Oral Health-Related Quality of Life in HIV Positive Children: A Systematic Review Oral Health Status and Treatment Needs in Pediatric Aids Patients

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Abstract

Children with Human Immunodeficiency virus are immunocompromised and are susceptible to multiple infections due to immature immune response. Oral manifestations are considered to prognostic markers for AIDS. Poor oral health often reduces the quality of life and lead to more systematic issues for children. This review was undertaken to systematically analyse the Oral Health related Quality of life of children infected with HIV. 3 articles which fulfilled the inclusion and exclusion criteria were included in the present systematic review. It was found that children with have poor oral health related quality of life compared. Oral hygiene instructions should be taught to children and their caregivers to improve their oral health related quality of life.

Keywords: AIDS, children, HIV, Quality of life

1. Introduction

According to The Joint United Nations Programme on HIV and AIDS, there 3.2 million children living with HIV all over the world and 240,000 children became newly infected. India has estimated 145,000 children <15 years of age who are infected by HIV/AIDS, and about 22,000 new infections occur every year. Children account for 7% of all the new HIV infections [1,2].

Data on oral and dental lesions exist in HIV-infected pediatric populations is scarce , but it is well known that, in children, the disease usually progresses faster and the outcome is more serious than in adults, resulting in a high mortality rate due to serious opportunistic infections [3]. it is very common to find oral mucosal lesions, which are often among the first manifestations of HIV-infection in pediatric patients with important prognostic values [4]. Poor oral hygiene can reduce life quality, leading to difficult psychosocial and nutritional conditions and complicating the treatment of the systemic diseases.

With individual research works reported, no higher level of evidence is available to compare and collectively combine the results of the literature reports with regards to the impact of oral health among HIV-positive pediatric patients and its effect on the oral health related quality of life(OHRQoL). Hence this systematic review was undertaken to systematically review the literature related to oral health and quality of life among the HIV population.

2. Methods

The methods and inclusion criteria of this systematic review were selected following the PRISMA (Preferred Reporting Items for Systematic review and Meta-Analyses) statement) [5].

Eligibility criteria

Inclusion and exclusion criteria were determined by discussion and agreed by the investigators based on the population, intervention, comparator, outcome, and study design (PICOS) model (Table 1).

Search Strategy

An attempt was made to identify all relevant studies, irrespective of the year of publication but

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language of publication was limited to English only. Database searches were carried out from date of inception to present of MEDLINE (1946–), Scopus (1966–), and Web of Science (1900–) using free text and MeSH terms individually and combined with Boolean operators. The following terms were included in the search: Oral Hygiene practices, Quality of Life,Oral health-related quality of life, Social Stigma, psychological impact,AIDS-Related Opportunistic.

Table 1: Inclusion and exclusion criteria used to assess eligibility of the articles.	
PICO ITEM	ELIGIBILITY CRITERIA
Population	Children infected with HIV
Investigation	OHRQoL in HIV positive pediatric patients
Comparison	Children who do not have HIV Infection
Outcome	Evaluate OHRQoL in HIV positive children and the factors that affect it

Eligibility

One review author independently screened the titles and abstracts obtained by search strategy and included them if they met the inclusion criteria. Later full texts of all the included studies were obtained and screened by reading them entirely and segregated based on the inclusion criteria. Whenever there was uncertainty regarding any study regarding inclusion, problem was resolved by discussing it with the second review author . For inclusion of articles for meta-analysis the quality assessment of each article was done by the reviewer independently and later it was crosschecked by other reviewers. Finally, the search yielded ---- studies to be included in systematic review [Fig 1].

3. Results

528 articles were obtained from the search from various databases. After assessing articles with inclusion and exclusion criteria, only 3 articles were selected. 2 studies were from Brazil [6,7] while one was from Uganda [8]. All 3 studies showed that children with HIV had poor OHRQoL and dental problems had a negative influence.

S. NO	Author	Country	Sample Size	Outcome
1	Massarente et al, 2011 [6]	Brazil	88	Children with more severe AIDS manifestations complained of poorer status of oral symptoms, functional limitations, emotional and social well being related to their oral health
2	Rovaris et al, 2014 [7]	Brazil	36	Individuals living with HIV-1 with need for dental treatment and those over 12-years of age reported a statistically higher frequency of frequent/very frequent oral health-related impact on quality of life
3	Birungi et al, 2020 [8]	Uganda	166	The prevalence of untreated caries in deciduous teeth and quality of life impacts was high and affects the OHRQoL.

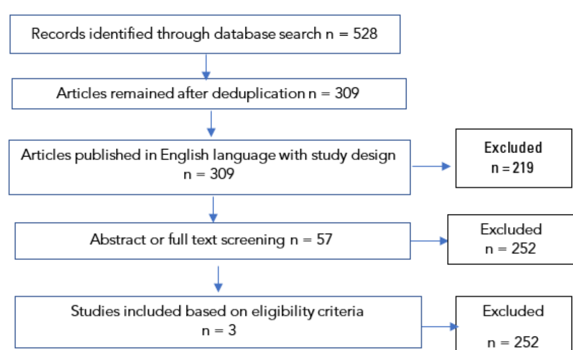

Figure 1: PRISMA Flowchart for selection of articles

4. Discussion

AIDS has transformed from a deadly disease to chronic disease due to the introduction of anti-retroviral therapy. Children with HIV have longer lifespan than before but have to live with HIV throughout their life[9]. Recent research has also shown that with highly active anti-retroviral therapy, oral manifestations have started to decrease [3,8-11].

Children with HIV have been reported to have reduced immunological response which also results in painful symptoms in the mouth and decreased salivary function [3,7]. In addition, they are often prescribed a continuous course of medication that have been formulated as syrups or sugared solutions and might be responsible for higher prevalence of dental caries when compared to peers who are not infected by AIDS [3,11].

Massarente et al found that Children with more severe AIDS manifestations complained of poorer status of oral symptoms, functional limitations, emotional and social wellbeing related to their oral health in Sao Paulo, Brazil. AIDS-related clinical characteristics associated with more severe impacts on OHRQoL. They proposed that brushing the teeth two or more times a day and having their own mother as caretaker associated with improved oral health related quality of life, which reinforce the importance of the attention that these children receive in their own household. They also suggested the dentist can integrate in the interdisciplinary health care team that assists paediatric patients with AIDS and can instruct health programs that are intended to improve their overall quality of life [6].

Rovaris et al found that individuals living with HIV-

1 with need for dental treatment and those over 12-years of age reported a statistically higher frequency of frequent/very frequent oral health-related impact on quality of life. 76% of children living with HIV-1 in this study presented carious lesions. 72.4% needed dental treatment, while about 56% of HIV-1 negative children at 12 years-old presented at least one caries lesion and 61% demand dental treatment. They suggested that incorporating dental care that aims at preventing and controlling oral health issues in the therapeutic planning of such individuals, may contribute to the maintenance of their general health and improve their quality of life [7].

Birungi et al were the first to report on caries in primary teeth and its oral health related quality of life impact on OHRQoL in HIV infected children. They found dental caries to be high (60%) in deciduous dentition in children infected with HIV. The crude analysis showed differences related to HIV-1 exposure in caries experience and oral health related quality of life [8].

A recently published systematic review found that a significant incidence of gingivitis and gingival disease is also evident, though not strictly correlated to HIV infection. This could also be a factor for affecting OHRQoL [3].

Effective methods to improve OHRQoL in children with HIV should be initiated. Flip charts, video, slide presentation, and other types of actions such as supervised dental brushing and topical fluoride application should be encouraged. Parents, caregivers and children should be given an active role in encouraging children to improve their oral hygiene [9].

5. Conclusion

Children with HIV have poor OHRQoL. Dental problems create a negative influence on the OHRQoL. Measures should be taken to improve OHRQoL and treat the dental issues affecting the OHRQoL.

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