International Science and Technology Journal
المجلة الدولية للعلوم والتقنية

Volume 38 العدد
Part 1 المجلد

http://www.doi.org/10.62341/iyfg9435

Received	**2026/01/29**	**تم استلام الورقة العلمية في**
Accepted	**2026/02/21**	**تم قبول الورقة العلمية في**
Published	**2026/02/22**	**تم نشر الورقة العلمية في**

Global and Regional Evidence on Oral health Problems and Oral health Related Quality of Life (OHRQOL) Among School Children with Emphasis on the Libyan Context: A Review Article

Fadila. Y. Ezabi

Assistant professor at Dental Technology Department

Faculty of Medical Sciences and Technologies, Tripoli - Libya

Email Address: amrwanalzaby@gmail.com

ORCID ID: 0009-0000-4963-159X

Abstract

Background: Oral health is a fundamental aspect of overall health and general well-being, and identified by the World Health Organization (2022) as a significant determinant of the quality of life. Oral diseases during childhood, especially tooth caries, Periodontal tissue problems, and malocclusion, are prevalent in school-age children and significantly affect their physical, psychological, and social well-being. (Kumar et al., 2021).

Keywords : oral health , quality of life, school children ,OHRQoL, Libya.

Copyright © ISTJ

حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

International Science and Technology Journal
المجلة الدولية للعلوم والتقنية
Volume 38 العدد
Part 1 المجلد
http://www.doi.org/10.62341/iyfg9435

الادلة العالمية والمحلية حول مشكلات الفم وجودة الحياة المرتبطة بصحة الفم لدى اطفال المدارس مع التركيز على السياق الليبي

فضيلة يونس عيسى العزابي

قسم تقنية الاسنان – كلية العلوم والتقنيات الطبية – طرابلس – ليبيا

amrwanalzaby@gmail.com

الملخص

تعد صحة الفم جانبا أساسيا من جوانب الصحة العامة والرفاهية، وقد صنفتها منظمة الصحة العالمية في عام 2022 كعامل مهم في تحديد جودة الحياة. تعد امراض الفم خلال فترة الطفولة خاصة تسوس الاسنان وامراض اللثة ومشاكل الاطباق شائعة شائعة بين الأطفال في سن المدرسة، وتؤثر بشكل كبير على صحتهم البدنية والنفسية والاجتماعية.

المنهجية: استندت هذه المراجعة المنهجية الى تجميع وتحليل الأدلة العالمية والإقليمية المنشورة بشكل مجاني عبر محركات البحث (Reasrach Gate,PubMed,Google Scholare) وشملت الدراسات الاستطلاعية والمراجعات المنهجية من سنة 2000الى 2025 والمتعلقة بانتشار مشاكل صحة الفم بين أطفال المدارس، وتهدف الدراسة الى استكشاف العلاقة بين مشاكل صحة الفم وجودة الحياة لدى الأطفال الدين تتراوح اعمارهم من 6 الى 15 سنة، لقد اولت هده الدراسة اهتماما خاصا بالسياق الليبي، بالرغم من البيانات المحدودة والأدلة الوبائية المتفرقة والفجوة الهيكلية لقلة توافر خدمات طب

الأسنان الوقائية ونقص البنية التحتية للصحة العامة للأسنان. لقد اشارت نتائج هذه

الدراسة الى ان مشكلة تسوس الاسنان لدى اطفال المدارس مازالت تشكل عبا عالميا ومحليا من حيت معدل الانتشار وتأثيرها على جودة الحياة خلال هده الفئة العمرية،

الامر الدي يتطلب الحاجة الى اجراء بحوت محلية واسعة الانتشار لتنفيذ سياسة وقائية عملية.

الكلمات المفتاحية: صحة الفم، امراض الفم، أطفال المدارس، جودة الحياة المتعلقة بصحة الفم، ليبيا.

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

Introduction

Oral health is widely addressed as a significant indicator of general well-being. This factor influences the quality of life, according to the World Health Organization's oral health report in (2022). It encompasses the capability to speak, chew, and socially interact without discomfort or pain and contributes to an individual's physical and emotional health. During the childhood developmental stage, it is important to maintain optimal oral health status due to changes in dietary habits, self-oral hygiene, and increased exposure to environmental and social health determinants that influence future health behaviors and outcomes (Jackson et al., 2020). Nonetheless, Numerous children globally continue to suffer from preventable dental diseases, including dental caries, gingivitis, and misalignment, which adversely impact their daily activities and self-esteem. (Kumar et al, 2021). The Libyan OHRQL context remains uncertain because of absence of the nationally representative surveys assessing oral health problems and their relationship with quality of life among children, all existing epidemiological data are derived from reviews and cross-sectional studies that were conducted among specific age groups and limited to geographic area,Even more there are lack of awareness, inadequate school-based programs and a limited of preventive services exacerbate these issues.

The aims of review: This systematic review aims to

1-Synthesizes global and regional evidence regarding the prevalence of oral health problems among school-children aged between (6-15 years).

2-Explores the relationship between oral health problems and quality of life (OHRQOL) in children.

3- Summarize evidences Specific to the Libyan context.

4- Emphasize on the specific contextual challenges in Libya, identify research priorities for future research by dental public health experts.

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

METHOD:

This systematic review carried out across free accessible data base from Pub-Med, Research Gate, and Google Scholar, the search period extend about three months from (9^{th} to 12^{th} ,2025). Although Scopus is widely recognized data base,it was not included in this review . it could be utilized in future research for comprehensive literature coverage

INCLUSION CRITERIA: All studies conducted among 6-15 years age school children, studies reporting the prevalence and severity of mentioned oral health problems, studies assess the impact of oral health problems on the quality of life among school children were included, research published in English language and provide data on global and Libyan evidences. In this review limited attention was given to publication period, while the priority was concentrated on open accessed studies conducted in Libyan regions published between periods of (2000-2025).

EXCLUSION CRITERIA: Studies conducted limited to Preschool children and adults were excluded, Clinical case reports, studies conducted among school children with systemic diseases, research without clear diagnostic criteria and outcome measures.

Eligibility criteria (PICOS Framework)

POULATION (P): School children aged 6-15 years.

INTERVENTION/EXPOSURE (I): Presence of oral health problems limited to Dental caries, Gingivitis, Periodontal diseases and Malocclusion and tooth Loss.

COMPARASION(C): Comparison between age groups and region were included but not mandatory

OUT COMES (O): The prevalence and severity of oral health problems were assessed by DMFT /dmft caries index and oral health related quality of life assessed with (CPQ, OIDP and ECOHIS)

STUDY DESIGN(S): This review included Cross sectional studies, review studies as well as longitudinal studies

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

Global and local prevalence of Oral Health Problems in Schoolchildren

Although dentistry has recently seen many advancements, recent estimates revealed that oral illnesses continue to be a significant health concern and common in many communities around the world. (Hoffmeister L, 2016 & Kassebaum NJ, et al., 2017). Oral diseases continue to rank among the top 25 factors affecting disability-adjusted life years in various age groups, accounting for 23.1 million disability-adjusted life years worldwide in 2019, according to the most recent Global Burden of Disease results. Oral health problems, including dental caries, periodontal diseases, and oral neoplasms, are among the many conditions that impact both soft and hard oral tissues. They affect more than 3 billion people and are related to health, financial concerns, and adverse impacts on individuals' quality of life. (Peres MA, et al., 2019).

The oral diseases including caries, periodontal diseases and tooth loss prevalent in greater than 44.5% among global individuals which grades the oral disorders as global public challenge.)Vos T et .,2019).Dental caries is the most among the prevalent oral problems affecting childhood period(Lee G.et al.,2010) , and determined as one of 10th common health issues globally affecting more than 600 million child worldwide. (Kassebaum NJ et al 2017). Studies shows global variation of dental caries prevalence in accordance to geographical regions and country economic status and access to preventive health services .For ,example prevalence reaching as high as 85% in Qatar (Al-Darwish et al, 2014), 78% in Eritrea (Andegiorgish et al., 2017) ,and 53.6% in China (Li et al., 2021). Even though based on a dental health report of WHO, 2022, worldwide there are about 3, 6 billion cases suffered from oral health problems in 2019. Dental caries is considered as the common prevalent chronic illness affecting nearly about 2 billion cases globally with about 510 million dental caries cases reported in primary teeth globally, this making dental caries the most significant health conditions, meanwhile nearly about 1 billion individual diagnosed with sever periodontal diseases (WHO,2022) .A recent meta- analysis conducted by Chen et al (2025) indicated high prevalence rate of early childhood caries ECC in both low- and middle-income countries, untreated dental caries remains a

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

significant source of dental pain, tooth missing and reduced life quality with financial burden on families and health system as well .(Peres MA et al 2019).Multiple published studies revealed that dental caries remains a critical oral health issue among school-aged children in various Mediterranean countries (Elmaghrawy, et al., 2024). , Many conducted studies in Libya reported that teeth decay is considered as a public health concern with increases in prevalence rate ranges between 64.7% to 86.6% in many Libyan regions (Kabar et al ., 2019& Huew, et al., 2023), A recent systematic review and meta-analysis studies of 17 researches among Libyan school children concluded that, dental caries continue to be a significant public health issue for children in Libya, with national epidemiological data being inconsistent and in complete. The dental caries prevalence was 64.7% (Abdunabi, et al., 2025). Even the untreated disease and high DMFT/dmft components were prevalent. This analysis also yielded a mean index for Decayed, Missing, and Filled Teeth (DMFT) of approximately 2.57 (Abdunabi.F, et al., 2025). A multitude of local cross-sectional studies reveal a considerable prevalence of caries across different cities (such as Ajdabiya, Misurata, and Sirte) and highlight significant negative impacts on children's Oral Health-Related Quality of Life (OHRQoL) in several investigations. For instance, a study conducted in Benghazi in 2020 reported a 57.8% caries prevalence (Elabbar et al., 2020), while a survey conducted in Tripoli in 2021 found a comparable percentage and reported more than 75%caries rate of first-grade students and approximately 48% of seventh-grade students were affected by dental caries Alraqiq. H, et al (2021); BMC Tripoli Study. Similarly, city-level investigations across Libya consistently demonstrate a high burden of oral diseases. Many factors have been attributed to the increase in dental caries prevalence among children from developing countries. First, Socioeconomic factors, including the level of parents' education, employment status, and number of family members, are significant in caries prevalence. (Elfseyie. et al., 2020). Furthermore, Behavioral Factors such as tooth-brushing, previous dental treatment are related to dental caries prevalence. (Alraqiq H et al., 2021). Moreover, there is restricted knowledge and negative attitudes to oral health have contributed to high caries prevalence rates among children. (Kabar AM et al., 2019)

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

Gingivitis Gingivitis is considered as one of common oral health issues among children and adults as well.(Pari A, et al., 2014) with global prevalence rate between 20%-90% according to Elgasmi. F et al., (2025). It reaches to more than 88% in low developing countries and regions.(Kumar Set al., 2017).Neglected Gingival inflammation may progress to be periodontal inflammation and causes early tooth loss.(Elias-Boneta. A et al., 2018).These oral health problems attributed to poor oral hygiene among children restricted access to care services and socioeconomic factors. (Liu X et al., 2022). Studies shows there is increasing in prevalence rate of gingival and periodontal disease among Libyan children, Ali and Najm (2019) reported gingivitis is the most common Periodontal health problems among Libyan student aged 6-12 years with prevalence rate 98% and increased severity with age , mean while Dorota et al., (2024) reported 12.25% among children aged 3-7 years and Eshkol-Yogev et al (2025 reported variation in the prevalence rate of periodontitis among healthy children and adolescents, between 0.1% to 30.36%. This variation was related to differences in diagnostic criteria and study population (Dorota O et al., 2024). Most epidemiological studies reported high prevalence of malocclusion among permanent teeth, with rates between 10% to 90% (Silva RG, et al., 2001& Marques LS et al., 2006). Regarding the association between malocclusion and quality of life, most studies addressing this condition were carried out among adults and adolescents based on a critical assessment of previous literature. (Locker D, et al., 2010) .The effect of malocclusion on oral health-related quality of life among children is unclear. (Barbosa TS, et al 2009), which is attributed to the limitation of measurement tools that cannot consider all psychological and social characteristics and evaluate the effect of these oral problems on children's quality of life. (Laing E,et al.2010). Furthermore, a limitation in studies that addressed the adverse impacts of malocclusion in the mixed dentition stage. (Pimenta de Araújo et al et al, 2018).

The concept of Oral health related quality of life (OHRQOL) and assessment tools:

Despite oral diseases are not usually life threatening, but they still represented as a critical public health concern. The concept of oral health and related quality of life has been evolved in the late of 70s.

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

(Shamrany, 2006). The fact of the relation between oral and general health, and the influences of oral health problems on the quality of life becomes broader recognized (Locker, 2004). This multi-factorial concept can be influenced by different elements including biological, physical, economic, social and psychological dimensions, consequentially affects on people quality of life (Spanemberg J.C, et al., 2019). In this regard, many studies reported the importance of oral health related quality of life (OHRQOL) because of the prevalence of oral diseases among children. The oral health issues negatively impacting on children daily performance rate including physical activities, food intake, school performance and social interaction as well. (Gherunpong S et al., 2004, Inglehart MR et al., 2002). Assessment of the relation between the effect of oral health status on the individual's"quality of life considered as a public health challenge ,it is difficult to task because of OHRQOL is considered as multi-factorial concept affected by variable elements including family socioeconomic status ,educational levels of parents ,family attitude and variance between study population. (Kumar S, et al 2014). Therefore , many oral heath related quality of life OHRQL assessment tools and questionnaires has been developed to capture the multidimensional influences of oral health issues on individuals daily physical and functional performances, psychological health as well as on social interactions, ignoring the traditional clinical measurement tools as DMFT caries index.(Aljohani et al .,2022).These instruments highlight the socioeconomic and emotional impacts of oral health problems, with consideration of WHO emphasizes on the significance of oral health integrity to general well being,(Peres et, al 2019). The Oral Health Impact Profile OHIP has been developed by Slade &Spencer in (1994), its graded as most widely used tool to assess OHRQL. This validated oral health questionnaire has many versions, as OHIP (49-14-5).The questionnaire evaluates the oral health impacts on daily functional disabilities, pain experience, psychological and social limitations related to oral diseases. Oral Health Impact Profile questionnaire has strong , clear psychometric characteristics with high degree of reliability , suitable cultural adaptability and considered as convenient tool to be used for adults and epidemiological surveys as well.(John.M et al., 2014, Kragt-De roos.,2017) . The OIDP (Oral Impact on Daily Performance) is

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

similar to OHIP, it emphasizes to assess eight Daily activities including , eating habits ,smiling and oral hygiene maintenance , it correlates between daily performance indicators and clinical status. Even more it is recommended as useful tool in low -resources setting because of its good validity. (Åstrøm and Okullo, 2003). There are age specific tools specially for pediatric population, where oral diseases negatively impact on children school performance, emotional well-being .That include CPQ (Child Perception Questionnaires) used to measure oral symptoms , functional disabilities and social-emotional health as well, reported by children and supported by parents in cases of young ages , It available in many versions. The CPQ11-14 version developed in 2002 by Jokeveic.A, et al, it consists of 37 items, used to assess OHRQOL among children aged between 11-14 years and the CPQ8-10 version used to assess the OHRQOL among 8-10 year aged children, and these versions were validated by Jokeveic. A et al (2006).These Questionnaires emphasizes on pain related to untreated caries, daily school absences, bullying exposure and gathering information on school-based preventive protocols. While the tool used to assess OHRQOL among 10-12 years old children is the child Oral Impact on Daily Performance(Child-OIDP) was first developed in 2004 (Gherunpong S,et al 2004& Yusuf H,et al 2006). Furthermore, the Early Childhood Oral Health Impact Scale (ECOHIS) aimed to asses OHRQOL in children aged at 3-5 years old and was developed in 2007. (Pahel BT. et al 2007). Meanwhile, the Child Oral Health Impact Profile (COHIP) questionnaire was first developed in 2007 and composed from of 34 items, targeting children aged at 7-18 years old. (Broder H, L. et al 2007). Finally, in 2011 the POQL developed and reported that targeting both school and Preschool age at 2-12 years old. (Huntington NL, et al 2011). In community based researches its recommended to use simple, shorter, applicable and validated OHRQOL assessment tools and based on previous literature reviews, the results indicated the use of Child Perception Questionnaire CPQ11-14 is suitable for school age children, able to evaluates many oral health problems. (Wogelius P et al 2009&Shin HS, et al 2015) and the Early Childhood Oral Health Impact Scale (ECOHIS) is the most reported tools used among preschool children, it is interpret-able, responsive, and reliable. (Dibas M at al 2020&Nguyen TM et al 2021)

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

The Impacts of Oral Health Problems on the Children's Quality Of Life

Since the oral health has been considered by WHO as a contributing factor to general health, many conceptual model has been developed to illustrate the concept of OHRQOL. Firstly a conceptual model developed by David Locker, inspired by WHO (International Classification of Impairment, Disability and Handicap ICIDH) to explain how the oral conditions impacts on the individuals quality of life. (Locker .D, 2011). According to this model, the heath related quality of life is not easily to be defined, has complicated dimensions and affected many contexts including social status, cultural values and others. Later, the health promotions center in the University of Toronto has explained the context of quality of life as the degree on which persons enjoy the essential probabilities of life. (BAIJU et al., 2017). Furthermore, in 2011 another QHRQOL model among children has been developed by (Sischo and Broder). It is an adaptation from previously reported Wilson & Cleary model for Quality of life and evaluates the health status with many variables including the clinical findings, functional ability, oral-facial appearance, psychological status. Moreover, the model shows the impact of family environment such as (parent's education ,income , facial estheics ,sociocultural condition and illustrated on the relation between health services access and oral health attitudes and Quality of life. (Mary et al 2022). Oral diseases including dental caries and Gingival inflammation adversely impacting on oral well-being and functional ability including both physical and mental aspects. (Glick M et al 2017). Dental caries causes toothache, disability in food chewing and also has psychological and mental impacts which related to poor study concentration (Kaewkamnerdpong. L et al 2023& Bastos RS et al 2012). Furthermore, the oral pain related to dental caries causes uncomfortable feeling during food intake, poor mastication, avoidance to different food and poor school performance as well. (Lima S.LA, et al 2018). Gingival inflammation is linked with change in color, contour and texture of oral tissues causes' oral halitosis and associated with impairments in social activities such as individual ability to speak and smile (Singh O, et al 2020& Kaew kamnerdpong. L, et al 2023). Many published studies reported on the negative impacts of malocclusion on daily physical activities and

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

psychological well-being of children when compared with control groups or less severe cases of malocclusion. (Marques LS et al 2009&Cordeiro Neto et al 2017). Furthermore, malocclusion are contributed as one of three oral diseases has negative influences on social interaction, appearance, psychological discomfort and reduced self-esteem. (Salim NA, et al 2021 & Tausche E et al 2004). Many published studies reported that , occurrence of malocclusion in mixed dentition stage is a leading cause to permanent teeth malocclusion if not treated at early phase, which adversely related on social and physical well-being.(Guimarães SPA, et al 2018) All of these findings indicate the significance of dental arches deformities as public health challenges , adversely impact on the individuals physical health and emotional well being as well.

RESULTS:

In Libya, most of conducted studies across different Libyan cities were cross sectional emphasized on the assessment of dental caries prevalence and its impacts on school children , the results indicated that , dental caries is still considered as the most significant oral problems affecting school children .The vast majority of studies reported high to moderate caries index scores (DMFT,dmft) reflecting sustainable burden of dental caries on both permanent and primary teeth .**(Table 1)**

Table 1: Characteristics of included studies in Libya:

Author .Year	Country-City	Study Design	Age-group	Oral health problem	Diagnostic index
Huew et al (2011)	Benghazi	Cross-Sectional	12 Y	Dental caries	DMFT/DMFS
Kumar et al(2013)	Sebha	Cross-sectional	6-14	Dental caries	dmft/DMFT
Nasr et al (2014)	Zawia& Zahra	Cross-sectional	6-12	Dental caries	DMFT/dmft
Ali et al(2017)	Benghazi	Cross-sectional. practice based clinical survey	6- >12	Dental caries Periodental diseases	DMFT.dmft gingivitis extent (GE), gingivitis severity (GS) indices.

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

Author .Year	Country-City	Study Design	Age-group	Oral health problem	Diagnostic index
Elabbar et al(2020)	Benghazi	Cross-sectional	6-12	Dental caries	DMFT
Alraqiq et Al (2021)	Tripoli	Cross-sectional	6-12	Dental caries	Clinical examination
Buzaribah et al (2022)	Benghazi	Cross-sectional	8-9	Dental caries	dmft
Buzaribah,et al 2022	Benghazi	Cross-sectional	8-9	Dental caries	dmft for Primary Molars
Huew et al (2023)	Benghazi	Cross-sectional	8-10	Dental caries	Dmft/DMFT
Elmaghraw y et al (2024)	Misurata	Cross-sectional	3-13	Dental caries	dmft/DMFT
Abdalmawl a &Belgasse m(2024)	Sirte	Cross-sectional	5-13	Dental caries	Dmft/DMFT
Mukhtar et al (2025)	Ajdabiya	Cross-sectional	7-15	Dental caries	Dmft/DMFT
Abdunabi et al (2025)	Libya	Systematic review + meta-analysis for 17 Studies	6-15	Dental caries	DMFT/dmft

Note: Caries index for permanent teeth measured with DMFT index (Decayed, Missed ,Filled ,Teeth) and caries index for deciduous teeth measured with dmft index(decayed, missed, filled , teeth)

In Libya, despite interrupted data on the prevalence of oral problems among school children which it is not assessed consistently and although the rates of dental caries prevalence vary between geographic regions worldwide and in Libya, some studies have provided similar results regarding the prevalence of caries in different areas of Libya. For instance, the results of conducted researches in Tripoli city indicated the dental caries as prevalence among first class and seventh class were varied between 78.4% ,48.2% respectively. (Alraqiq. H, et al., 2021). In 2022 a cross sectional study conducted in Benghazi to assess the prevalence and severity of dental caries in primary teeth indicated high caries prevalence about 83.5% and highest caries level reported in children

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

aged 8 years (Albino.J &Tiwari.T. 2022). Another cross sectional study was conducted in Benghazi by (Huew. R, et al., 2023), reported high prevalence rate with 86.6% among primary school children. Mean while a cross sectional study conducted by Mukhtar, H et al, 2025 among school children in Ajdabiaya city indicated the prevalence of dental caries was 84%, higher results reported among children aged between 9-10 years with prevalence ranges between 95% to 94% respectively, these results demonstrate a significant burden of oral health problems .A Study was in Ajdabiya by Mukhtar. H.et al (2025) reported an 84% prevalence of dental caries among school-aged children, while other city-based surveys revealed mean DMFT scores ranging from 3 to 5 among younger age groups, indicating substantial untreated decay, limited access to restorative care, and a high burden of disease at an early age. In Misurata, based on a cross-sectional study conducted by Elmaghrawy, K et al (2024), the prevalence of dental caries among children aged 3-6 years was 75% with significant gender differences reported. However, the overall caries prevalence among school children aged between -10 years old in two western Libyan cities (Zawia, Zehra), which are located in an endemic fluoride belt, was high (60.8%) with slight age variation, with slight age variation ,negative correlation between caries prevalence and fluoride levels was reported among study population.(Nasr,A M et al 2014). Other published studies reported similar caries prevalence among school children at different geographic locations in Libya. For example, In Sebha city, based on result of study conducted by Kumar et al 2013, dental caries prevalence among school children was 78.6% with reported dmft between 3.5 and 3.1.These findings were match to an earlier study carried out in Tripoli city reported a prevalence rate of 78.0% (Alraqiq.H et al., 2021). In Sirte, based on a descriptive cross-sectional study conducted in 2022 among children aged between 5-13 years, the prevalence of dental caries was high with a slight difference in trend among age groups. Elevated prevalence rate was recorded among 8-10 years (84%), while 74% caries prevalence rate was recorded among 5-7 years, highest rate of 96.1% was recorded in the 11-13 age (Abdalmawla, A.Ali & Karima .A, Belgasem , A 2024). (Table 2)

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

Table 2: Prevalence of oral health problems among school children in Libyan

Study location/Author	Oral problems	Age group (Year)	Prevalence %	Mean DMFT/dmft
Benghazi(Huew et al., 2011)	Dental caries	12	57.8%	DMFT = 1.68 DMFS = 2.39
Sebha(Kumar et al .,2013)	Dental caries	6-14	78.6	DMFT = 1.07 dmft = 1.75
Zawia & Zahra (Naser et a., 2014)	Dental caries	6-12	60.8	DMFT, dmft 1.01
Benghazi (Ali et al 2017)	Dental caries ,Period ental disease	6->12	98% of < 6 y gingival inflammation 99 % of 6-12 years old had GE, 100% of > 12	NR
Tripoli (Alraqiq et ., al 2021)	Dental caries	6-12	78	DMFT=1.7 dmft = 3.7
Benghazi ,Buzariba h et al (2022)	Dental caries	8-9	83.5	dmft = 3.3
Benghazi (Huew et.,al 2023)	Dental caries	6-12	86.6	DMFT= 0.86 dmft = 2.78
Misurata(Elmaghra wy et al (2024)	Dental caries	3-13	75(3-6y) 16.5(7-13y)	DMFT=0.457 dmft = 4.06
Sirte (Abdalmawla &Belgassem,2024)	Dental caries	5-13	96.1 for 11-13 y	DMFT, dmft 2.6-3.5
Ajdabiya (Mukhtar et al.,2025)	Dental caries	7-15	84-94	NR
Libya(Abdunabi et al.,2025)	Dental caries	6-15	64.7	2.57

NR=Not reported

Research assessing the impact of oral diseases on oral health problems related to quality of life OHRQOL among Libyan school children is limited, exciting finding from conducted studies in Benghazi show that children with high level of dental caries experience greater difficulties in daily functions, including eating, sleeping and school performance .Untreated dental caries associated with increased pain and emotional distress among affected children. Furthermore sever dental caries has been reported to negatively impacts not only on child but extend to child families, increasing parental concerns and psychological burden. (Table 3)

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

Table 3: Oral Health Related quality of life (OHTQOL) instruments its impacts based on Libyan local studies.

Author	city	Study Design	Age range	OHRQOL Instrument	Assessed oral problem	OHRQOL Finding
Ballo et al 2021	Benghazi	C-S	6 Y	(A-ECOHIS)	Dental Caries	High caries increased impacts on child and family
Mansur .,et al(2021)	Benghazi	C-S	8-10Y	P-CPQ8	Dental Caries	Untreated caries impacted on child not on parents

CS: Cross sectional **CPQ:** Child Perception Queshnnaire
ECOHIS: Early Child hood Oral Health Impact scale

Discussion:

Based on available Libyan studies, dental caries remains as the most prevalent oral health conditions in Libyan school children. The analysis of epidemiological data in Libyan regions, there are marked variation in disease prevalence among Libyan cities .The results reveals age and geographic differences in dental caries prevalence, it ranged between 57.8% among 12 years old children in Benghazi (Huew et al., 2011) to more than 90% in Sirte (Abdalmawla &Belgassem, 2024) and Ajdabiya (Mukhtar et al., 2025) among older age. Also this review illustrates progressive woresinig of oral health status over time even among city level, For example, in Benghazi where there is noticeable variation in dental caries prevalence from 57.8 % (Huew et al., 2011) to over 80% (Huew et al., 2023) accompanied by changes in caries index score .This differences may reflect variations in oral health awareness, accessibility to oral health services,socioeconomic conditions and oral hygiene practices.

.The evidence from this review illustrates on the importance of dental caries and other oral health problems as a significant public health concerns particularly In Libya where the condition is greatly concerning because this country is facing political and socioeconomic challenges since 2011 that adversely impacting on health care systems. (Kruk.ME, et al., 2010& Munezero E, et al.,

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

2021). Even the nature of oral health system in Libya is depended heavily on private dental sectors with weakly designed infrastructure of government supported dental services .(Aloshaiby ,A et al 2024) that in turn , lead to increases the economic impacts of Libyan children families and might cause to neglect of the dental problems because of the cost of treatment. Furthermore, Libyan public dental clinics offer simple dental treatment services for all group ages with limited improvement in offered preventive services .(Tagi et al., 2021).There for, many individuals prefer to seek dental treatment only when clinical symptoms appeared rather than early diagnosis and preventing oral diseases progression.(Usman et al 2021). Although ,there are sufficient number of graduated Libyan dentists (Ahmadi O et al., 2019),but many recently published results indicated high percentage of affected children and adults suffering from oral health problems with noticeable deficiency in treatment. (Arheiam A, et al., 2022), that demonstrates poor planning to available dental human resources to relies with the need of national health care system. Also there is restricted preventive dental health programs in Libya, and health care system is greatly directed toward treatment rather than preventive concept. (Aloshaiby A et al., 2024). Even poor implementation of suggested preventive measures is aggravating the issue. (Arheiam A, et al., 2014& Aloshaiby, A et al 2024). Based on multiple published studies in Libya, prevalence of dental caries among school children is high especially among 11-13 age group where the caries prevalence was about 96.1% (Abdalmula A &Karima. Belgasem , A 2024). Despite of regional differences in Caries prevalence rates between urban and rural regions in Libyan cities, the results showed caries prevalence rated between 55-96%, these findings was similar to WHO reported global caries prevalence rates among school children in 2022 that varies between 60-90% . Although in Libya, there is limited conducted studies on pediatric oral health related quality of life, this review highlights on the clinical correlation of oral health issues and the quality of life among school children. The finding represent an important step toward local evidence base, guiding context to specific preventive strategies and public health intervention.

Among conducted studies in Benghazi by Ballo, et al., (2021) and ansur et al., (2021) both studies used diffident assessment scale but both studies provide valuable insights on impact of dental caries on

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

functional ,psychological and social consequences of children. It is essential to integrate the research findings to improve the children oral health. The current literature shows regional variation is research results regarding to oral health problems and QOL among school children, the critical issue is raising about national representation of these data, because the vast majority of studies were conducted in Benghazi in comparison with other Libyan cities.

CONCLUSION AND RECOMMENDATION

Despite of many limitations of previous conducted researches in Libya, they consistently indicate that, dental caries remains as most prevalent oral diseases affecting school age groups and has continued to be as a public health concern with noticeable regional variation adversely impacts on children quality of life .Other oral health issues, such as gingivitis and malocclusion, are common but have been less documented in recent times. Furthermore, there is limitation in the availability of national epidemiological data and in sufficient preventive and conservative services that complicate these challenges. There is a few data related to the assessment of impact of oral health status among Libyan school children explained by very scare studies. This situation confirms the need to implement a practical preventive strategies to preserve and improve the oral health among those risk population. To address this public health concern,there is urgent need to conduct national wide oral health Programs based on scientific data with superiority should be given to school based preventive strategies to reduce the burden and maintain oral health equity. Further needs for facilitating the access to dental services, expanding future researches to involve the majority of Libyan cities and future studies should be integrated with OHRQOL measures.

References

Abdalmawla Alhussin Ali, & Belgasem, K. A. (2024). Dental caries experience of primary school children in Sirte, Libya. Clinical Endocrinology and Metabolism, 3(5).

Ahmadi, O., Machuca, C., & Sabbah, W. (2019). Socioeconomic inequality in the provision of health advice in dental settings in England, Wales and Northern Ireland. Journal of Public Health, 102(11), 2068–2072.

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

Aisha Aloshaiby, Amal Gaber & Arheiam Arheiam (2024) : The oral health care system in Libya: a case study: *BMC Oral Health* volume 24,888

Albino, J., & Tiwari, T. (2022). Prevalence and pattern of dental caries in primary molars among Libyan school children in Benghazi. International Journal of Applied Dental Science, 8(4), 593–597.

Al-Darwish, M., El Ansari, W, & Bener, A. (2014). Prevalence of dental caries among 12–14-year-old children in Qatar. Saudi Dental Journal, 26(3), 115–125.

Antonio Franklin Cordeiro Neto, Roberto Carlos Mourão Pinho, Raulison Vieira de Sousa, Bruna de Carvalho Farias Vajgel, Renata Cimões (2017):The Impact of Malocclusion on Quality of Life and Life Satisfaction,International Medical Society.Vol. 10 No. 222 doi: 10.3823/2492

Arheiam, A., Masoud, I., & Bernabé, E. (2014). Perceived barriers to preventive dental care among Libyan dentists. Libyan Journal of Medicine, 9(1).

Arheiam,A., Aloshiby, A., Gaber, A., & Fakron, S. (2022). Dental fluorosis and its associated factors among Libyan schoolchildren. International Dental Journal, 72, 853–858.

Åstrøm AN, Okullo I (2003) :Validity and reliability of the Oral impacts on daily performance (OIDP) frequency scale: a cross-sectional study of adolescents in Uganda. BMC Oral Health. 2003;3(1):5.

Aya Kabar, A. M., Elzahaf, R. A., Shakhatreh, F. M. (2019). Prevalence and risk factors of dental caries among children aged 6–12 years in Tripoli city, Libya. Scholars Journal of Dental Sciences, 6(4), 223–233.

Barbosa, T. S., Tureli, M. C., & Gavião, M. B. (2009). Validity and reliability of the Child Perceptions Questionnaires applied in Brazilian children. BMC Oral Health, 9, 13.

Bastos, R. S., Carvalho, E. S., Xavier, A., Caldana, M. L., Bastos, J. R., & Lauris, J. R. (2012). Dental caries related to quality of life

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

in Brazilian adolescents. International Dental Journal, 62(3), 137–143.

Broder, H. L., McGrath, C., & Cisneros, G. J. (2007). Questionnaire development for the Child Oral Health Impact Profile. Community Dentistry and Oral Epidemiology, 35(1), 8–19.

Dorota Olczak-Kowalczyk , Anna Turska-Szybka , Marcin Studnicki and Paula Piekoszewska-Zi˛etek (2024), Gingivitis and Its Causes in Children Aged 3–7 Years 2024 Diagnostics (Multidisciplinary Digital Publishing Institute) - Vol. 14, Iss: 23, pp

Elabbar, M., Abouzeid, A., & Elhassan, M. (2020). Prevalence of dental caries among schoolchildren in Benghazi, Libya. Libyan Journal of Medical Sciences, 4(2), 78–83.

Elfseyie, M., Elshebani, S., Elsenussi, S., & Alaskandrani, R. (2020). International Journal of Sciences: Estimate of DMFT index using teeth most affected by dental caries in Benghazi, Libya

Elias-Boneta, A. R., Ramirez, K., Rivas-Tumanyan, S., Murillo, M., & Toro, M. J. (2018). Prevalence of gingivitis and calculus in Puerto Rican children. BMC Oral Health, 18, 13.

Eman K. M. Mansur , William Murray Thomson, Khadeejah S. H. Buzaribah , Sukaina B. Elsheibani 2021. Concordance between Libyan Child and Parent Self-Reports of Oral-Health-Related Quality of Life. Journal of Indian Association of Public Health Dentistry ;19:144-51.

Eshkol-Yogev I,Ambrosio N,Somani C,et al (2025).Periodontitis conditions in systemically healthy children and Adolescents :a systematic review ,Journal of Clinical Periodontology :52

Farida Abdunabi, Mawlood Kowash , Amar Khamis , Moosa Abuzayeda(2025) : Prevalence and Severity of Dental Caries Among Schoolchildren in Libya: A Systematic Review and Meta-Analysis: journal of International Society of Preventive and Community Dentistry (JISPCD): Jun 30;15(3):211–221.

Fowziya M. Ali, Rasmia Huew, Khadija Herwis, Fathia H. Mohamed , Ahmed Ali Musrati.2017.Investigations of the Oral

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

Health Status of a Group of Libyan Children and Its Relation to Home Care.Libyan journal of dentistry.Vol 1, No 1, 2017

GBD 2019 Diseases and Injuries Collaborators,(2020). Global burden of 369 diseases and injuries, 1990–2019. A systematic analysis of the Global Burden of Disease Study 2019 The Lancet, Vol 396(10258), 1204–1222.

Gherunpong, S., Sheiham, A., & Tsakos, G. (2004). Developing the CHILD-OIDP. Community Dental Health, 21, 161–169.

Gillian H M Lee,Colman McGrath, Cynthia K Y Yiu, Nigel M King (2010) :A comparison of a generic and oral health-specific measure in assessing the impact of early childhood caries on quality of life, Community Dentistry ,oral epidemiology journal Aug;38(4):333-9.

Glick, M., Williams, D. M., Kleinman, D. V., Vujicic, M., Watt, R. G., & Weyant, R. J. (2017). A new definition for oral health. Journal of Public Health Dentistry, 77(1), 3–5.

Guimarães, S. P. A., Jorge, K. O., Fontes, M. J. F., Ramos-Jorge, M. L., Araújo, C. T. P., Ferreira, E. F., et al. (2018). Impact of malocclusion on quality of life. Brazilian Oral Research, vol32.0095

Hala M. Mukhtar, Asmaa A. Almajbrey, Salmeen A. Al-bardah, Faraj F. Alhendawy (Ajdabiya study) (2025). The prevalence of dental caries among schoolchildren in a sample of schools in Ajdabiya city: a cross-sectional study. BUMEJ / University of Benghazi Journal.VOLMUE:2 ISSUE:1 June: 2025

Hanan Raja Aljohani, Khalid Mubarak Alshammari, Ahmed Mohammed Shaikh, Turki Nasser Alotaibi, Abdullah Ali Alshehri, Abdullah Ali Alsaikhan, Alanoud Meteb Almalky, Majed Mohammad Zahran, Anaan Ibrahim Bushnag, Fatimah Ismail Alyami, Sarah Khalid Alanzi.(2022) .Instruments used to assess oral health-related quality of life of children.International Journal of Community Medicine and Public Health.2022 Feb;9(2):1051-1055

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

Hosam Alraqiq, A., Eddali, A., & Boufis, R. (2021). Prevalence of dental caries among children in Tripoli, Libya. BMC Oral Health, 21, 224.

Huew R, Waterhouse PJ, Moynihan PJ and Maguire A. A. Prevalence and severity of dental caries in Libyan schoolchildren.

Huntington NL, Spetter D, Jones JA, Rich SE, Garcia RI, Spiro A (2011). Development and validation of a measure of pediatric oral health-related quality of life: The POQL. J Public Health Dent.;71(3):185–93.

Inglehart MR, Filstrup S, Wandera A(2002). Oral health and quality of life in children. In: Inglehart MR, Bagramian RA. Oral health-related quality of life. Quintaessence Pub Co Inc: Chicago.

International Dental Journal 2011; 61: 217–223

International journal of applied dental sciences 6(2): 159-162

Jackson, S. L., et al. (2020). The impact of poor oral health on school performance and attendance among children. **A**merican Journal of Public Health, 110(7), 1049–1055.

Jokovic A, Locker D, Guyatt G, (2006). Short forms of the child perceptions questionnaire for 11-14-year-old children (CPQ11-14): development and initial evaluation. Health Qual Life Outcomes. ;4:1–9.

Jokovic A, Locker D, Tompson B, Guyatt G(2004): Questionnaire for measuring oral health-related quality of life in eight- to ten-year-old children. Pediatr Dent , 26:512–518.

KaewkamnerdpongI,Urwannachotima N, Prasertsom P, Charoenruk N, Krisdapong S(2023). Impact of oral diseases on 12- and 15-year-old children's quality of life: condition-specific oral health related quality of life analysis. BMC Oral Health. ;23(1):722.

Kassebaum, N. J., Smith, A. G. C., Bernabé, E., et al. (2017). Global burden of oral conditions, 1990–2015. Journal of Dental Research, 96, 380–387.

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

Khadeejah S Buzaribah, Rasmia Huew, Eman K Mansur and Sukaina B Elsheibani.(2022).Prevalence and pattern of dental caries in primary molars among Libyan school children in Benghazi.International journal of applied science; 8(2): 593-597

Khalid Elmaghrawy, Lamya Mokahel, Nadin Elgandouz , Amel Elsherif , Amna Abujanah , Haifa Elgubbi and Hana Abushahma(2024): prevalence of dental caries among children in Misurata, Libya: a cross-sectional study Journal of Academic Research Vol 28 , Issue 1, 2024

Kruk ME, Freedman LP, Anglin GA, Waldman RJ(2010).Rebuilding health systems to improve health and promote statebuilding in post-conflict countries: a theoretical framework and research agenda. Soc sci med. ;70:89–97

Kumar P, Peeran S, Abdalla K, Al-Zain M. (2013). Dental caries status among 6–14 years old school going children of Sebha city, Libya. J Indian Assoc Public Health Dent.; 11:18–22

Kumar, S., et al. (2021). Oral health, general health, and quality of life in schoolchildren: A global overview. International Journal of Dental Hygiene, 19(3), 284–293.

Kumar, S., Tadakamadla, J., Zimmer-Gembeck, M., et al. (2017). Parenting practices and gingival bleeding. Journal of Periodontology,88(8), 744–751.

Laing E, Cunningham SJ, Jones S, Moles D, Gille D.(2010). Psychosocial impact of hypodontia in children. Am J Orthod Dentofacial Orthop, 137: 35–41.

LamisBallo,ArheiamArheiam,anJamaludin Marhazlinda. (2021) Determinants of caries experience and the impact on the OHRQOL of 6-year-old Libyan children: a cross-sectional survey.. BMC Oral Health (2021) 21:320

Lea Kragt-deRoos (2017): Children's Oral Health Related Quality of Life Determinants related to subjective and objective orthodontic measures(Thesis) Erasmus university Rotter dam Germany 26th of April

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

Liu, X., Xu, J., Li, S., et al. (2022). Prevalence of gingivitis in schoolchildren. BMC Oral Health, 22, 623.

Locker D, Jokovic A, Prakash P, Tompson B(2010). Oral health-related quality of life of children with oligodontia. Int J Paediatr Dent, 20: 8–14.

Locker D, Quinonez C.(2011). To what extend do oral disorders compromise the quality of life? Community Dent Oral Epidemiol. 2011;39:3-11.

Locker, D. (2004). Oral health and quality of life. Oral Health & Preventive Dentistry, 2(1), 247–253.

Lorena Hoffmeister, Patricia Moya, Carolina Vidal, Dafna Benadof (2016):Factors associated with early childhood caries in Chile:Observational Study:Gaceta Sanitaria journal : Jan-Feb;30(1):59-62.

Marques LS, Ramos-Jorge ML, Paiva SM, Pordeus IA(2006). Malocclusion: esthetic impact and quality of life among Brazilian schoolchildren. Am J Orthod Dentofacial Orthop. Mar;129(3):424-7.

MikeT.John,Leah Feuerstahler, Niels Waller, Kazuyoshi Baba, Pernilla Larsson, Asja Čelebić, Dóra Kende, Ksenija Rener-Sitar, and Daniel R. Rei ßmann(2014):Confirmatory factor analysis of the Oral Health Impact Profile,J Oral Rehabil. September ; 41(9): 644–652.

Munezero E, Manoukian S(2021). The social determinants of health and health seeking behaviour in populations affected by armed conflict: a qualitative systematic review. Med Confl Surviv. ;37:293–318

Nasr AM, Moheb DM, Elmasry ES. (2014). Prevalence of dental caries in child school from two Libya’s western cities with different levels of fluoride in their drinking water. J Nat Sci.; 12:28-34.

Nguyen TM, Huan VT, Reda A (2021). Clinical features and outcomes of neonatal dengue at the Children's Hospital 1, Ho Chi Minh, Vietnam. J Clin Virol. ;138:104758.

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

Pahel BT, Rozier RG, Slade GD. (2007). Parental perceptions of children's oral health: the Early Childhood Oral Health Impact Scale (ECOHIS). Health Quality Life Outcomes. 2007;5:6.

Peres, M. A., Macpherson, L. M. D., Weyant, R. J., et al. (2019). Oral diseases: A global public health challenge. The Lancet, 394(10194), 249–260.

Rasmia M Huew ,Sukaina B Elsheibani ,Khadeejah S Buzaribah and Eman K Mansur (2023):Deciduous and permanent dental caries status among primary schoolchildren of Libya: A cross-sectional study.International Journal of Science and Research Archive,, 08(01), 804–811

RM BAIJU , ELBE PETER , NO VARGHESE, REMADEVI SIVARAM .(2017).Oral Health and Quality of Life: Current Concepts. Review aricle. Journal of Clinical and Diagnostic Research. 2017 Jun, Vol-11(6): ZE21-ZE26

Salim NA, Al-Abdullah MM, AlHamdan AS, Satterthwaite JD (2021) . Prevalence of malocclusion and assessment of orthodontic treatment needs among Syrian refugee children and adolescents: a cross-sectional study. BMC Oral Health. 21:305. doi: 10.1186/s12903-021-01663-4

Shamrany, M, A. (2006). Oral health-related quality of life: a broader perspective. Eastern mediterranean Health Journal, 12(6), p. 896-897.

Shin HS, Han DH, Shin MS, Lee HJ, Kim MS, Kim HD(2015). Korean version of child perceptions questionnaire and dental caries among Korean children. PloS one. 10(2):e0116011

Silva RG, Kang DS(2001). Prevalence of malocclusion among Latino adolescents. Am J Orthod Dentofacial Orthop. Mar;119(3):313-5.

Singh O, Reddy V, Sharma L, Pradhan D, Srivastava R (2020). Association of gingivitis with children oral health-related quality of life in Lucknow: A cross-sectional study. J Family Med Prim Care.;9(2):1177

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

Sischo, L & Broder, HL (2011), 'Oral Health-related Quality of Life: What, Why, How, and Future Implications', *Journal of Dental Research*, vol. 90, no. 11, pp. 1264-1270

Soraia Pimenta de Araújo GUIMARÃES, Kelly Oliva JORGE, Maria Jussara Fernandes FONTES, Maria Letícia RAMOS-JORGE,Cíntia Tereza Pimenta ARAÚJO,Efigênia Ferreira FERREIRA, Camilo Aquino MELGAÇO, Patrícia Maria ZARZAR(2018):Impact of malocclusion on oral health-related quality of life among schoolchildren,Braz. Oral Res. ;32:e95

Spanemberg J.C,Cardoso J.A,Slob E.M.G.B,López-López J (2019). Quality of life related to oral health and its impact in adults. J Stomatol oral Maxillofac Surg. ; 120 (3): 234-9

Taqi, A. R., Ahmed, N., & Fathi, S. (2021). Addressing gaps in oral health education in Libya. Journal of Public Health Dentistry, 50(2), 167–174.

Tausche E, Luck O, Harzer W (2004). Prevalence of malocclusions in the early mixed dentition and orthodontic treatment need. Eur J Orthod. Jun;26(3):237 44

Usman, A., Ahmed, K., & Khan, R. (2021). Barriers to oral health care in resource-limited settings. International Journal of Dental Research, 15(4), 220–225

Vinita Mary, Jaideep Mahendra,R. Kesavan,Little Mahendra,Vidhya Rekha.U (2022): Oral Health Related Quality Of Life – A Brief History And Its Impact And Importance In Dentistry:International journal of Life Sciences and Pharma Research :April 2022: ISSN 2250-048

Wogelius P, Gjørup H, Haubek D, Lopez R, Poulsen S (2009). Development of Danish version of child oral health-related quality of life questionnaires (CPQ8- 10 and CPQ11-14). BMC Oral Health.;9:11.

World Health Organization. (2022). Global oral health status report: Towards universal health coverage for oral health 2030. WHO.

Yusuf H, Gherunpong S, Sheiham A, Tsakos G.(2006). Validation of an English version of the Child-OIDP index, an oral health-

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية

http://www.doi.org/10.62341/iyfg9435

related quality of life measure for children. Health Qual Life Outcomes. 2006;4:1–7

Copyright © ISTJ
حقوق الطبع محفوظة
للمجلة الدولية للعلوم والتقنية