



Original Article

Dental Care Services in Children: Pattern and Factors for Delay in Seeking Care among Tanzanian Paediatric Dental Patients

Dr. Hawa Shariff Mbawalla, PhD^{1*}, Dr. Shadia Majid Abubakary¹ & Prof. Febronia Kokulengya Kahabuka, PhD¹

¹ Muhimbili University of Health and Allied Sciences, P. O. Box 65014, Dar es Salaam, Tanzania

*Author for correspondence ORCID ID <https://orcid.org/0000-0003-3338-1076>; Email: hmbawala@muhas.ac.tz

Article DOI: <https://doi.org/10.37284/eajhs.6.1.1347>

Date Published: **ABSTRACT**

02 August 2023

Keywords:

*Seeking Dental Care,
Dental Care Services,
Children,
Delay.*

Seeking dental care services by responding to pain or potentially painful outcomes of advanced oral lesions impedes quality dental care for children. This study assessed patterns and factors associated to delay in seeking dental care among Tanzanian paediatric dental patients. It involved 312 child dental patient-escort pairs attending a university paediatric dental clinic in Tanzania. Structured questionnaires and clinical examination forms were used for collecting data. Frequency distributions, cross-tabulations and binary logistic regression were conducted to summarise the variables, test for the presence and magnitude of associations between delay in seeking care and socio-demographics plus dental services-related factors, respectively. Over two-thirds (68.6%) of the participants were delayed in seeking dental care; 45.2% were brought more than a month since the parents were informed or noted the child's oral dental complaint. Delayed children were more likely to have had previous dental visits (OR = 1.8 95% CI 1.1, 3.0) while less likely to require physically stabilised during the dental procedure (OR = 0.5 95% CI 0.3, 1.0). In conclusion, the pattern and factors associated with delay in seeking care among Tanzanian paediatric dental patients were such that; most of the patients attended late, and dental-related factors explained the delay rather than the sociodemographic factors. Previous unsatisfactory dental experiences could explain the observation made. Ensuring quality of dental services provided, such as improving dental treatment outcomes and providing comprehensive dental care with enhanced preventive dental services.

APA CITATION

Mbawalla, H. S., Abubakary, S. M. & Kahabuka, F. K. (2023). Dental Care Services in Children: Pattern and Factors for Delay in Seeking Care among Tanzanian Paediatric Dental Patients *East African Journal of Health and Science*, 6(1), 290-300. <https://doi.org/10.37284/eajhs.6.1.1347>.

CHICAGO CITATION

Mbawalla, Hawa Shariff, Shadia Majid Abubakary and Febronia Kokulengya Kahabuka. 2023. "Dental Care Services in Children: Pattern and Factors for Delay in Seeking Care among Tanzanian Paediatric Dental Patients". *East African Journal of Health and Science* 6 (1), 290-300. <https://doi.org/10.37284/eajhs.6.1.1347>.

HARVARD CITATION

Mbawalla, H. S., Abubakary, S. M. & Kahabuka, F. K. (2023) "Dental Care Services in Children: Pattern and Factors for Delay in Seeking Care among Tanzanian Paediatric Dental Patients", *East African Journal of Health and Science*, 6(1), pp. 290-300. doi: 10.37284/eajhs.6.1.1347.

IEEE CITATION

H. S., Mbawalla, S. M., Abubakary & F. K. Kahabuka, "Dental Care Services in Children: Pattern and Factors for Delay in Seeking Care among Tanzanian Paediatric Dental Patients", *EAJHS*, vol. 6, no. 1, pp. 290-300, Aug. 2023.

MLA CITATION

Mbawalla, Hawa Shariff, Shadia Majid Abubakary & Febronia Kokulengya Kahabuka. "Dental Care Services in Children: Pattern and Factors for Delay in Seeking Care among Tanzanian Paediatric Dental Patients". *East African Journal of Health and Science*, Vol. 6, no. 1, Aug. 2023, pp. 290-300, doi:10.37284/eajhs.6.1.1347.

INTRODUCTION

Consultation with healthcare professionals is often stimulated by the detection of somatic information that is deemed to be beyond personal control and so in need of medical or dental attention. Dental care services intend to address both curative and preventive aspects of dental diseases and conditions, the success of which depends on prompt consultation (Agbor et al., 2018; United Republic of Tanzania, 2020).

Due to complexities within health-seeking behaviour, people tend to take longer time than necessary to seek help from a healthcare professional (HCP) (Abegaz et al., 2019; BaniHani et al., 2021; Oo et al., 2020). The time taken in the process may result in a delay, which is referred to as patient delay and is implied as the time taken between a patient's initial discovery of symptoms and the first consultation with an HCP for those symptoms. The timing of consultations with HCPs has implications on individuals' health, quality of treatment to be offered, treatment options, the prognosis of the disease, cost of healthcare services and quality of life (Abegaz et al., 2019; Agbor et al., 2018; BaniHani et al., 2021; Mhalu et al., 2019)

Delay in seeking dental care in children with dental problems may result in difficulties in behaviour management, necessitate invasive dental procedures

on the first visit and create a negative attitude towards dental care services (Agbor et al., 2018; BaniHani et al., 2021; Shao et al., 2016). Therefore, timely dental consultation in children is critical for quality and appropriate dental intervention.

Delays in dental consultation can be due to several factors; accessibility to dental care services, cost of treatment, lack of awareness of the need for treatment and possible treatment options, as well as socio and cultural reasons (Agbor et al., 2018; BaniHani et al., 2021). The delay may as well be a result of the nature of dental diseases being mostly chronic in nature since the interaction between causative factors and host tends to be modifiable by human behaviours and lifestyle. Delays in children may further be caused by the child's sense of dependency on; the cost of care, perception of symptoms and the decision of whether to seek care for the child or not (Abegaz et al., 2019).

Dental care services in Tanzania are provided mainly in public health facilities, alike other medical services and warranted government subsidies for health care (United Republic of Tanzania 2020). Furthermore, both medical and dental care services for under-five years old children and those with special health care needs are granted an exemption for care. Despite the government efforts seeking dental care services is

usually due to pain or potentially painful outcome of advanced oral lesions and not for preventive care (Shao et al., 2016; Owibingire et al., 2018).

Toothache and other causes of orofacial pain are the most common reasons for seeking dental care services among dental patients in the African region (Agbor et al., 2018; Ocwia et al., 2021; Owibingire et al., 2018). The mutual observation from studies in the African region is that; a substantial proportion of patients with orofacial pain /toothache tend to take at least one month from the onset of the symptoms to the time they present at the dental facility (Ibikunle et al. 2020; Ikpefan et al., 2020; Msolla et al., 2019).

Studies on the role of sociodemographic factors on patients' delay in seeking care have reported varying observations. Paediatric dental patients' delay in seeking care in Jordan and Brazil was reported to be associated with maternal profession, education level and family income, while lack of association was noted for child's gender and age as well as parental employment status among South African children (BaniHani et al., 2021; Mukhari-Baloyi et al., 2021.; Soares et al., 2021)

Notwithstanding the Tanzanian government's commitment to ease health care provision to children, including oral health, children are rarely brought for dental consultation promptly, rather when the presenting conditions are in advanced stages with active pain and sleeplessness. This sets a challenge to paediatric dental patient care in behaviour management as well as desecrating invasive dental procedures. Therefore, this study aimed to assess the delay in seeking dental care and determine the role of parental and child's sociodemographic factors as well as their oral health-related behaviours as attributes of reported delay in paediatric dental patients attending a university dental clinic in Tanzania.

MATERIALS AND METHODS

It was a health facility-based cross-sectional study involving paediatric dental patients and their escorts. The patients were attending a university dental clinic for various oro-dental diseases/conditions. The dental patients in this clinic were aged 0-12 years and hence escorted by their parents/guardians or other relatives to be legal guardians during the dental visit. To be included in the study, a child dental patient had to be complaining of any oro-facial-related condition and be escorted by a legal guardian or parent. Solicited patients and children with special healthcare needs were excluded from the study. The study received ethical clearance from the university Institutional Review Board with Ref. No. DA.282/298/01.C.

The sample size was estimated by using the formula for cross-sectional studies using proportion; $n = Z^2 [p(1-p)/d^2]$. The assumption was such that; the proportion (p) of children who delay seeking dental care was 50%, the standard normal variant (Z) was set at 5% and absolute precision (d) was 0.05. Therefore, a total of 384 paediatric dental patient-escort pairs were expected as a minimal sample for the study. Using a systematic random sampling design based on patients' clinical registration system numbers where every paediatric dental patient with an odd clinical registration number was selected to participate in the study.

Data were collected using an interview of a semi-structured questionnaire in Kiswahili language and dental clinical examination. The questionnaire was piloted in the same clinic for validity and content clarity before use. It inquired about children's and parents' socio-demographics, oral health-related behaviours, time taken by the parent before seeking dental care and the main reason for seeking dental care. A routine dental patient clinical examination was conducted to ascertain the type of presenting dental condition.

The dependent variable was delayed seeking dental care in a child dental patient. It was operationalised as the duration taken since the child first reported an oro-dental complaint to the day he/she was brought

to the dental clinic. A child was considered to have delayed seeking dental care when he/she was brought more than one week since reporting acute pain or more than one month since reporting/noticing asymptomatic changes such as tooth discolouration or decay. The independent variable included; sociodemographic variables, which were personal information of the participants that have implications for oral health and seeking dental care in a child. This included data on the educational level and occupation of the parents, who live with the child, mode of the dental services payment and schooling state as well as the child's age and sex. The dental setting-related factors were information on; previous dental visits, nature of presenting dental condition (primary diagnosis on the day of visit), child requiring stabilisation and nature of the dental treatment procedure offered.

Data were processed and analysed using the computer software program SPSS version 20. The data were transformed for analysis purposes as follows; parents' highest level of education into primary education or below and secondary education or higher; mother's occupation into day worker/pet business and employed/have large scale business, mode of dental services payment into cash and health insurance/exempted, child's age into younger than six years and six years or older, schooling status into not attending school and attending school. Furthermore, the transformation was done to determine the delayed seeking dental care as those who had reported having sought care a week after the child reported acute pain of the orofacial region and those who sought care more than a month after noting a painless sign. The type of dental condition was transformed into non-acute pain-related conditions (neoplasm, malocclusion, dental development disorders and others) and pain-related conditions (dental caries involving the pulp,

caries confined to the crown, postoperative complications, and orofacial infections). The dental setting factors were transformed as; Frequency of dental visit having a previous dental visit was categorised as being the first visit or had a previous, nature of dental condition into none pain and pain related condition, nature of dental procedure as non-invasive and invasive and whether child requiring physical stabilisation as did not apply or applied.

Regarding statistical analysis, frequency distribution was carried out to determine the prevalence of children who were delayed in seeking dental care, the proportion of oral health-related behaviours, and the type of dental conditions. Cross-tabulation was performed for the association between delay in seeking care and the children and parental sociodemographic factors as well as oral health-related behaviours presented in proportions and chi-square statistics. Binary logistic regression presented in odds ratios and 95% confidence interval (CI) was conducted for the behaviours and sociodemographic factors that had statistical significance in association with delayed seeking dental care. The level of significance was set at $p < 0.05$.

RESULTS

A total of 312 out of 384 targeted paediatric-escort pairs participated in the study, resulting in a participation rate of 81.3%. A larger proportion of the participating children were aged six years or older (71.8%), attending school (87.8%) and had parents with secondary education or above (72.7% mothers and 74.2% fathers). In terms of health payment modes for dental services, more than two-thirds (67.9%) had health insurance or were exempted from paying for the services as per the Tanzanian government policy (*Table 1*).

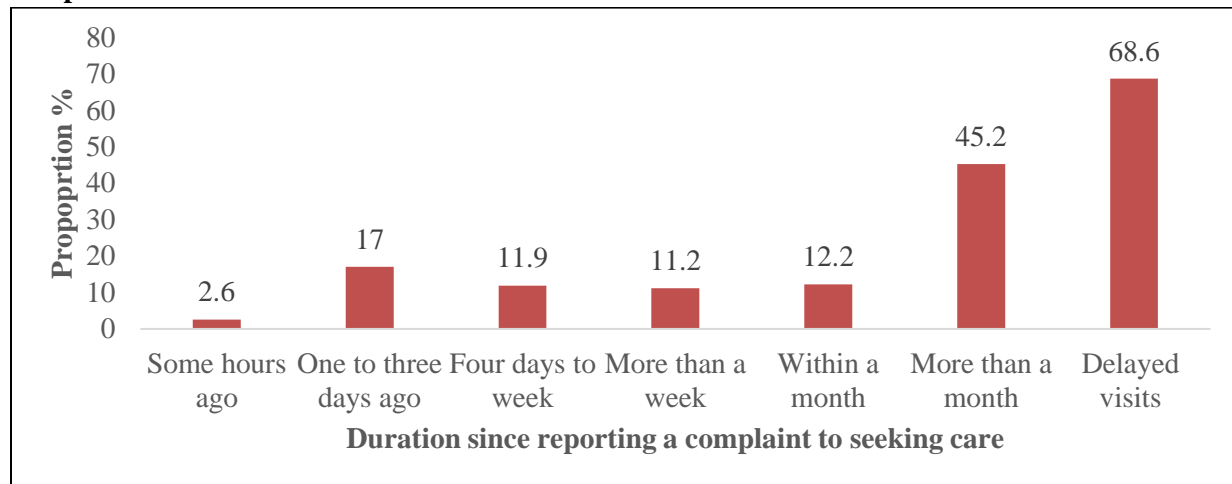
Table 1: Frequency distribution of participants' sociodemographic characteristics

Variable	Categories	%(n)
Age	Five years or younger	28.2 (88)
	Six years or older	71.8 (224)
Sex	Female	48.7 (152)
	Male	51.3 (160)
Child's schooling state	Not attending school	12.2 (38)
	Attending school	87.8(274)
Father's highest educational attainment	Primary or below	25.3 (79)
	Secondary or higher	74.7 (233)
Mother's highest educational attainment	Primary or below	27.6 (86)
	Secondary or higher	72.4 (226)
Mother's occupation	Day worker/pet business	48.7 (152)
	Employed/large business	51.3 (160)
Mode of payment for dental services	Cash	32.1 (100)
	Health insurance/exempted	67.9 (212)

The overall percentage of paediatric dental patients who were delayed for dental attendance amounted to over two-thirds (n=214, 68.6%). Specifically, 45.2% sought dental care more than a month since

the parents were informed or noted the child's dental complaint, while less than 20% of all the participants were brought within three days (*Figure 1*).

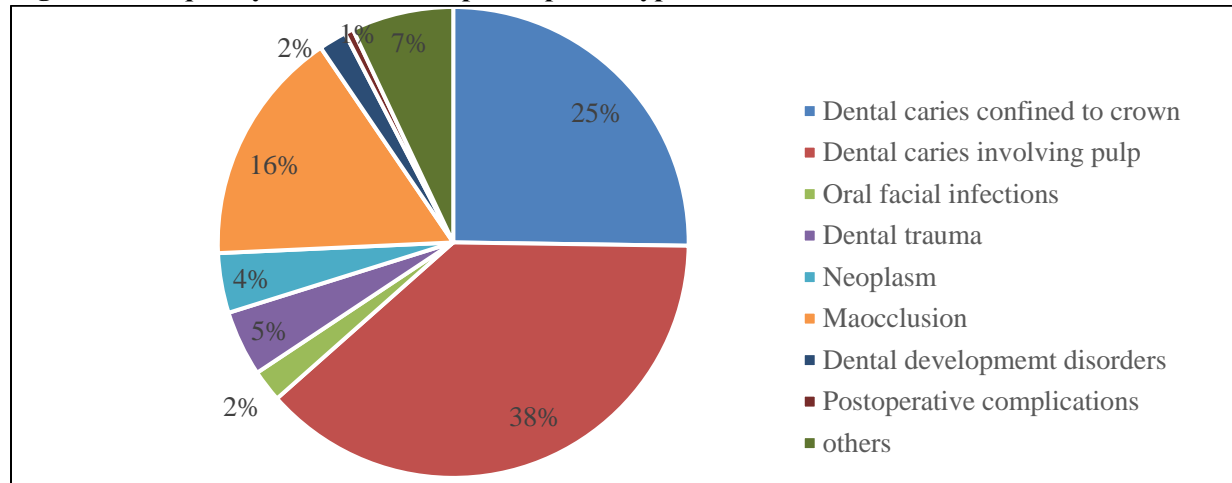
Figure 1: Frequency distribution of times taken by parents since informed/noted oral health complaints of their children to a visit



Regarding clinical diagnosis that called for the current dental visit, dental caries involving the pulp were the most common, while postoperative complications and other orofacial infections were the least (1.0 and 2%, respectively). Dental caries-

related conditions accounted for over two-thirds of all diagnosed conditions in these paediatric dental patients (*Figure 2*). Overall, 71.2 % (222) of the studied participants had been diagnosed to have conditions associated with acute pain.

Figure 2: Frequency distribution of participants' type of dental condition



The sociodemographic distribution of participants for delayed seeking dental care revealed that; a higher proportion of the six years or older, females, those whose parents had primary education or below, whose mothers were employed or had a large business, the ones living with both parents, those attending school and who pay by cash were delayed

to seek dental care than their counterparts. However, only those whose children reported to be attending school (71.2 vs 50.0%) and whose mothers were employed or have large-scale businesses (73.8 vs 63.2%) showed a statistical significance difference in proportions (*Table 2*).

Table 2: Distribution of participants who delayed seeking dental care by sociodemographic factors

Variable	Categories	%(n)	P-value
Age	Five years or younger	62.5 (55)	0.146
	Six years or older	71.0 (159)	
Sex	Female	70.4 (107)	0.503
	Male	66.9 (107)	
Father's highest educational attainment	Primary or below	70.9 (56)	0.611
	Secondary or higher	67.8 (158)	
Mother's highest educational attainment	Primary or below	66.3 (57)	0.588
	Secondary or beyond	69.5(157)	
Mother's occupation	Day worker/pet business	63.2 (96)	0.044
	Employed/large business	73.8 (118)	
Child schooling state	Not attending school	50.0 (19)	0.008
	Attending school	71.2 (195)	
Mode of payment for dental services	Cash	69.0 (69)	0.915
	Health insurance/exempted	68.4 (145)	

The distribution of participants who delayed seeking dental care by the dental services-related factors displays statistically significant differences for all the studied factors. It was such that significantly higher proportions of participants who

delayed seeking dental care were; those who had a previous dental visit, those diagnosed as having a non-pain related dental condition, who had received a non-invasive dental procedure and were not physically stabilised during the procedure (*Table 3*).

Table 3: Distribution of participants who delayed seeking dental care by dental services-related factors

Variable	Categories	% (n)	p-value
Frequency of dental visit	First visit	64.3 (119)	0.05
	Had previous visit	74.8 (95)	
Nature of dental condition	None pain condition	76.7 (69)	0.05
	Pain related condition	65.3 (145)	
Nature of dental treatment offered	Non-invasive treatment	74.2 (151)	0.026
	Invasive treatment	63.4 (161)	
Physical stabilisation applied	Did not apply	71.4 (187)	0.013
	Had to be applied	54.0 (27)	

Table 4 depicts adjusted ORs and 95% CI for the delay in seeking dental consultation by socio-demographics and dental services-related factors. Age and sex of the child, mother's occupation and child's schooling state were entered in the first step, providing a model fit of Nagelkerke's $R^2 = 0.042$, model *chi-Square* 9.4, $df = 4$ $p < 0.051$. When the dental services-related factors were added in the second step, it improved the fit of the model to

Nagelkerke's $R^2 = 0.075$, model *chi-square* = 16.98, $df = 6$, $p < 0.023$. In this second model, the nature of the dental visit and requiring the use of physical stabilisation retain the statistical significance, with odds of delay being higher among children who have had previous dental visits (OR =1.8 95% CI 1.1,3.0) and those who were not physically stabilised during the procedure (OR=0.5 95% CI 0.3,1.0).

Table 4: Delay in seeking dental care regressed on sociodemographic characteristics and dental services-related factors

Variable	Categories	OR (95% CI)	p-value
Age	Five years or younger	1	0.973
	Six years or older	1 (0.5, 1.)	
Sex	Female	1	0.590
	Male	0.9 (0.5,1.4)	
Mother's occupation	Day worker/pet business	1	0.185
	Employed/large business	1.4 (0.8, 2.4)	
Child schooling state	Not attending school	1	0.075
	Attending school	2.1 (0.9, 4.9)	
Category of the dental visit	First dental visit	1	0.031
	Had previous visit	1.8 (1.1,3.0)	
Nature of dental condition	None pain condition	1	0.205
	Pain related condition	0.7 (0.4,1.2)	
The procedure of dental treatment offered	Non-invasive treatment	1	0.287
	Invasive treatment	0.7 (0.4,1.2)	
Required child physical stabilisation during the procedure	Did not apply	1	0.050
	Had to be applied	0.5 (0.3,1.0)	

DISCUSSION

Timely dental consultation with oral health facilities for care is a key to quality care for children in dentistry, while delay in dental seeking care in children is considered a sign of child dental neglect

(Kvist et al., 2018). This study was performed to assess the duration taken to seek dental care, determine the proportion of those who delay seeking care and identify behavioural and sociodemographic characteristics that could explain

the delays found. It was a health facility cross-sectional study of children attending a university dental clinic for various oro-dental complaints. The results are; delay in seeking dental care among the paediatric dental patients was substantially high, with more than two-thirds reporting to have sought care more than a week since the child reported to have acute oro-dental pain.

Socio-demographically, the study participants were mostly from socio-demographically advantaged families, whereby the majority of their parents had secondary education or higher and had health insurance. Participants being from socio-demographically advantaged families are expected to favour prompt seeking for dental care. The findings resonate with a study by Shao et al. (2016).

The observation that most parents/guardians reported have taken more than a month to seek dental care since a child reported or was notified of the dental complaint is of concern to both the dentists as well as the child. A month or so of living with oro-dental pain in a child is considered as the parents being neglectful and renders complications in the provision of appropriate and quality dental care to the child dental patient (Kvist et al., 2018). The findings are in concurrence with that of BaniHani et al. (2021) among Jordanian children, where most children were taken to a dentist more than two weeks after reporting the pain. Furthermore, comparative findings have been reported in the adult population in African studies that a substantial proportion of patients with oro-facial pain/toothache tend to take at least one month from the onset of the symptoms to the time they present at the dental facility (Ibikunle et al., 2020; Ikpefan et al., 2020; Msolla et al., 2019).

Dental caries was the dominant primary diagnosis arrived at, and unfortunately, a higher percentage had dental caries associated with acute pain rather than painless caries states. The findings are in line with a previous study by Kusekwa & Kikwilu (2011), whereby 79.0% of adult Tanzania dental patients sought oral care due to pain from advanced

caries lesions. Likewise, Olatosi et al. (2019) in Nigeria reported that 33.1% of all paediatric dental patients attending dental clinics had pain and dental caries was a common diagnosis. Acute dental pain in children deters the dental management of a child, where invasive procedures such as extraction as the first dental experience may render to behaviour management problems and, in the future negative attitude towards dental treatments.

In the current study, essential parents' socio-demographics (education levels and having health insurance) did not reveal a statistically significant association with delay in seeking dental care in children. However, the direction was that of delayed children being from socio-demographically disadvantaged families. Parent's socioeconomic factors affect children's access to care and health-seeking behaviour. The lack of significant association could have been a result of parental socio-demographics playing an indirect role in health-seeking behaviours. The observation is contrary to a study by Soares et al. (2020) among Brazilian children, where delay in the first dental visit was higher among children from socio-demographically disadvantaged families, such as mothers with low schooling levels or who lacked health insurance.

However, children whose mothers were employed/had large-scale businesses and those attending school were significantly delayed in seeking dental care. A decision to consult for dental services may be influenced by the second party, namely, the mother's employee and the child's school authority. A comparable observation was reported among Jordanian paediatric dental patients that; skilled mothers delayed seeking care for their children compared to their counterparts (BaniHani et al., 2021; Mukhari-Baloyi et al., 2021). It is, in a way, contrary to the general expectations that utilisation of dental services is higher among socio-economically advantaged adults and children.

The effect of dental services-related factors on children delayed in seeking dental was noted in the

frequency of dental visits, with a higher proportion of those who had a previous visit being delayed than the ones visiting for the first time could be explained by possible unpleasant dental experiences. In the same tone, the fact that a higher percentage of children with non-pain-related conditions were delayed in seeking dental care than those with acute pain could be due to a lack of not urgency perceived by parents in situations of non-pain-related conditions. This is supported by findings that orofacial pain-related complaints are the most common reason for dental visits in African regions and the cause of emergency dental consultation in Europe (Agbor et al., 2018; Martens et al., 2018; Ocwia et al., 2021).

The higher odds for delay in seeking care among the participants who had a previous dental visit imply that they were not motivated or informed sufficiently during their previous visit on the importance of prompt dental care seeking. The results are comparable with those by Lutfiyya et al., 2019 whereby delayed seeking care was associated with having the last dental visit longer than 12 months ago. Furthermore, the unlikelihood of applying physical stabilisation during dental procedures among participants who were delayed in seeking care is contrary to the expectations, where a child in pain will not be ease managed with universally acceptable techniques. Possible children in acute pain are prescribed antibiotics and ant pain, then recalled in follow-up visits with subsided pain for definitive dental procedures.

CONCLUSION

The pattern and factors associated with delay in seeking care among Tanzanian paediatric dental patients were such that; most of the patients attended late, and dental-related factors explained the delay rather than the sociodemographic factors. Previous unsatisfactory dental experiences could explain the observation made.

Recommendations

The observed delay associated with dental-related factors can be addressed by ensuring the quality of dental services provided by improving dental treatment outcomes, providing comprehensive dental care with enhanced preventive dental services and reducing patient waiting time. Further studies are suggested to be conducted in dental primary health care facilities versus university dental clinics, where most of the children with orofacial conditions are first presented to provide the generalizability of the findings. Additionally, studies should assess complications associated with dental management of delayed children, such as their behaviours during dental visits using well-validated and reliable instruments.

REFERENCES

- Abegaz, N. T., Berhe, H., & Gebretekle, G. B. (2019). Mothers/caregivers healthcare seeking behavior towards childhood illness in selected health centers in Addis Ababa, Ethiopia: a facility-based cross-sectional study. *Bmc Pediatrics*, *19*(1), 1-9. <https://doi.org/10.1186/s12887-019-1588-2>
- Agbor, A. M. (2018). Reasons for Late Dental Consultations at the Central Hospital of Yaoundé. Cameroon. *EC Dental Science*, *17*, 360- 367. <https://www.econicon.com/ecde/pdf/ECDE-17-00626.pdf>
- BaniHani, A., Tahmassebi, J., & Zawaideh, F. (2021). Maternal knowledge on early childhood caries and barriers to seek dental treatment in Jordan. *European Archives of Paediatric Dentistry*, *22*(3), 433-439. <https://doi.org/10.1007/s40368-020-00576-0>
- Ibikunle, A. A., Taiwo, A. O., Braimah, R. O., Adamson, O., Fashina, A., & Bala, M. (2020). The challenge of late presentation by dental patients in our climes: Reasons behind the enigma. *Journal of Indian Association of Public*

- Health Dentistry, 18(3), 210. DOI: 10.4103/jiaphd.jiaphd_91_19
- Ikpefan, D. O., Erhabor, P., & Azodo, C. C. (2020). Oral Health Awareness and Care Seeking Behaviours among Public and Private Dental Clinics Attendees: Oral Health Awareness and Care Seeking Behaviours among Dental Clinics Attendees. *Nigerian Journal of Dental Sciences*, 3(1), 9- 15. <https://publications.nomiot.com.ng/index.php/njds/article/view/47/33>.
- Kusekwa, M., & Kikwilu, E. N. (2011). Reasons for late seeking of dental care among dental patients attending dental clinics at School of Dentistry MUHAS, Tanzania. *Tanzania Dental Journal*, 17(1), 7- 14. <https://www.ajol.info/index.php/tdj/article/view/80030>
- Kvist, T., Annerbäck, E. M., & Dahllöf, G. (2018). Oral health in children investigated by Social services on suspicion of child abuse and neglect. *Child abuse & neglect*, 76, 515-523. <https://doi.org/10.1016/j.chiabu.2017.11.017>
- Martens, L. C., Rajasekharan, S., Jacquet, W., Vandenbulcke, J. D., Van Acker, J. W. G., & Cauwels, R. G. E. C. (2018). Paediatric dental emergencies: a retrospective study and a proposal for definition and guidelines including pain management. *European Archives of Paediatric Dentistry*, 19(4), 245-253. doi: 10.1007/s40368-018-0353-9
- Mhalu, G., Weiss, M. G., Hella, J., Mhimbira, F., Mahongo, E., Schindler, C., ... & Merten, S. (2019). Explaining patient delay in healthcare seeking and loss to diagnostic follow-up among patients with presumptive tuberculosis in Tanzania: a mixed-methods study. *BMC health services research*, 19(1), 1-14. <https://doi.org/10.1186/s12913-019-4030-4>
- Msolla, R., Simon, E. N., Sohal, K. S., & Owibingire, S. S. (2019). Late reporting for health care among patients presenting with oral maxillofacial tumours or tumourlike lesions in Muhimbili National Hospital, Tanzania. *Medical Journal of Zambia*, 46(2), 109-116. <https://www.ajol.info/index.php/mjz/article/view/188902>
- Mukhari-Baloyi, N. A., Ramphoma, K. J., Phalwane, M. G., & Motloba, P. D. (2021). Association of parental factors and delayed dental care for children. *South African Dental Journal*, 76(10), 607- 612. <https://doi.org/10.17159/2519-0105/2021/v76no10a4>
- Lutfiyya, M. N., Gross, A. J., Soffe, B., & Lipsky, M. S. (2019). Dental care utilisation: examining the associations between health services deficits and not having a dental visit in past 12 months. *BMC public health*, 19(1), 1-13. <https://doi.org/10.1186/s12889-019-6590-y>
- Ocwia, J., Olum, R., Atim, P., Laker, F., Okot, J., Sereke, S. G., ... & Bongomin, F. (2021). Oral health seeking behaviors of adults in Nebbi District, Uganda: a community-based survey. *BMC oral health*, 21(1), 1-7. doi: 10.1186/s12903-021-01824-5.
- Olatosi, O. O., Onyejaka, N. K., Oyapero, A., Ashaolu, J. F., & Abe, A. (2019). Age and reasons for first dental visit among children in Lagos, Nigeria. *Nigerian Postgraduate Medical Journal*, 26(3), 158. DOI:10.4103/npmj.npmj_60_19
- Oo, M. C., Tun, K. Z., Ko, K. K., & Aung, P. L. (2020). Delayed care-seeking and its underlying factors among patients with tuberculosis in Yangon, Myanmar. *The Journal of Infection in Developing Countries*, 14(06), 631-641. doi: 10.3855/jidc.12663.
- Owibingire, S. S., Kamyra, E. R., & Sohal, K. S. (2018). Misconceptions on Causes and Management of Dental Caries: Experience from Central Tanzanian Society. *Annals of International Medical and Dental Research*, 4(2):18. <https://doi.org/10.21276/aimdr.2018.4.2.DE5>

Shao, A. G., Kahabuka, F. K., & Mbawalla, H. S. (2016). Children's behaviour in the dental setting according to Frankl behaviour rating and their influencing factors. *J Dent Sci*, 1(1), 1-12. https://journals.ekb.eg/article_78105_a50a809d290fde2c82a857ba6c689882.pdf

Soares, A. L. F. H., Ribeiro, C. C. C., Thomaz, E. B. A. F., Queiroz, R. C. S., Alves, C. M. C., Ferraro, A. A., ... & Saraiva, M. C. P. (2021). Socio-environmental determinants of the delay in the first dental visit: results of two population-based cohort studies in Brazil. *Brazilian Journal of Medical and Biological Research*, 54. doi: 10.1590/1414-431X202010161

United Republic of Tanzania. (2020). The United Republic of Tanzania the Second Guidelines for Provision of Oral Health Services in Tanzania. <https://mercuryfreedentistry.files.wordpress.com/2020/06/tanzania-guidelines.pdf>