

Full Length Research Paper

# Determinants of parents' choice of a paediatric dentist: An application of factor analysis

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The broad objective of this study was to identify factors that parents consider when choosing pedodontist services for their children in Harare, Zimbabwe. This study was done against the backdrop of lack of consistency between expectations of consumers and quality of the service provided by dentists. Structured questionnaires based on a 19-item importance scale were administered to a convenience sample of 51 respondents from 5 selected dentists in Harare. The results of the study showed that quality of service rendered, accessibility of dental clinic, friendliness of the dental environment and the manner in which the dental process was conducted were the main determinants influencing choice. A major implication of the study is that dentists should consider marketing as a critical component of practice management.

**Key words:** Dentistry, service quality, Zimbabwe, pedodontics, consumer behaviour, dental services, marketing.

## INTRODUCTION

The marketing of dentistry is an important subject for dentists practising in developed economies (Mindak, 1998). However, marketing of dentistry services has rarely been studied in developing countries. Although there is debate about the significance of services in national economies, Yavas (1998) argues that today one of the fastest growing sectors not only in the developed but also in emerging countries is the services sector. The eminent position of the services sector within the national economy becomes apparent in the macro-economic analysis of its size and structural features of this sector especially with respect to real value added, employment, and capital formation (Reinhardt et al., 1989). Zimbabwe's services sector contributed 57.9% to GDP in 2001 (Muzondo, 2003). Mindak (1998) also states that dentistry is a service- 'a deed, a performance, an effort.

Dentistry for children is perhaps the most needed and yet the most neglected area of all services performed by the dentist (Finn, 1998). Pediatric dentistry is synonymo-

us with dentistry for children (Pinkham, 1994). Dentistry for children requires more than dental knowledge, for one is dealing with organisms that are in their formative years (Finn, 1998). Pedodontists are dentists who specialise in providing dental services for children. This specialist service is technically known as *pedodontics*. The value of pedodontic services cannot be exaggerated, for inadequate or unsatisfactory dental treatment during childhood may damage permanently the entire masticatory apparatus (structures used for chewing) leaving the individual with many of the dental problems so common in today's adult population (Finn, 1998).

Given the importance of pedodontics, dentists, like any other marketers in a competitive market, should know why parents opt to come to one pedodontist instead of another. This is a marketing issue lying in the domain of consumer behaviour. In many industries—particularly professional services—the sellers think of themselves only as producers or creators, and not as marketers, of the services (Etzel et al., 1997). Many people think that only large companies operating in highly developed countries use marketing, but sound marketing is critical to the

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the success of every organisation, whether large or small, domestic or global (Kotler, 2002). Kotler (2002) goes on to state that business groups such as lawyers, accountants, physicians and architects, too, have begun to take an interest in marketing and to advertise their services aggressively. Finn (1998) argues that good business practices are as essential to a profession [including dentistry] as they are to other enterprises. Traditionally, dentists had very little training in the business side of dentistry, tending to learn it the hard way after graduation (Mindak, 1998). Hence Finn (1998) argues that there is no reason why a dentist with personality and skills should find himself incompetent in practice management.

### **Research problem**

Dentists working in Zimbabwe do not see themselves as marketers. As a result they are not concerned to know the factors that patients consider in choosing among alternative dentists. Because of this, quality of service rendered is not commensurate with the expectations of the consumers. This paper therefore identifies factors that parents consider when choosing a pedodontist for their children. These factors are important to the marketing of dental services for children.

### **LITERATURE REVIEW**

Services are not easy to define or classify (Doyle, 2002; Gabbott and Hogg, 1997; Rathmell, 1996; Lovelock, 1983; Gronroos, 1978). Modern definitions of services focus on the fact that a service in itself produces no tangible output, although it may be instrumental in producing some tangible output (Palmer, 2003). A service is any act or performance that one party can offer to another that is essentially intangible and does not result in the ownership of anything (Kotler, 2003). This definition largely agrees with definitions of service elsewhere in the literature (Lovelock; 2001; Palmer, 2001; Lovelock et al., 1999; Morgan, 1991).

#### **Nature of services: A challenge for service marketers**

As dentistry is a service, dentists, like any other service marketers, should be constrained by the nature and characteristics of the service. Doyle (2002) argues that managing services raises special issues. These arise from the specific characteristics of services e.g. the intangibility, inseparability, heterogeneity (variability), and perishability (Reinhardt et al., 1989; Kotler, 2000; Lovelock, 1983; Palmer, 2001; Lovelock et al., 1999; and risk management in the practice of pediatric dentistry and that this discussion should include acceptable alternatives, non-remote risks to care, and the (Primosch

Doyle, 2002). The characteristics present challenges in marketing services (McDonald, 1999) and oversimplify consequences if proposed treatment is refused frame-the real-world environment and don't apply to all services (Lovelock, 2001).

The service of dentistry is consumer purchase like any other (Mindak, 1998). The criteria consumers use to evaluate the brands that constitute their evoked sets usually are expressed in terms of important product attributes (Schiffman and Kanuk, 2000). Mindak (1998) argues that "we may think that because it [dentistry] is a health service, people *need our* services but the reality is different". Yes, a person in pain will present wanting pain relief, but a large percentage of people rarely visit a dentist and others are very selective in their purchasing of our services, Mindak, a dental practitioner, adds. This confirms that dental patients are selective in their purchasing of dental services. Hence parents, as consumers, must be selective in choosing pedodontists, as they may want to maximise satisfaction, like in any other purchase.

When a company knows that consumers will be evaluating alternatives, they sometimes advertise in a way that recommends the criteria that consumers should use in assessing product or service options (Schiffman and Kanuk, 2000). The marketing of a service such as dentistry is much more than just the superficial manifestations that come to mind when we think of marketing – advertisement, printing glossy brochures, smiling salesmen (Mindak, 1998). Although Mindak agrees that these have a role in gaining initial attention, she argues that 'with dentistry, word of mouth – that personal recommendation – is a primary factor in new patient attendance'.

Dentistry literature offers substantial tips on how dentists can manage young patients in the clinic (Pinkham, 1994; Primosch and Mathewson, 1995; Berg and Bebermeyer, 1994; Finn, 1998). We theorise that these tips interface with the expectations of parents when they consider which dentist to take their children to for treatment. Inspired by the marketing concept Mindak (1998) prefers to look at how dental patients, as customers, evaluate providers of dental services. She admits that the customer uses several criteria to assess how a service is provided. She cites Berry and Parasuraman (1991) who identify five principal dimensions that customers use to judge a service i.e. tangibles, reliability, assurance, responsiveness and empathy. Doyle (2002), also citing Berry and Parasuraman (1991), states that one influential study found that consumers use up to 10 criteria to judge services: reliability, access, credibility, security, knowledge, responsiveness, competence, courtesy, and communication. These criteria are drawn from the SERVQUAL model originated by Parasuraman et al. (1985) after they studied the determinants of service quality. Doyle argues that the first five are particularly related to the quality of

the 'outcomes' while the remainder refer mainly to the quality of the 'process'. It appears that the 10 factors in the SERVQUAL work are very much in agreement with the tips on managing young Patients prescribed in pediatric dentistry literature (Mitchell et al., 1999; Berg and Bebermeyer, 1994; Pinkham, 1994; Primosch and Mathewson, 1995). Also, as Mindak (1998) suggests that the 'service of dentistry is consumer purchase like any other' and Kotler (2002) argues that '...sound marketing is critical to the success of every organisation...' the marketing mix might be useful on inferring the very factors parents consider in choosing pedodontists. The 'marketing mix' is a combination of marketing tools a firm uses to pursue its marketing objectives in the target market (Kotler, 2000). For simplicity's sake, these (marketing mix elements) are often written about and referred to as the four Ps, these being product, price, promotion and place although today many scholars include a number of additional Ps, such as people and processes (McDonald, 2002) and physical evidence (Smith and Taylor, 2004). The central assumption is that if marketing professionals make and implement the right decisions about the features of the product, its price, and how it will be promoted and distributed, then business will be successful (Doyle, 2003). Now we review the marketing mix elements and service quality criteria in the SERVQUAL model within the context of dental services.

### **Product**

A product is anything that can be offered to a market for acquisition, attention or use that may satisfy a need or want (Kotler, 2002). A product may be tangible e.g. like merchandise or intangible e.g. like a service i.e. dentistry, education, or tourism (Etzel et al., 1997; Doyle, 2002). In 1995 and 1998, Mintel, a British marketing Research Company found that the quality of products is the top factor that influences choice of store for main grocery shopping in Britain (Haberberg and Rieple, 2001). Since the product concept includes services the quality of the service being offered by a producer therefore should be important in selecting a supplier. Therefore, the researchers theorise that the quality of pedodontic services should be an important determinant of parents' choice of a pedodontist.

### **Parent informed consent**

Dentistry literature insists that dentists must observe 'the basics of informed consent' of the parents seeking dental treatment for young children. Sufficient information must be given by the health professional to each parent or guardian so that the parent has a reasonable understanding of the proposed dental care for the child and Mathewson, 1995). The issues of informed consent are

more important concepts for practitioners (Pinkham, 1994). Pinkham argues further that 'the need to make sure that parents understand the implications of treatment and alternatives, and can give informed consent is a basic responsibility of today's practitioner'. Primosch and Mathewson (1995) acknowledge that failure to obtain informed consent from the parent has legal consequences. Informed consent concerns communication between the dentist and the parent or guardian accompanying the child to the dental clinic. General marketing literature acknowledges the role of giving information to the consumer before providing a service. The company has to explain its service (Doyle, 2002). In this study the company is the dental practice, and especially the dentist as a key player in the provision of the service.

### **Communication and child behaviour in the dental clinic**

Dentistry literature acknowledges that the management of child behaviour begins the moment the child enters the dental environment and continues until he leaves. Primosch and Mathewson (1995) rightly summarises the importance of communication in young patient management:

A child who is exposed to an impersonal attitude and ominous sentences such as "there will be some pain", and "it will just be a shot" or to the blatant display of fear-inspiring instruments cannot help but feel threatened. Gruff remarks or lack of concern on the dentist part can crush any opportunity a child may have of displaying meaningful behaviour or trusting the operator. The mood and manner by which the dentist expresses herself will exert greater influences on the child than what may actually be done.

Marwah et al. (2005) acknowledge that 'managing the anxiety of pediatric dental patients has long been the purview of dentists over many years. The patient's dental visit will have involved the collaboration of the dental operator and support personnel, each of who has a role in encouraging continued good behaviour or in guiding or directing a patient whose behaviour has been expressed in negative terms (Primosch and Mathewson, 1995). They contend that these individuals must comprehend patient deportment in its various aspects and must become proficient in applying their skills to the management process. Therefore, the importance of establishing good communication with young patients in the surgery cannot be overemphasised.

While the principles of communication are similar for goods and services, a number of distinctive promotional needs of services can be identified, deriving from the distinguishing characteristics of services. Palmer (2003) says 'the intangible nature of the service offer often result in consumers perceiving a high level of risk in the buying

process, which promotion must work to overcome. The current study would establish the extent to which parents value the effectiveness of communication between their children and the dentist and her supporting staff during interactions at the surgery in deciding which dentist to take their children to for treatment.

Primosch and Mathewson (1995) contend that dentists must be familiar with those factors that influence (children's) behaviour, among others, family and peer influences, past medical and dental experiences, and dental office environment. The study gauges to degrees to which some of these factors influence parents' choice of a pedodontist, when interlinked with effectiveness of communication.

### **Family and peer influences**

Primosch and Mathewson (1995) acknowledge that psychosocial factors are probably the strongest influences on human behaviour. The challenge is that the pedodontist should be able to cope with uncooperative pedo-patient behaviour irrespective of the factors influencing it. If a parent is dental phobic, their anxiety in being in a dental environment may adversely affect the child, so in these cases it is probably wiser to leave mum and/or dad in the waiting room area (Mitchell et al., 1999). Should the mother possess anxieties as result of her own dental encounters or fear of the child's first meeting with the dentist, that anxiety or fear can be transmitted to the offspring and is more likely produce a phobia of dentistry before the actual visit (Primosch and Mathewson, 1995). Marketers frequently target parents looking for assistance in the task of socializing their children (Schiffman and Kanuk, 2000). Primosch and Mathewson argue that 'conversely, the mother may be cognizant of her influences on the child and manipulate them to be sensible in the presence of the child, thereby producing a behaviour that is more positive towards the dental visit'. But Mitchell et al. (1999) argue that some children will play up to an over-protective parent in order to gain sympathy or rewards and may prove more cooperative by themselves.

Several studies have attempted to evaluate the influence of parent's presence on the child's behaviour. Kamp (1992) as cited in Primosch and Mathewson (1995) found that less than 8% of dentists questioned routinely allow parents to remain in the operatory with the child. Kamp (1992) questioned 79 parents as to their preference whether they wished to accompany the child into the operatory or to remain in the waiting area and found: Sixty-six [66] percent wished to be present. In general parents wished to observe the young child's dental procedures or during their child's first visit. The important element of marketing planning is therefore to parent's felt their presence would improve their child's acceptance of the dental procedure.

However, Primosch and Mathewson (1995) state that

some dentists feel the presence of a parent during treatment increases the potential management problems with the child by offering unsolicited advice, attempting to placate the unmanageable child, and disrupting the dental office routine. The results of Kamp's (1992) study and the opinion expressed by Primosch and Mathewson somewhat show that parents consider as an important criterion their presence in the operatory while their children are being seen by the dentist. Is this case in Zimbabwe?

### **Past dental experiences and satisfaction level**

Research suggests that dissatisfied customers talk about their bad experience to two or three times more people than satisfied customers talk about their good experience (Smith and Taylor, 2004). Primosch and Mathewson (1995) argue that past medical and dental experiences for the child do, in some instances, reflect unsatisfactory visits that produced management problems. This may result in a young dental patient experiencing anxiety at the thought of being taken to a dentist way before being taken through the treatment procedures. Rayen et al. (2006) state that anxiety is a special variety of fear, experienced in anticipation of threatening stimuli. They argue that while some research workers have said that the response of a child improves with the number of visits, many have felt otherwise.

While Mindak (1998) does not distinguish preadolescent, adolescent, and mature dental patients she states that initial presentation by a patient at a practice may be due to pain or a broken restoration and on talking to their neighbour, or maybe seeing an advertisement in the phone book. The phrase "talking to their neighbour" in order to turn up at a dental practice shows that patients can rely on the reference of other people to select a dentist. Mindak (1998) states: "Having got them in the door, how do you keep them there? This is where the real marketing of your practice begins."

It takes a satisfied customer to talk positively about a product, service or company and a dissatisfied consumer would bad mouth or product or producer. Satisfaction is a person's feelings of pleasure or disappointment resulting from comparing a product's perceived performance (or outcome) in relation to his or her expectations (Kotler, 2000).

### **People and processes in the dental surgery**

Human relations have to be a particular concern in managing services, especially in high-contact services (Doyle, 2002). People or staff, communicate in (fact, create a good or bad experience through the quality of service delivered at any particular time (Smith and Taylor, 2004). The efficient utilisation of chair-side assistants is extremely important in pedodontic practice because it decrees

-ses the length of dental appointment, thus aiding in child management (Finn, 1998) . Production processes are usually of little concern to consumers of manufactured goods, but can be of critical concern to consumers of 'high contact' services, where the consumer can be seen as a co-producer of the service (Palmer, 2003). Dentistry is one such high contact service. Therefore, is the dentist's permission on parent to observe his child during treatment an important criterion parents consider in selecting a pedodontist?

### **Dental office location**

There are many factors that should be considered in locating an office for the type of [dental] practice you wish to establish, such as the area's social and economic factors, transportation and parking facilities, and easy access to school and residential areas (Finn, 1998). In Berry and Parasuraman's (1991) SERVIQUAL model location of a service provider falls under the access criterion and in the marketing mix concept this is dealt with under place or distribution. Place includes the various activities the company undertakes to make the product accessible and available to target customers (Kotler, 2000) . Distribution management is the set of decisions and processes concerned with the flow of a product or services from producer to consumer (Doyle, 2002). In 1995 and 1998 Mintel found that the "location/easy to get to" is the second most important factor which influences choice of store for main grocery shopping in Britain (Haberberg and Rieple, 2001). As 'the purchase of dental service is purchase like any other', is the location of a dental clinic a necessarily important variable in parents' choice of a pedodontist?

### **Dental office environment**

Once the location is selected the type of office decoration must be considered (Finn, 1998). The dental office environment is part of the child's experiential environment possessing people, things, and hopefully decoration (Primosch and Mathewson, 1995). If one is to limit one's practice to children, the entire office from the reception room through the treatment room can have a definite motif (Finn, 1998). An office that reflects drabness or lack of warmth lends little to brightening a child's frame of mind or his subsequent attitude (Primosch and Mathewson, 1995). Decorations and accoutrements depicting definite settings such as the circus, the West, outer space or nursery rhymes add to the warmth and fantasy of the office and turns to dispel fear (Finn, 1998) . The intangible nature of a service means that potential customers are unable to judge a service before it is consumed, increasing the risk inherent in a purchase decision (Palmer, 2003). Palmer suggests that an reduce this level of risk by offering tangible evidence of the promised service deli-

very e.g. appearance of staff (uniforms), office set up, brochures, etc. As part of dental office decoration an aquarium may be placed in the reception room or treatment room, the dental office environment may have soothing, muffled music in the reception room for both parent and patient, and adult reading material including dental health material (Finn, 1998). Marwah et al. (2005) conducted a study to ascertain if music distraction is an effective means of managing anxiety in pediatric dental patients aged between 4 and 8 years. They concluded that audio distraction does not significantly decrease the anxiety level in pediatric dental patients.

Berg and Bebermeyer (1994) argue that the maintenance of an office ambience that pleases the eye and psyche of the child while complying with inexorably more stringent infection control regiments is difficult to achieve. The dental office environment constitutes physical evidence in the service marketing mix.

### **Infection control**

Concern for a cleanliness in the dental surgery is exhibited by the key stakeholders in dentistry i.e. dentists, dental associations, dental customers (patients) and the general public. Although the pediatric office must appear as an attractive place for kids, the office staff must adhere to ever more stringent [infection control] protocols imposed by governmental organisations and various professional organisations and societies (Berg and Bebermeyer, 1994). They argue that, for example, if parents suspect that their child is ill or is capable of transmitting any type of illness to another child the office must be informed before the child is brought in so that appropriate additional precautions can be taken. Berg and Bebermeyer suggest that the office reception room is conducive to transmission of illnesses if proper information is not given to parents. The ability of a dental clinic to manage the risk of spreading infection, while an intangible service aspect, is inextricably linked with the physical evidence. Therefore, the appearance of staff and the office in terms of smartness gives cues to patients which they can use to assess the risk a clinic pauses to spread infection. It should be stressed that consumers are influenced by risks that they perceive, whether or not such risks actually exist (Schiffman and Kanuk, 2000).

### **Dental fees**

Since the literature agrees that 'the service of dentistry is consumer purchase like any other' (Mindak, 1998) the researchers theorise that the amount of dental fees is a determinant of parents' choice of a pedodontist. Within the service sector, the term price often passes under a number of names, sometimes reflecting the nature and relationship between customer and provider in which exchanges take place hence professional services compani

es talk about fees while other organisations use terms such as fares, tools, rates, charges and subscriptions (Palmer, 2003). Dental fees constitute the P for price in the marketing mix framework. In 1995 and 1998 Mintel found that price is the third top-most important factor that influences choice of store for main grocery shopping in Britain (Haberberg and Rieple, 2001).

## Synthesis of the literature and propositions

Based on the literature reviewed, the researchers tested the following propositions:

P1: A dentist's care and empathy influence parents' choice of a pedodontist.

P2: The amount of dental fees charged by a dentist influences parents' choice of a pedodontist.

P3: The quality of a dentist's services as commented by parents who have consumed her services before influences parents' choice of a pedodontist.

P4: A dentist's experience and ability to manage children with uncooperative behaviour influences parents' choice of a pedodontist.

P5: Parents' satisfaction with quality of dental services influences their choice of a pedodontist.

P6: Nearness of a dental clinic to a child's school or crèche influences parents' choice of a pedodontist.

P7: Nearness of a dental clinic to a public transport road influences parents' choice of a pedodontist.

P8: Nearness of a dental clinic to residential area influences parents' choice of a pedodontist.

P9: Availability of parking space at or near a dental clinic influences parents' choice of a pedodontist.

P10: Sex of pedodontist influences parents' choice of a pedodontist

## METHOD

### Target population and sampling

The target population for this study were parents who took their pre-adolescent children (0 - 12 years) for treatment or routine check up to privately owned dental clinics during the research period in Harare, the capital of Zimbabwe. Given the relatively large number of private dental clinics in Harare it was not feasible to gather data through all of them but a sample. The study was confined to an accidental sample of 100 parents and/or guardians who took their children to five selected clinics within the city centre and an outlying northern low density residential area (during the one-month period when data was gathered). The clinics were chosen using convenience sampling i.e. clinics within the city centre.

The sample had 100 elements consisting of parents who took their children to the selected dental clinics during the 30 day period the researchers gathered primary data. In convenience sampling the researcher selects the most accessible population members (Kotler, 2002).

Each participating clinic was allocated 20 questionnaires. The researchers talked to the owner-dentists of the selected clinics to get their permission to gather data from parents who visited their surgeries. All the dentists were given a personally addressed letter

explaining the purpose of the study and asking permission for their receptionists or telephonists to administer the questionnaire. Where necessary the researchers visited the clinic to explain to the receptionist how the questionnaire was to be administered.

It was highlighted to dentists and their receptionists that respondents were to be selected using the self-selection sampling technique. Self-selection sampling occurs when you allow a case, usually an individual, to identify their desire to take part in the research (Saunders et al., 2000). Therefore, a copy of the questionnaire had to be given to respondents who, after being informed of the objectives and benefits of the study, agreed voluntarily to participate in the study.

### Data collection instruments

A survey is a technique of gathering data from respondents using questionnaires. After reviewing the literature to infer the factors influencing parents' choice of a pedodontist, the researchers constructed a questionnaire with two sections A and B. Section A contained questions covering the demographic factors of the respondents i.e. sex, type of residential area, highest educational qualifications, occupation and two questions on whether the parent /guardian had taken children to a dentist before and whether they were concerned with the manner in which dentists treat preadolescent patients. In Section B the researchers designed a 19- factor conceptual framework that they reduced into an importance scale according to Kotler (2000). Respondents had to rank each factor using the 5-point scale where 5 represented Extremely Important, 4 (Very Important), 3 (Somewhat Important), 2 (Not Very important), and 1 (Not at all Important). Reliability of the 5-point Likert scale was determined using the Cronbach Alpha internal consistency measure.

### Analytical framework

Factor analysis was used to reduce the data set to a limited number of factors. This technique is concerned with finding a small number of common factors that linearly reconstruct a large number of variables such that:

$$Z_{ij} = \sum_{p=1}^h F_{ip} a_{pj} + e_{ij}$$

Where  $Z_{ij}$  is the value of the  $i^{\text{th}}$  observation,  $F_{pi}$  is the set of linear coefficients or factor loadings;  $a_{ij}$  is the variable's unique factor or residual. The extracted factors are linear combinations of variables such that:

$$F_{pi} = \sum_{j=1}^k q_{pj} z_{ji}$$

Where  $F_{pi}$  is the value of factor  $p$ , for individual  $i$  for each of the  $n$  individuals with observations on  $k$  variables and  $q$  is the weighting of the  $p^{\text{th}}$  factor in variable  $j$  (Cunningham and Maloney, 1999). A rotated Varimax factor solution was used to interpret results. Following Norusis (1990), small factor loadings of less than 0.5 in absolute value were omitted from the factor analysis solution. The data were inputted into the Statistical Package for Social Scientists.

**Table 1.** Parents' factor importance ratings for pedodontists.

Factors	Mean Score	Percentage responses				
		NAAI	NVI	SI	VI	EI
Positive assurance on dentist from other parents	4.3	3.9	-	15.7	23.5	56.9
Satisfaction with quality of dental service	4.8	-	-	3.9	13.7	82.4
Effectiveness of dentist communication with children	4.6	-	2.0	3.9	21.6	72.5
Dentist experience	4.2	11.8	-	5.9	19.6	62.7
Dentist care and empathy	4.5	-	3.9	9.8	23.5	62.7
Dentist ability to manage children with uncooperative behaviour	4.4	3.9	2.0	7.8	23.5	62.7
Dentist's sex	1.4	80.4	9.8	2.0	3.9	3.9
Effectiveness of dental support staff communication with children	3.9	11.8	2.0	15.7	25.5	45.1
Dentist permission on presence of parent/guardian during treatment of child	4.1	2.0	9.8	11.8	31.4	43.1
Provision of information on available treatment options and the preferred option	4.5	-	-	11.8	23.5	64.7
Amount of dental fees	3.2	21.6	9.8	27.5	11.8	29.4
Dental clinic nearness to patient's residential area	2.8	27.5	17.6	25.5	5.9	23.5
Dental clinic nearness to a public transport road	2.7	35.3	15.7	15.7	13.7	19.6
Dental clinic nearness to a child's school/crèche	2.5	35.3	23.5	13.7	11.8	15.7
Availability of parking space at or near dental clinic	3.7	3.9	13.7	23.5	29.4	29.4
Decoration at the dental office	3.0	19.6	21.6	15.7	23.5	19.6
Friendliness of dental office environment to children e.g. availability of toys, music, reading material, video, etc	4.0	2.0	5.9	17.6	35.3	39.2
Friendliness of dental office environment to parents or other accompanying adults e.g. availability of adult reading material, video, music, etc in waiting room	3.9	-	3.9	25.5	45.1	25.5
Cleanliness of dental office environment	4.7	-	2.0	3.9	19.6	74.5

**Table 2.** Results of Factor analysis (Varimax Rotated Matrix).

Variables	Factors (means)			
	1	2	3	4
Positive assurance on pedodontist from other parents	0.751			
Satisfaction with quality of service	0.752			
Pedodontist experience	0.822			
Pedodontist care and empathy	0.747			
Pedodontist ability to manage children with uncooperative behaviour	0.776			
Pedodontist's way of treating children	0.789			
Effectiveness of dentist communication with children	0.587			
Effectiveness of dental support staff communication with children	0.780			
Dental clinic nearness to a child's school or crèche		0.908		
Dental clinic nearness to a public transport road		0.913		
Dental clinic nearness to residential area		0.684		
Availability of parking space		0.710		
Friendliness of dental environment to children i.e. music and reading materials			0.669	
Friendliness of dental environment to accompanying parents e.g. availability of reading materials and music in waiting room			0.698	
Decoration of dental office			0.706	
Age and appearance of dental equipment			0.885	
Cleanliness of the dental office environment			0.5	
Permission of parent during treatment of child				0.816
<b>Eigen values</b>	6.2	2.45	2.1	1.8
Percentage of variation	32.6	11.1	9.7	8

**Factor 1:** Service Quality; **Factor 2:** Access/ Distribution of dental services; **Factor 3:** Physical evidence in the dental environment; **Factor 4:** Processes in the dental office.

## RESULTS

The study sought to answer the questions 'what factors do parents consider is choosing a pedodontist?' We present the results under the two sections in our questionnaire (which forms our conceptual framework).

### Response rate and demographic characteristics of respondents

Of the 100 questionnaires distributed to the five private dental clinics 51 usable ones were returned. Seventy five (75) percent of the respondents were women and the remainder, 25%, were males. The majority of respondents (45%) lived in low density areas, 29% dwelt in high density suburbs, 22% resided in a medium density suburb and very few (4%) in peri-urban areas. The majority of respondents (39%) had a degree, 24% diplomas, and 14% had Ordinary level education. Respondents who held the Zimbabwe Junior Certificate, Matriculation (South Africa) and Advanced Level were a minority.

Given the number of participating dental clinics and the accidental nature of the sample, there were too many categories of occupations in the sample. As such, we reduced the categories to 8 with the largest category being that of managers (21%), followed by that of health professionals (16%), etc. The "other" category while appearing large (17%) was composed of respondents from many occupations with few people in the sample e.g. 1 or 2 as in the case lawyers, customer service officer, self employed people, businessman, toolmaker, etc. Only 8% of the respondents were homemakers i.e. housewives. According to Finn (1998), the area's social and economic factors is one many factors that should be considered in locating the type of dental practice you wish to establish. In Berry and Parasuraman's (1991) SERVQUAL model location of a service provider falls under the *access* criterion and in the marketing mix this is dealt with under place or distribution (Kotler, 2002; Doyle, 2002).

### Summary findings in terms of the original 19 items

Table 1 summarises the findings in terms of the 19-item in the researchers' conceptual framework. The Cronbach Alpha coefficient was used to test the reliability of the conceptual framework. The Alpha score was 0.8343, which confirmed the reliability of the scale. In summary, the findings indicate that 13 of the 19 items in conceptual model are important in influencing parents' choice of a pedodontist on the basis of mean scores. Using factor analysis, four factors were identified namely quality of services rendered, accessibility, physical evidence and processes in the dental environment (Table 2). Table 3 synthesizes the results in terms of the initial propositions in the study. Only two of the propositions were rejected.

### Discussion and managerial implications

The authors' conceptual framework contained 19 factors

as shown in Table 1 above, which were, reduced to four factors namely service quality, access/ distribution of dental services, physical evidence in the dental environment and processes in the dental office.

### Demographic factors

The majority of respondents in the sample were women and most resided in low- density suburbs. This shows that more women than men take children to the pedodontist and perhaps more people in low-density residential areas than in high density areas visit dentists. The majority of respondents were in formal employment and only minority (8%) were housewives. Most of the respondents were totally concerned by the manner in which dentists treat children. The findings suggest that mothers are key players in the family decision making unit with respect to the consumption of pedodontic services. Therefore, pedodontists need to ensure that they do cater for the needs of adult women who accompany children to the dentist. Finn (1998) suggests that several factors should be considered in locating an office of the [dental] practice you wish to establish, such as the area's social and economic factors, transportation and parking facilities, and easy access to school and residential areas. Social and economic factors influence consumers' shopping behaviour i.e. what they buy, where they buy and how frequently they buy (Schiffman and Kanuk, 2000). This should include the type of dental services bought by different consumers and where they prefer to buy them. Transportation, parking facilities and easy access to school and residential areas fall under access criterion in Parasuraman et al. (1985) SERVQUAL model. All four were confirmed.

In consumer behaviour literature, the social and economic aspects of a target market assist marketers to decide prices. However, 'the amount of dental fees' as a factor influencing parents' choice of a pedodontist has been rejected from the model. This can be attributed to the accidental nature of the sample that was dominated by respondents from low-density areas who are presumed to be affluent. The availability of parking space at or near dental clinic as an important determinant of parents' choice of a pedodontist was accepted.

### Service quality

Service quality has emerged as the most important factor influencing parents' choice of a pedodontist. Parameters considered under service quality were positive assurance on pedodontist from other parents, satisfaction with quality of service, pedodontist experience, pedodontist care and empathy, pedodontist ability to manage children with uncooperative behaviour and pedodontist's way of treating children. This confirms Proposition P1. The literature acknowledges that product (service) quality is an important predictor of what the consumer buys (Kotler,

**Table 3.** The study's propositions and the evidence

Proposition	Confirmed/ Rejected	Evidence (in Table 2)
P1: A dentist's care and empathy influence parents' choice of a pedodontist.	Confirmed	Factor 1
P2: The amount of dental fees charged by a dentist influences parents' choice of a pedodontist.	Rejected	No factor supporting
P3: The quality of a dentist's services as commented by parents who have consumed her services before influences parents' choice of a pedodontist.	Confirmed	Factor 1
P4: A dentist's experience and ability to manage children with uncooperative behaviour influences parents' choice of a pedodontist.	Confirmed	Factor 1
P5: Parents' satisfaction with quality of dental services influences their choice of a pedodontist.	Confirmed	Factor 1
P6: Nearness of a dental clinic to a child's school or crèche influences parents choice of a pedodontist.	Confirmed	Factor 2
P7: Nearness of a dental clinic to a public transport road influences parents' choice of a pedodontist.	Confirmed	Factor 2
P8: Nearness of a dental clinic to residential area influences parents' choice of a pedodontist.	Confirmed	Factor 2
P9: Availability of parking space at or near a dental clinic influences parents' choice of a pedodontist	Confirmed	Factor 2
P10: Sex of pedodontist influences parents' choice of a pedodontist	Rejected	No factor supporting

2000, 2003; Kotler, 2002; Mindak, 1998; Etzel et al., 1997; Doyle, 2002; Haberberg and Rieple, 2001; Schiffman and Kanuk, 2000). Consequently, a pedodontist who has little care of the quality of product she provides is at risk of being avoided by prospective consumers. Of course, dentists face more challenges in marketing their services because of the nature and characteristics of services e.g. intangibility, variability, perishability, and inseparability (Reinhardt et al., 1989; Mindak, 1998; Kotler, 2000; Lovelock, 2001).

Communication is one of the 10 criteria in the SERVQUAL model used to measure service quality. Dentist communication with children has emerged as an important variable in determining parents' choice of a pedodontist. The effectiveness of support staff communication with children was also ranked as important. These two results show that managers of dental clinics, whether owner-managers (dentists) or not, should evaluate the effectiveness of communication periodically and encourage their staff to adjust accordingly.

It is imperative that dentists show high levels of care and empathy for their paediatric patients and at the same time effectively manage those with uncooperative behaviour during treatment. Primosch and Mathewson (1995) argue that a child who is exposed to an impersonal attitude and ominous sentences such as "there will be some pain" and "it will just be a shot" or the blatant display of fear-inspiring cannot help but feel threatened. Perhaps for a pedodontist to achieve the level of care and empathy expected by parents during treatment of children with challenging behaviour the dentist may begin by having a brief social conversation. For example, the dentist may ask a restive young patient the game he enjoys playing most. By so doing the dentist displays that she cares and is not solely concerned with processing the patient as quickly as possible and call in the next patient.

There is need to spend reasonable time with patients so as to make them comfortable before treatment begins. A marketing oriented dentist therefore should desist from rushing treatment for the sake of seeing the next patient as this risks her being rated lowly in care and empathy criteria hence overall service quality. Mindak (1998) suggests that "we may think that because it [dentistry] is a health service, people need our services but the reality is different". Inspired by the marketing concept Mindak looks at how dental patients, as customers, evaluate providers of dental services. Her mention of the phrase 'the marketing concept' means dentists, like any marketers; need to be guided by a market orientation. One of the four tenets in the marketing concept is customer orientation (Kotler, 2000; Doyle, 2002; McDonald, 2002). A customer orientation requires that a marketer fully understands the customer's needs and wants before they have manufactured any product or service to offer to the customer. The marketing concept contrasts with other orientations such as production and selling which emphasise the needs of the seller at the expense of the customer. Care and empathy are an integral part of the marketing concept and these can be viewed as empathy and responsiveness in the 10 criteria in Parasuraman et al. (1985) SERVQUAL framework.

Promotion and particularly so 'word of mouth' is one of the components in the SERVQUAL model. Mindak (1998) admits 'with dentistry, word of mouth – that personal recommendation – is a primary factor in new patient attendance'. The fact that 'positive assurance on dentist from other parents' emerged as primary factor influencing parents' choice of a pedodontist means that dentists can only underrate the value of word of mouth in marketing their practices at the risk of not getting any new patients.

For a dental practice to make effective use of positive

word of mouth in marketing its services, service quality has to be good in the perception of consumers. Therefore, a pedodontist has to strive for and excel in all the 12 other important factors that have emerged in this survey in order for her practice to enjoy positive word of mouth. Research suggests that dissatisfied customers talk about their bad experience to two or three times more people than satisfied customers talk about their good experience (Smith and Taylor, 2004).

Experience of the dentist has also emerged as an important determinant of parents' choice of a pedodontist. Experience enhances a service provider's ranking by consumers in terms of knowledge and security, which are two of the 10 criteria in the Parasuraman et al. (1985) SERVQUAL model. Experience as a factor may work to the detriment of newly qualified dentists who enter into private practice and set up their own surgeries. It may prove difficult for them to gain market share or increase the number of patients they see in relation to the number of patients seen by other dentists who are more experienced. Whereas competition in the provision of dental services can be regarded as somewhat subtle the confirmation of experience as an important determinant of parents' choice of a pedodontist shows that experience is a source of competitive advantage for the more experienced practitioner.

### **Access/ Distribution of dental service**

Finn (1998) suggest that several factors should be considered in locating an office of the [dental] practice you wish to establish, such as the area's social and economic factors, transportation and parking facilities, and easy access to school and residential areas. These variables were measured in the study. Social and economic factors influence consumers' shopping behaviour i.e. what they buy, where they buy and how frequently they buy (Schiffman and Kanuk, 2000). This should include the type of dental services bought by different consumers and where they prefer to buy them. Transportation, parking facilities and easy access to school and residential areas fall under access criterion in Parasuraman et al. (1985) SERVQUAL model.

### **Physical evidence in the dental environment**

This has emerged as an important factor that parents consider in choosing pedodontist for their young children. The parameters were friendliness of dental environment to children i.e. music and reading materials, friendliness of dental environment to accompanying parents e.g. availability of reading materials and music in waiting room, decoration of dental office, age and appearance of dental equipment and cleanliness of the dental office environment. Berg and Bebermeyer (1994) argue that though the pediatric office must appear as an attractive place for kids, the office staff must adhere to ever more

stringent [infection control] protocols imposed by governmental organisations and various professional organisations and societies. According to the findings parents and/or guardians are aware that the dental clinic can spread infection if proper sanitary measures are not practiced. From the level of cleanliness in the clinic, parents can calculate the risk of their children catching infection therein.

Mindak (1998) recognises that the customer uses several criteria to assess how a service is provided. She cites Berry and Parasuraman (1991) who identify five principal dimensions that customers use to judge a service one of them being 'tangibles'. Cleanliness of the dental office and the people working therein are 'tangible' aspects. The manner in which these aspects are handled assists in building 'confidence' and 'sense of security' in customers i.e. that they would not get infection from the dental clinic. Confidence and security are among the 10 service quality measures in the SERVQUAL model (Parasuraman et al., 1985).

The friendliness of the environment or ambience falls under physical evidence, one of the 7Ps of marketing. Dentistry literature acknowledges that the ambience in the dental office should assist in relaxing the child and at the same time cater for the entertainment of the accompanying parent. However, for Berg and Bebermeyer (1994) the maintenance of an office ambience that pleases the eye and psyche of the child while complying with inexorably more stringent infection control regiments is difficult to achieve. Finn (1998) suggest among other things soothing, muffled music in the reception room for both parent and patient, adult reading material including dental health material. Marwah et al. (2005) conducted a study in India to ascertain if music distraction is an effective means of managing anxiety in paediatric dental patients aged between 4 and 8 years. They concluded that audio distraction did decrease the anxiety level in paediatric dental patients, but not to a very significant level. The results of the present study seem to corroborate the findings of Marwah et al. (2005) study.

### **Processes in the dental office**

The survey has revealed that the dentist's permission for a parent to remain in the operatory observing her child being treated is an important determinant of parents' choice of a pedodontist. This corroborates a previous study, which found that an overwhelming majority of parents (66% from a sample of 79 elements) wished to observe their young children being treated in the dental surgery (e.g. Kamp, 1992 as cited in Primosch and Mathewson, 1995). Whereas some parents in Kamp's sample felt that their presence would improve their child's acceptance of the dental procedure, some authorities (e.g. Mitchell et al., 1999) argue that some children will play up to an overprotective parent in order to gain sympathy or rewards and may prove more cooperative by themselves. Some dentists feel the presence of a parent

increases potential management problems with the child by offering unsolicited advice, attempting to placate the unmanageable child, and disrupting the dental office routine (Primosch and Mathewson, 1995). While the motive of parents in the Zimbabwean sample to be in the operatory with their children during treatment was not probed, perhaps it may be the same as in Kamp's (1992) study. In view of this finding and the customer orientation tenet of the marketing concept, the dentist's preference as to whether a parent remains in the surgery or is asked to go to the waiting area while her child is being treated should be balanced with the parent's preference. A parent is a key member of the family decision making unit that decide where to buy goods and services. Failure to manage the parent's preference may result in losing repeat business from the parent if she/he should suspect the dentist lacks care and empathy for her patients.

## Conclusion

This study identified underlying factors that parents consider when choosing among alternative dental clinics. The Cronbach Alpha Internal Consistency Measure proved the scale as a reliable, usable and suitable scale for the research. The quality of service rendered as reflected by the ability to manage uncooperative behaviour, care and empathy, accessibility and convenience of dental clinic, friendliness of supporting staff and general outlook of the dental environment, and the process by which the dental therapy is conducted, determine choice of a pedodontist. A major implication of the study is that dentists should consider marketing as a critical component of practice management.

A limitation of this study is that it gathered data through a convenience sample. As such, the researchers suggest that the scale be tested using a larger probabilistic sample consistent with the Central Limit Theorem. It is suggested that the sample should have representative strata from a wide spectrum of the community.

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