

Program to promote oral hygiene habits in children with intellectual disabilities

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ABSTRACT:

An intervention study of health education was conducted in order to assess the impact of a program to promote oral hygiene habits in children with intellectual disabilities (ID). The study was quasi-experimental pre-test and post-test, and included 13 children with intellectual disabilities, ranging between 9 and 12 years old. The program consisted of 6 sessions, whose activities are designed to encourage participation and interest of children with ID. The results showed an improvement in oral hygiene habits. The implementation of programs to promote hygiene, appropriate activities designed with the cognitive level of the population favors the oral health status.

Keywords: Hygiene Practices, Intellectual Disability, Health Education.

INTRODUCTION

The World Health Organization (WHO) states that in the promotion and prevention, health education (EPS) is a helpful tool; it is responsible for the transmission of knowledge, but also to generate behavioral changes that establish healthy lifestyles (Arias, Muñoz, Romero, & Espeso, 2005).

Some of the major risk factors to health are generated in childhood and adolescence, such as the lack of healthy hygiene habits. These can be diverse, including oral hygiene habits and habits that create disease and make a low quality of life, however, prevention and education can help (Reverter, Legaz, Jové, Mayolas, & Vinacua 2012).

People who suffer particularly disabilities, have additional risk factors that impact decisively in a low level of oral hygiene, attributed to the limitations of the total development of their capabilities care, including his mouth care. This carelessness makes multiple oral diseases, so the more severe the degree of disability, the more oral problems they can get; however, oral health and also the habits of hygiene do not depend entirely of disabled patients, however they require special care from others, highlighting the direct influence of parents (Marulanda, Betancur, Espinosa, Gómez, & Tapias, 2011).

Mexico has developed the *Bright Smiles, Bright Futures Colgate-Palmolive program* (2007) in order, to maintain oral hygiene of the population (Colgate-Palmolive, 2010). In Spain, they designed and implemented the *Oral Health Program in Primary Care Canary Islands Government* (2010) in the Canary Islands (Gobierno de Canarias, 2010). Despite of these strategies in both countries, there is lack of oral hygiene programs specifically targeted to people with disabilities.

We also have to mentioning the positive impact the programs provides not only in the involvement of children but also in the parents or guardians. It's very important for all of them to participate. Working together with health professionals get better results (Naidu, Nunn, & Forde, 2012). However, access to treatment and preventive care does not guarantee the assistance of the population (Masoe, Blinkhorn, Taylor, & Blinkhorn, 2014).

Tooth decay is part of the list of diseases in preschool age children worldwide; this disease cost a lot of money when it comes to going to the doctor that cannot always be seen for reasons of economic. The short-term program Oral Hygiene Training Package (2012) states that the presence of caries has been reduced in children with preschool age after being implemented. When we promote oral health we reduce spending on dental care (Raj Goel, Sharma, & Goel, 2013). Since dental caries is associated with the absence of oral hygiene, one of the measures health promotion can do is toothbrushing. As a habit it benefits the state of oral health and reduces the presence of caries (Gil, Morikava, Santin, Pintarelli, Fraiz, & Ferreira 2015).

Preventive programs for the maintenance of oral health are fundamental in the pre-intervention disease manifestation in children (García, Espeso, & Herrera, 2010). The goal of these programs is to help to prevent anomalies and raise the health status, they also contribute to decrease the high costs in treatment and orthodontic care (Más, Mora, López, & Apolinaire, 2009).

Prevention through hygiene habits is the most economical and effective way to maintain oral health, to avoid the presence of plaque and periodontal disease. Health education is one of the main activities to prevent the occurrence of damage to health, so, it is essential to consider home tooth brushing as one of the most effective hygiene habits to care, protect and preserve the oral health (Souza, Alferes, Stadler, Pilatti, & Santos, 2008). Making this three times per day and supplementing with toothpaste, dental floss, and mouthwash, activity that must be supervised (Soria, Molina, & Rodríguez, 2008).

Oral health is crucial to the overall development of a person. The presence of oral abnormalities, not only affects the oral physical state, but also affects self-esteem, communication, ability to establish relationships, and therefore, the quality of life (Anagnostopoulos, Buchanan, Frousiounioti, Niakas, & Potamianos, 2011).

To modify timely way, behaviors and to adopt healthier lifestyles, childhood is the most recommended stage because beliefs about health are also under development in the infant. In this way, preventive actions, as the integration of hygienic habits, generate positive changes regarding health (Romero, Hidalgo, Arias, Muñoz, & Espeso, 2005). In this sense, the parents exert influence on the formation of oral hygiene habits of the child population, as a vulnerable group (Soria, Molina & Rodríguez, 2008).

Parents or caregivers, represents the most important social group, to promote the acquisition of healthy behaviors in children from an early age, supporting to health specialists to implement activities to promote oral health (Gonzales, Hernández, & Correa, 2013).

The lack of programs for oral hygiene habits intended specifically for children with intellectual disabilities, this harms not only your teeth and gums but your health in general. When you don't including oral hygiene, diseases can be generated over time and get very bad. The programs that are not designed with specific features on their intellectual capabilities are not helpful for those who have ID, as the learning process is different from an ordinary child; therefore it is important to note that each of the programs must be designed to objectively defined groups.

The main purpose of this research is to work from the earliest ages. The prevention programs of hygiene help; including activities according to the intellectual development of children, so we did not exclude those with ID considering that part of the percentage of the population that do not have adequate oral health. In addition, when we include brushing teeth into the oral hygiene habits in children with intellectual disabilities to improve and maintain your teeth in good condition, avoid the presence of oral diseases, reduce the cost generated by the dental care and improve their quality of life through healthy lifestyles.

Therefore, we carried out the following research, in order to assess the impact of a program to promote oral hygiene habits in children with intellectual disability that is likely to be considered within the educational activities of those responsible of children with these characteristics.

MATERIAL AND METHODS

A quasi-experimental study pre-test - post-test was performed with 13 children with intellectual disabilities (ID), ranging between 9 and 12 years old ($M = 10.00$, $SD = 1.83$) in a public elementary school in the town of Chimalhuacan, State of Mexico, during the period from October 2013 to January 2014.

All children of both sexes belonged to fourth, fifth and sixth grades, who attend to a Regular Education Support Unit (USAER in Spanish) within the same school, and who agreed to participate, with the informed consent given by parents. A questionnaire with 12 items was made, to measure: 1. The frequency with which each children brush their teeth, 2. The time it typically takes brushing, 3. The type of brush they use, 4. The use and frequency of mouthwash, 5. The use and frequency of dental floss, 6. How often attending the dentist for a check, 7. The type of gum and frequency of consumption, 8. The presence of bleeding in the gums, 9. The presence of bad breath, 10. The period of time it takes to change toothbrush with a new one, 11. The frequency of consumption of sweets, and 12. The practice of tongue brushing. All focused to assess knowledge of oral habits in children with ID, measured individually, before and after the intervention.

To make comparisons between pre-test and post-test nonparametric Wilcoxon test was used due to sample size.

It was developed and implemented a program to promote hygiene supported in the "Educational intervention to promote knowledge and change habits on oral health in children with mild mental retardation" (2013), composed of six intervention sessions lasting 50 minutes. These activities were implemented within the institution in the class schedule in the morning. The program content is shown in Table.

TABLE I. PROGRAM ACTIVITIES.

Sesió n	Tema	Actividad	Participantes
1.	¿What and how children learn, with the program of oral hygiene habits in children with intellectual disabilities?	Exhibition program content and processing log by parents, to support the assessment of children's progress with each session outside the institutional space.	Health education for parents and children with ID.
2.	Hygiene Practices: •Healthy. • Not healthy.	Presentation of the educator to the group and vice versa, to establish an atmosphere of trust that favors the aim of the sessions. Exhibition concept of habit. Oral description by children about the actions performed regularly (where the group will identify if the habit is healthy or not).	Health education for children with DI.
3.	Oral health.	Exhibition of oral health. Prepared by teams of oral health promotion by children posters.	Health education for children with DI.
4.	Prevention of oral diseases.	Understanding the importance of disease prevention through tooth brushing and its many benefits. Design Team of tools for tooth brushing made with recycled material	Health education for children with DI.
5.	Toothbrush	The correct technique of brushing using teaching materials will be displayed so that later the children make tooth brushing.	Health education for children with DI.
6.	Feedback of oral health.	Representation of a puppet theater in charge of children to be exposed to parents about the topics covered during the session's theater.	Health education for parents and children.

RESULTS

The results of the questions on which a major change after implementation of the program designed occurred are presented, followed by those results where change was lower.

The results of Table II, questions 1, 5, 6, 10 and 12 showed statistically significant changes obtained comparing these with the pre-test and post-test ($p \leq .05$). Question 1 that evaluates the "frequency with which children brush their teeth", scored in the pre-test ($M = 2.23$, $SD = 1.59$), which compared to the posttest ($M = 4.62$, $DE = .77$) showed an increase in the number of times that the children practice toothbrushing. With regard to question 5, the result of the pre-test was ($M = 1.08$, $SD = .28$) and ($M = 2.31$, $SD = 1.5$) in the post-test, indicating "the inclusion of dental floss "as an adjunct to oral health care of children with ID. In question 6 an "increase in the frequency of dental visits" was obtained by comparing the initial result of ($M = 2.00$, $SD = .56$) and the result after the intervention program increased ($M = 3.54$, $SD = 1.61$). The results of question 10 indicate "change toothbrush at the right time," comparing the results of the pretest ($M = 2.00$, $SD = .82$) and the result increased in the posttest ($M = 1.38$, $SD = .51$). Finally, in Question 12 comparing the initial result ($M = 1.46$, $SD = .52$) and that obtained after the intervention ($M = 1.08$, $SD = .28$) indicates "the inclusion of brushing the tongue as part of oral hygiene."

Although the rest of the items do not show statistically significant changes, they showed positive trends in the comparison of the data applied on the instrument before and after the intervention.

For example, in question 2, the time of brushing, was initially one to two minutes, rising from two to three minutes after the intervention. A change was observed in the use of the toothbrush (question 3); while in the pre-test means only one child used manual toothbrush, and in the post- test twelve children began to using this brush. The frequency of use of mouthwash increased in the post-test in question 4, while in Question 7 consuming sugar gum as the presence of spontaneous bleeding gums (question 8) decreased from pre- test to post-test.

TABLE II. "MEANS AND STANDARD DEVIATIONS FOR EACH ITEM OF THE QUESTIONNAIRE"

	Pre test M (DE)	Post M (DE)	w	p
1. ¿How often do you brush your teeth?	2.23 (1.59)	4.62 (.77)	2.84	.00
2. ¿How long usually lasts brushing?	2.08 (1.19)	2.92 (1.04)	1.74	.08
3. ¿What type of brush you usually use?	3.38 (1.45)	3.08 (.28)	1.10	.27
4. ¿Do you use mouthwash? Indicates the frequency.	4.15 (2.03)	4.23 (2.01)	.15	.88
5. ¿Do you use dental floss? Indicates the frequency.	1.08 (.28)	2.31 (1.5)	2.28	.02
6. ¿How often do you go to the dentist for a check?	2.00 (.56)	3.54 (1.61)	2.48	.01
7. ¿Do you eat Gum? What kind?	1.92 (.95)	1.62 (.96)	.70	.48
8. ¿Are your gums bleed when you brush or spontaneously?	1.62 (.51)	1.46 (.52)	1.00	.32
9. ¿Have you noticed that often have bad breath?	1.38 (.51)	1.38 (.51)	.00	1.00
10. ¿How often do you change your toothbrush with a new one?	2.00 (.82)	1.38 (.51)	1.90	.05
11.¿ How often do you eat sweets a day?	2.62 (1.12)	2.62 (.87)	.18	.86
	1.46 (.52)	1.08 (.28)	2.24	.02

DISCUSSION

This research was aimed to evaluate the impact of a program to promote healthy oral habits in children with intellectual disabilities. The results before and after the implementation of the program indicate changes that promote oral health of infants. Considering the results obtained it can be stated that the program for children with disabilities are implemented, positive impact on the oral health status of participants, as the increased frequency of toothbrushing not only prevents oral diseases, but also kept in good condition his mouth because prevents the flow of microorganisms into the body that can sicken other organs. Also the inclusion of accessories like flossing and mouthwash help strengthen the role of brushing. Significantly, it is important achievement in terms of increased visits to the dentist, and who regularly occurs when a disease or dental discomfort. Children expressed interest in aspects unaware regarding the care of oral health, but also in the care of the instruments that perform brushing is why one of the outstanding results reflect the change of the toothbrush in the right period. It should be mentioned that tooth brushing should be a step by step process performed

correctly. It is noteworthy that children with intellectual disabilities who were participants after the educational intervention, in addition to brushing their teeth brushed beside their tongue.

The results obtained were similar in the intervention with children with mild disabilities (Torres, López, Sardiñas, Machado, & Pérez, 2013). Where the frequency of the number of times that the children brushed their teeth increased more than three times a day after surgery; being the main toothbrushing habit of preventive oral hygiene, it can be deduced that the oral health status improved in children with ID.

When considering the home as the starting point of oral health, family and influential association between the presence of caries in children was found factors, so it must assess the role of the family and its influence to generate habits healthy hygiene especially in vulnerable populations. This lets us to state that for best results the integration of parents is suggested to promotion and prevention programs in oral health (Díaz, Arrieta, & González, 2011). Where it is recognized that their work at home is essential for children to acquire oral hygiene habits, so this program include them in activities. This recommendation is made because in the scheduled sessions, the absence of parents (46% of them) disallowed the desired result; attributing his absence to occupational issues.

In 2012, the Health Department of the Municipality of Chimalhuacan offered the program "Oral Health" in elementary schools, students participated without a previous diagnosis of disability, and the activities of this program were based mainly on talks (Ramirez, 2012).

However, linking this with the National Council for Educational Development (2011), one of the main characteristics of patients with ID is the lack of concentration and retention of information, and that children with ID are easily distracted, by the above participatory activities and use of the material that sparks the interest and encourages participation of children, to promote the comprehensive development, skills development and skills that favor the formation of habits of living, work, and health are suggested (Consejo Nacional de Fomento Educativo, 2011). Based on the above, activities in this program were designed according to the cognitive level of the participants and were used in this research program, which may have led to positive changes in participants.

The impact of *Bright Smiles, Bright Futures Colgate-Palmolive program* has a global influence, because it has allowed million children obtaining an improvement in oral health knowledge, and promote good dental habits, thus, coinciding with the present research (Colgate-Palmolive, 2010). Probably, worldwide recognition and access to the necessary resources are essential to significantly increase the number of beneficiaries. Based on the above, the low sample of this research consists of 13 children with ID, so, sample limits the extent and scope of the program to increase the number of disadvantaged people to generate positive changes in the oral health.

This research shows that prevention programs are useful and necessary for the conservation and improvement of oral health of children, and strategies should also be directed to children with intellectual disabilities.

It is necessary that children with disabilities to establish healthy oral hygiene habits and promote the overall health. The family should strengthen links, coupling to the circumstantial capacities of children and receive multidisciplinary support activities, to build a biopsychosocial approach to social inclusion rather than exclusion (Córdoba, Portilla, & Arteaga, 2010).

In conclusion, in the case of the Municipality of Chimalhuacan and regardless of whether the population has or does not have social security, specifically the pediatric population should be addressed by the health service programs which consider intellectual disabilities so they can present and context itself considerably limits the possibility of guaranteeing the quality of life measures.

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