Impact of early childhood caries on oral health-related quality of life: review

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ABSTRACT

The oral health problems affecting children have received special attention in both contemporary and epidemiology dentistry. Dental caries can cause many problems for children at an early age. These problems include esthetics, physical, social, psychological, and functional activities that all affect the general health of the children. Thus, early childhood caries (ECC) can compromise the children’s quality of life. This review aimed to declare the impact of ECC on the oral health-related quality of life. A Medline research was completed for the period from 1990 to 2019, along with a manual research, to locate relevant peer-reviewed articles and textbooks published in English. Several keywords were used to obtain all possible articles concerned with the subject. Thus, it was concluded that there is a scarcity in studies that were conducted to study the impact of ECC on oral health-related quality of life, also most of them were trials and showed unclear results. It is recommended to establish more studies which focus on declaring the children’s oral health-related quality of life in the presence of ECC.

Keywords: Childhood, caries, quality of life, oral health, children, impact.

Introduction

Oral health is considered as the standard of oral and tissue health, which is important for both children and adults to speak, eat, and to continue their social relationships [1]. Quality of life is used as a traditional method to evaluate the physical and psychosocial impact of any existing disease [2]. Previous studies carried out to assess the impact of chronic pain on a child and his/her family reported that the presence of chronic pain has an impact on sleeping, poor physical activities, and poor relationships [3]. Pediatric patients differ from adult patients in two major aspects: firstly, pediatrics do not regulate their behavior toward their healthcare and promote themselves, but the responsibility is totally on their parents; and secondly, their perceptions about the world and their experiences [4]. Dental caries is considered the most common disease affecting pediatrics and preschool patients. Early childhood caries (ECC) is defined as the presence of decayed (cavitated or non-cavitated) surface in a deciduous tooth of a child before the age of 6 years [5]. This situation might occur as a part of rampant caries affecting many deciduous teeth and might be nominated as nursing bottle caries [6]. Early Childhood Oral Health Impact Scale (ECOHIS) has been developed to determine the impact of oral diseases like dental caries on the child’s quality of life and their families including social, psychological, and functional aspects [7]. Thus, this review aims to declare the impact of ECC on the oral health-related quality of life.

Materials and Methods

A MEDLINE search was conducted for the period from 1990 to 2019 along with a manual search, to locate relevant peer-reviewed articles and textbooks published in English. Several keywords were used to obtain all possible articles concerned with the subject. Almost 25 articles were found throughout the research process; however, only 22 articles were specifically related to the current subject. Of these, few studies have focused on the impact of ECC on the quality of life.

Discussion

A study was conducted in the United States at the Pediatric Dental Clinic at Mott Children’s Health Center, and at the...
Children’s Clinic at the University of Michigan School of Dentistry for determining the impact of ECC on the oral health-related quality of life [8]. This study showed that after dental treatment of the children, the children’s well-being had improved. In addition, the children even as young as 3 years old could communicate of their oral health-related quality of life by themselves correctly [8,9]. Furthermore, the children who were dental caries-free reported higher oral health-related quality of life than the children with ECC. The results also showed that these children with ECC who received dental treatment showed an improvement in their oral health-related quality of life after 4 weeks of treatment.

Other researches had reported on children aged 4-5 years or older could provide information about their pain and oral health status [10,11]. The pain of the early decayed tooth is cyclic in nature that might hurt the child for 1 week, but after that the pulp becomes necrotic creating a fistula for pus discharge that relieves the pain for the child, and hence, the child who lives with chronic pain from early decayed tooth might not complain of a painful tooth but only complain of a slightly uncomfortable situation in this tooth [8,12]. ECC process moves from tooth to tooth, leading to the child complaining from a different quadrant of their mouth every week [13].

A previous study was carried out to discover the impact of ECC on oral health-related quality of life for children at age ranging from 2 to 5 years old and their parents/guardians [14]. Most studies for evaluating the oral health-related quality of life in early childhood aimed at validating the instrument [15-17], non-probability sampling methods [18], children were selected with low socioeconomic status living in suburban [19], children with cerebral palsy and HIV affected children [20,21].

Moreover, two studies were conducted in China and Brazil, respectively, to represent community based samples by using the questionnaire of ECOHIS following its validation [22,23]. In China, there was a positive relation between ECC and oral health-related quality of life. Whereas, in Brazil, Parents’ anxiety toward their children teeth has a role in their negative perceptions towards the impact of ECC on the oral health. In this study, the prevalence of impact was 33.5% for children and 22.9% for the parents/guardians and these values were lower than other studies, which selected the patients from sample groups of children who wanted dental treatment.

Another study conducted in China, validated ECOHIS and discovers the negative effects of oral health problems on the quality of the child’s life who were aged 2-5 years [24]. In this study [23], 49.1% parents reported at least one impact on the child’s oral health-related quality of life and this result is lower than the other studies [24], in which 81% of the parents reported a negative impact on the child’s oral health-related quality of life.

Further studies showed that the gender and age did not have any significant role in the ECOHIS analysis [25]. Other studies suggested that mothers’ level of education had a role in the oral health outcomes [26,27]. In one study, it was reported that mothers with low education level had a poor perception about their children oral health-related quality of life [28]. However, in other studies, it was reported that there was no relationship between the parents’ education level and their children oral health-related quality of life [29]. Furthermore, in this study, there was no significant relationship between the parents’ level of education and their perceptions about their children oral health-related quality of life.

Additionally, studies have suggested that children with dental caries, especially active painful caries, have negative impact on their quality of life, due to many causes like difficulty in chewing, worrying, or upset feeling about their teeth and repeated absence from their school [30,31]. The study conducted in India consisted of 500 children-parent pairs, reported that there was a positive relationship between dental caries and the worsened children’s oral health-related quality of life in South China [32]. A questionnaire-based study was conducted to assess the impact of dental carries on Indian children and their parents. The questionnaire had questions about physical, social, and psychological aspects for both children and their parents. It was found that children with ECC had lower oral health-related quality of life in comparison with caries free children [32]. Many studies reported that children aged 4-5 years were only able to participate in ECOHIS questionnaire [12,33], but this study reported that younger children could inform about their oral health-related quality of life [32].

Conclusion

This research has concluded that younger children aged 3-5 years were able to inform about the impact of ECC on their oral health-related quality of life. Children with ECC had significant worse oral health-related quality of life in comparison with caries-free children. However, there is a scarcity in studies that were conducted on studying the impact of ECC on oral health-related quality of life, also most of them were trials and showed unclear results. Thus, it is recommended to establish more studies which focus on declaring the children’s oral health-related quality of life in presence of ECC.

Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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