 - December 31st (n=100). Variation in length of sampling during the seasons was due to unscheduled departmental closures. Of the 521 patients who attended for emergency treatment during the study period, 500 were included in the study. Two patients declined to participate and 19 provided inadequate information so were excluded from the study sample.

A structured questionnaire (copy available from authors), pre-tested on 20 patients, was used. Each patient in the definitive study presented between 08:00 and 16:00 on weekdays. After screening for income level to set hospital fees, the patients were seen in the admission surgeries of the Division of Maxillofacial and Oral Surgery for examination and diagnosis. This division has 20 dental chairs in which senior dental students and staff examine patients. The diagnosis and treatment is based on the Emergency Hospital Dental Service Guidelines of the American Society of Oral Surgeons and American Dental Association (Deluke, 1976). Extractions are performed in the admission surgeries, other emergencies are referred to a two chair emergency clinic and this group comprised the study sample. Here basic emergency care is given, there are no facilities for permanent restorations, crowns or root canal fillings. The data obtained from the questionnaire were analysed in an IBM 8083 J24 computer using SAS (1990) and descriptive statistics.

RESULTS

Patients in the study were aged between 4 and 86 years and were more or less equally distributed between the genders (Table I). Most patients were from the white and black communities with lesser numbers from other groups (Table II). In general, slightly more patients attended on Monday (24 per cent) or Tuesday (21 per cent) with almost equal numbers on Wednesday (19 per cent), Thursday (19 per cent) and Friday (18 per cent) although on one each of Wednesday, Thursday and Friday, during the study period, the dental school was closed. Distributions by season were Autumn (20 per cent), Winter (23 per cent), Spring (37 per cent) and Summer (20 per cent). Since the number of study days per season were not equal the mean daily patient rates are a better indication of work load. These were similar in Autumn (7,7), Winter (8,8) and Spring (7,8) but the Summer (3,3) rate was less than half of these — probably influenced by Christmas holidays. Most patients presented before 9am (50 per cent), then between 9 and 12 (37 per cent) and only 13 per cent arrived after 12:00. The work load was generally irregular; given an average load of 8 patients per operator per day, 4 would present as a group as the dental school opened, 3 would be between 9am and noon, only 1 presenting after lunch. Patients would have, therefore, a long wait in the morning.

The transport pattern is shown in Table III. The majority of patients used their own or a family car to commute to the dental school (28 per cent). More females (28 per cent) travelled by bus than males (18 per cent) [total 23 per cent], while 19 per cent walked. Taxis (9 per cent) and trains (5 per cent) were next in frequency, the remainder (6 per cent) used a combination of transport.

Over three-quarters (77 per cent) arrived directly from home, 18 per cent went to work first, 4 per cent were already on the university campus and only 1 per cent came from another hospital. Of the three hospital income classifications the frequencies were I (single person <R200/month; married person - family income <R400/month) 39 per cent, II (single R200 - R800/month; married - family income R400-R1500/month) 40 per cent and III (single > R800/month; married - family income >R1500/month) 21 per cent.

Education levels ranged from individuals with no education to doctoral graduates but no particular pattern was evident. Of the patients 60 per cent had had some form of previous treatment at the dental school. Of these, 301 patients, 31 per cent had had treatment within the previous month, 29 per cent had last attended more than a year previously, for 19 per cent it was 2 - 3 months earlier, the remainder being scattered in between. Previous treatments consisted of fillings (34 per cent), pain relief (24 per cent), and combinations of pain relief and other treatments. A total of 85 per cent had no regular dentist.

Classification into social classes was possible in 384 patients (Office of Population Censuses and Surveys, 1970; Schlemmer and Stopforth, 1979). The spread was class I 2 per cent, II 38 per cent, IIIN 14 per cent, IIIM 12 per cent, IV 9 per cent and V 24 per cent.

With regard to routine dental check-ups 48 per cent had never had this, for 18 per cent it was every 6 months, for 19 per cent every 12 months, among the remainder (16 per cent) it was longer than a year.

No symptoms were experienced by 33 per cent, chronic pain by 27 per cent, acute pain by 10 per cent, tooth sensitivity by 7 per cent and combinations of these in the remainder. Individuals with symptoms endured them for more than 48 hours in 77 per cent of instances, for 12-48 hours in 15 per cent, 6–12 hours in 4 per cent and <6 hours in 4 per cent.

Diagnoses varied, 35 per cent had a restoration failure, 26 per cent had pulp pathology, 13 per cent had caries, for 6 per cent it was a post endodontic complication, for 5 per cent it was trauma of some type and in 4 per cent periodontal abscess was the problem.

Treatments given were temporary restorations (39 per cent), pulp extirpation (34 per cent) re-cementation of crown or bridge (12 per cent), abscess drainage and infection control 5 per cent, occlusal adjustment 3 per cent and a variety of other treatments made up the remainder.

Treatment was given to 90 per cent of patients by qualified dentists and 10 per cent by senior students.

Table I: *Frequency distribution of age by gender*

	Female		Male		Total	
Age in years	**n**	**%**	**n**	**%**	**n**	**%**
0-09	3	1,2	5	2,0	8	1,6
10-19	15	6,1	24	9,5	39	7,8
20-29	61	24,8	100	39,5	161	32,3
30-39	55	22,4	53	20,9	108	21,6
40-49	38	15,4	22	8,7	60	12,0
50-59	26	10,6	18	7,1	44	8,8
70-79	25	10,2	18	7,1	43	8,7
80-89	13	5,3	6	2,4	19	3,8
90-99	10	4,1	7	2,8	17	3,5
Total	246	100	253*	100	499*	100

(*One patient did not know his age).

Table II: *Frequency distribution of ethnic group by gender*

	Female		Male		Total	
Group	**n**	**%**	**n**	**%**	**n**	**%**
blacks	86	35,0	71	28,0	157	31,4
coloured	6	2,4	6	2,4	12	2,4
Indians	14	5,7	19	7,5	33	6,6
whites	139	56,5	157	61,8	296	59,2
chinese	1	0,4	1	0,4	2	0,4
Total	246	100	254	100	500	100

Table III: *Frequency distribution of transport by gender*

	Female		Male		Total	
	n	**%**	**n**	**%**	**n**	**%**
Bus	69	28,0	46	18,1	115	23,0
Car	92	37,4	98	38,6	190	38,0
Train	11	4,5	12	4,7	23	4,6
Taxi	28	11,4	19	7,5	47	9,4
Lifts	3	1,2	8	3,1	11	2,2
Walking	34	13,8	63	24,8	97	19,4
Combination	9	3,6	8	3,2	17	3,4
Total	246	100	254	100	500	100

DISCUSSION

The School of Dentistry at which the study was done is available to the populace of Greater Johannesburg, Soweto, Diepmeadow, Randburg, Alexandra and Sandton, an estimated population of at least 5 million (Steenkamp, 1994).

The age spread of the study sample, skewed towards the second and third decades is similar to studies by Widström *et al.*, (1988) and Berger and Mock (1988) in emergency services in a city and a hospital, respectively. Children attended rarely for emergency treatment, an expected observation because a school children's outpatient clinic is available in the area for which community dentists screen children at schools for treatment.

The ethnic group distribution was also expected. The high attendance of white patients must be influenced by proximity to suburban homes, presence on the university campus or proximity to local offices. The majority of black patients live in townships away from the city centre but many work in the city and therefore seek treatment at the dental school. The low attendance of Indian patients is probably because most reside a considerable distance away and prefer to seek treatment in their local areas.

Widström *et al.*,(1988) also noted a greater attendance on a Monday compared to a Friday. The present study showed no predominance of one season over another, a similar observation made by Battenhouse, Nazif and Zullo (1988).

Time of arrival most often in the early morning, was also reported by Berger and Mock (1980). These authors noted that 68 per cent of their sample had not had previous treatment in the emergency clinic that they attended. This was the opposite trend to the current study which suggests satisfaction with treatment provided by the dental school.

The relatively high number of patients (33 per cent) presenting without symptoms, e.g., only a restoration failure, is almost double the rate of 18 per cent seen by Widström *et al.*, (1988). These authors found 63 per cent of their sample presented with pain.

A particularly relevant observation concerned transport to the dental school. The school is on several bus routes and is near two railway stations. Most people, however, used cars — either their own or taxis to reach the school. This suggests that transport access should not be a major problem when the dental school moves 3km from its present site to the Johannesburg Hospital, a less centrally placed institution.

The study has shown that at the University of the Witwatersrand dental school there is a substantial, but irregular daily work load of patients presenting for emergency care other than extractions or maxillofacial trauma. Since the patients tended to endure symptoms for up to 48 hours an emergency service

during working hours, Monday to Friday is considered to be adequate. Transport to the dental school does not appear to be a problem so relocating the dental school within the same broad city area should still provide an adequate service. One factor that changed since the study is that pregnant women and children of 6 years or younger now qualify for free treatment at state and provincial health institutions. Since the number of children in the study was minimal, and pregnant women were too few to be specifically recorded it is unlikely that the new free services will substantially alter the emergency treatment load.

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