https://doi.org/10.35839/repis.5.3.895
http://revistas.unheval.edu.pe/index.php/repis/

Educational intervention for dental hygiene in preschool children from vulnerable contexts: self-efficacy, intention and perceived control by parents and children

Intervención educativa para la higiene dental en preescolares de contextos vulnerables: autoeficacia, intención y control percibido por padres e hijos

Judith Cavazos-Arroyo[1,a], **Martha L. Gaeta-González**[1,b]

Abstract

Dental caries is one of the most prevalent chronic illnesses in early childhood, with repercussions on minors' quality of life. This vital stage constitutes an opportunity for children to acquire oral hygiene habits and control over them, especially in social vulnerability contexts. Objective: To analyze parents' beliefs about their ability to support their children in developing dental hygiene habits and children's beliefs about the acquisition of these habits before and after completing a dental hygiene development program. We established a quasi-experimental design with pre-test and post-test for two groups: parents and their preschool-age children participating in an educational program focused on developing dental hygiene habits in Mexico. We compared the habits, self-efficacy, intention and control on oral hygiene, through a paired t-test analysis. Results: The findings showed that the parents' intention to take action on their child's oral hygiene was higher than the behaviors carried out during the intervention. After the program, parents reduced their child's brushing supervision, and the children exhibited increased dental care behavior. Conclusions: We emphasize the relevance of carrying out continuous intervention work in the long term to empower children to control their oral health.

Keyword: oral hygiene, self-efficacy, child development, parent-child relations (source: MeSH)

Resumen

La caries dental es una de las enfermedades crónicas más prevalentes en la infancia temprana con repercusiones en la calidad de vida de los menores. Esta etapa constituye una oportunidad para que los niños adquieran hábitos y control de su higiene oral, sobre todo en contextos de vulnerabilidad social. **Objetivo**: Analizar las creencias de los padres sobre su capacidad para apoyar a sus hijos en el desarrollo de hábitos de higiene dental y las creencias de los menores sobre la adquisición de estos hábitos antes y al término de un programa de desarrollo de hábitos de higiene dental. **Métodos**: Se estableció un diseño cuasi-experimental con pre-test y pos-test a dos grupos: padres de familia y sus hijos en edad pre-escolar participantes de un programa educativo enfocado al desarrollo de hábitos de higiene dental en México. Se compararon hábitos, autoeficacia, intención y control sobre higiene bucal, mediante la prueba t pareada. **Resultados**: Se encontró que la intención de los padres de tomar acciones sobre la higiene bucal de su hijo/a fue mayor que los comportamientos llevados a cabo durante la intervención. Después del programa, los padres redujeron la supervisión del cepillado de su hijo/hija y los niños presentaron mejor comportamiento del cuidado dental. **Conclusión**: Se evidenció la relevancia de realizar un trabajo de intervención continuado a largo plazo, a fin de potenciar que los infantes mantengan control de su higiene bucal.

Palabras clave: higiene dental, autoeficacia, desarrollo infantil, interacción padres-hijos (*fuente: DeCS*)..

[1]Popular Autonomous University of the State of Puebla, Mexico

ORCID:
[a]https://orcid.org/0000-0002-6258-289X
[b]https://orcid.org/0000-0003-1710-217X

Corresponding author:
Martha Leticia Gaeta González

Postal Address: Popular Autonomous University of the State of Puebla, Mexico

Email: marthaleticia.gaeta@upaep.mx

Reception date: december 29, 2020

Approval date: june 02, 2021

Quote as: Cavazos-Arroyo J, Gaeta-González ML. Intervención educativa para la higiene dental en preescolares de contextos vulnerables: autoeficacia, intención y control percibido por padres e hijos. Rev. Peru. Investig. Salud. [Internet]; 5(3): 201-205. Available from: http://revistas.unheval.edu.pe/index.php/repis/article/view/895

Introduction

Oral health is essential for general health, well-being, and personal quality of life (1). Unfortunately, oral diseases represent one of the main health problems among the population, which appear from the first years of life, with dental caries being one of the most prevalent chronic diseases in early childhood (2). Lack of dental hygiene is among the main causes of its prevalence, mainly in socially disadvantaged populations (3, 4).

If not prevented, dental caries has repercussions on the physical, cognitive and social development of children (5). Preventive care is recommended from early childhood -before six years of age (2), as it is a critical age for acquiring habits and control of oral hygiene (4). The implementation of educational interventions in a sustained manner requires (6): to empower parents and, through them, instill and reinforce self-care habits in their children. Parents provide models and constant guidance to minors, so the support and guidance of parents is decisive for minors to achieve a sense of self-efficacy for their dental hygiene, have the intention and control of the practice and generate habits of oral hygiene (8).

Self-efficacy refers to the personal belief about one's own ability to perform specific actions and achieve expected results (13). In the field of health, it has been shown to have a mediating role towards oral hygiene actions in adults (12). Paternal self-efficacy involves the belief in one's own capacity for dental care of children (7), which has an impact on the reduction and prevention of dental caries lesions in children, based on an adequate preparation of the parents.

For oral self-care, people must have the intention of the behavior and the determination to persist in the face of difficulties, which requires control of their own behavior (11), based on awareness and mastery of personal abilities and capacities (12).

The example and supervision of parents are key for minors to develop the intention to keep their teeth clean and persevere over time, which would contribute to maintaining control for a good state of oral health, through the development of educational programs.

The objective of this study was to analyze the beliefs of parents about their ability to support their children in the development of dental hygiene habits and the beliefs of minors about the acquisition of these habits before and at the end of a development program of dental hygiene habits.

Materials and methods

The study is observational, and given the conditions of the educational intervention, a quasi-experimental design with pre-test and post-test was chosen. The intervention was carried out within the school context for twelve weeks. It consisted of an educational program on dental hygiene habits for pre-school children - under six years old - who attend the Community Child Care Centers (CAIC), in a city in central Mexico.

Population and sample

The population was made up of parents and their children of preschool age who attend the CAICs. A CAIC seeks the comprehensive training of children in situations of social vulnerability, through educational-assistance actions. 120 parents, between 18 and 58 years old, and 120 children, between 4 and 6 years old participated. The selection of the sample was made by availability.

Instruments

Two questionnaires were developed, one for parents and the other for children, based on the adaptation of: The Self-Report Index of Habit Strength (15); The Perceived Health Competence Scale (14); The Oral Health Self- Efficacy Scale (5); The Habitual Self-control Questionnaire (18). The questionnaire for parents had 38 items and for children 30 items, which are evaluated using a Likert scale that ranges from 1 (totally disagree) to 5 (totally agree).

The independent variables were: a) Self-efficacy for dental hygiene; b) Behavior intention; c) Control of the action; e) Knowledge of children's oral health (only for parents). The dependent variable was: Oral hygiene habits.

Process

Prior to the study, permits were obtained from the CAIC authorities and the parents of the minors. The pre-test was applied one week before the start of the intervention and the post-test immediately after its completion; to the boys / girls within school hours, and to their parents in two sessions lasting approximately half an hour. Since preschool-age children do not master reading and writing skills, the researchers read the questionnaire questions aloud and the children marked their responses from the selection of emoticons.

The intervention was organized around the teaching of oral hygiene habits to the children by the health promoters, reflective reading and activities for the acquisition of skills in the minors by the educators. Plus, a daily guided tooth brushing practice after school lunch.

The parents received information on the promotion of children's dental hygiene habits, through information sessions given by the health promoters before the intervention, lasting three hours. They were given a brochure on oral hygiene topics and guidelines for working with their children at home. During the intervention, the parents carried out daily guided practice to monitor the children's brushing, through weekly control logs. Parents received individual counseling in case their children required referral to specialists for caries problems.

The data were analyzed by means of the paired t-test, using the SPSS version 20 software.

Ethical considerations

The ethical standards established in the Code of Ethics of the Psychologist, of the Mexican Society of Psychology, were met in the treatment of the subjects. In addition to having the approval of the University Ethics Committee.

Results

Demographic

Of the total number of parents (n = 120), 64.2% were women and 35.8% were men; 69.2% were between 18 and 28 years old. 40% of the mothers had only basic education, 37.5% with upper secondary education, 9.2% with university studies and 2.5% had no formal studies. 48.3% of the parents had only basic education, 32.5% higher secondary education, 6.7% had no studies and 5% had university studies.

In the case of infants (n = 120), 57.5% were boys and 42.5% girls. 69.2% were 4 years old, 30% were 5 years old and 0.8% were 6 years old.

Differences in parents before and after the intervention

Significant differences were found in two variables (Table 1): self-efficacy ($p = 0.003 < \alpha = 0.05$) and intention / behavior ($p = 0.000 < \alpha = 0.05$). Parents' self-efficacy to supervise their child's tooth brushing decreased after the program ($X_1 = 2.81$, $S_1 = 0.6215$; $X_2 = 2.59$, $S_2 = 0.727$). The intention to take actions on the oral hygiene of your child was greater than the behaviors performed ($X_1 = 3.35$, $S_1 = 0.5289$; $X_2 = 2.26$, $S_2 = 0.59$).

Differences in children before and after the intervention

Significant differences were found in habits ($p = 0.000 < \alpha = 0.05$) and action control ($p = 0.032 < \alpha = 0.05$). Both oral hygiene habits ($X_1 = 2.01$, $S_1 = 0.3885$; $X_2 = 2.25$, $S_2 = 0.476$) and action control ($X_1 = 2.46$, $S_1 = 0.500$; $X_2 = 2.59$, $S_2 = 0.493$) improved with the program (Table 2).

Table 1. Paired t results in parents before and after the program

Variable	Paired t	*p value*
Oral hygiene habits	0.396	0.693
Self-efficacy	2.989	0.003
Intent / Behavior	16.553	0
Action control	-0.729	0.468
Knowledge	0.112	0.911

Differences in children before and after the intervention

Significant differences were found in habits ($p = 0.000 < \alpha = 0.05$) and action control ($p = 0.032 < \alpha = 0.05$). Both oral hygiene habits ($X_1 = 2.01$, $S_1 = 0.3885$; $X_2 = 2.25$, $S_2 = 0.476$) and action control ($X_1 = 2.46$, $S_1 = 0.500$; $X_2 = 2.59$, $S_2 = 0.493$) improved with the program (Table 2).

Table 2. Paired t results in children before and after the program

Variable	Paired t	*p value*
Oral hygiene habits	-4.354	0
Self-efficacy	-0.365	0.716
Intent / Behavior	0.576	0.566
Action control	-2.176	0.032

Differences between parents and children before and after the intervention

Before the program, significant differences were found in the four variables analyzed (Table 3), finding higher results in all parents than in children (oral hygiene habits $X_1 = 3.08$, $S_1 = 0.4950$; $X_2 = 2.01$, $S_2 = 0.388$; self-efficacy $X_1 = 2.81$, $S_1 = 0.621$; $X_2 = 2.50$, $S_2 = 0.534$; intention / behavior $X_1 = 3.35$, $S_1 = 0.528$; $X_2 = 2.93$, $S_2 = 0.250$; action control $X_1 = 3.04$, $S_1 = 0.397$; $X_2 = 2.46$, $S_2 = 0.500$).

Table 3. Paired t results comparing parents and children, before and after the program

Before the program	Paired t	*p*	After the program	Paired t	*p*
Oral hygiene habits	19.794	0	Oral hygiene habits	12.867	0
Self-efficacy	4.03	0	Self-efficacy	0.758	0.45
Intent	7.76	0	Behavior	-9.77	0
Action control	10.206	0	Action control	8.171	0

After the program, the results showed significant differences in three variables analyzed (Table 3). Parents present higher results than children in oral hygiene habits ($X_1 = 3.05$, $S_1 = 0.50$; $X_2 = 2.25$, $S_2 = 0.4762$) and action control ($X_1 = 3.07$, $S_1 = 0.370$; $X_2 = 2.59$, $S_2 = 0.493$). But the children presented more dental care than the parents ($X_1 = 2.26$, $S_1 = 0.590$; $X_2 = 2.90$, $S_2 = 0.388$).

Discussion

This research analyzed the beliefs of parents about their ability to support their children in the development of dental hygiene habits and the beliefs of minors about the acquisition of these habits before and at the end of a program to develop dental hygiene habits. . It was found that parents' self-efficacy in supervising their son / daughter's tooth brushing decreased after the program ended. In addition, the intention to take actions on the infant's oral hygiene was greater than the behaviors during the intervention. These results coincide with other studies, due to the complexity of carrying out interventions that involve parents (10), especially in socially disadvantaged groups (3); with parents with low educational level, limited access to services (9) and the challenge of getting parents to participate in their children's education, including their oral health. Regarding children, the magnitude of changes observed in oral hygiene habits and behavior control reflects the capacity of the program to promote self-care behavior in oral hygiene. However, it is necessary to consider the state of cognitive and psychomotor development of each infant (16), the duration of the intervention and the continuous involvement of the parents.

On the other hand, the fact that parents present higher levels than their children in the different study variables before the program, corroborates that children are in the process of developing oral hygiene habits and require supervision and support from adults (8). Likewise, the findings coincide with other investigations (17) that have found better tooth brushing habits in mothers than in their young children. On the other hand, at the end of the intervention, the parents presented better results than the children, both in oral hygiene habits and in control of the action, but the children presented better habitual behavior of dental care than the parents. These findings demonstrate the benefits of the intervention in reducing the incidence of caries in preschool-age children systematically, by including psychological variables for the acquisition of skills in young children.

This research emphasizes the relevance of long-term continuous intervention work, to encourage children to maintain a sustained effort in the face of difficulties that divert them from good oral health. Primary caregivers are responsible for the education of their children and school is only part of that education (10), hence, educating parents in

caries prevention methods (7) can contribute to the involvement of their children in the development of long-term oral hygiene habits.

A limitation of this research is that it cannot be generalized. It is recommended to develop a longitudinal study to study these processes over time. Although, the present study can be a guide for educators and health professionals who develop preventive programs that involve psychological variables to promote oral hygiene habits focused on children in social vulnerability, mainly regarding the strengthening of self-efficacy, intentionality and parental behavior. in the accompaniment and supervision of the dental hygiene of their children.

Acknowledgments

To parents and children participating in the program. To the educators of the CAICs and the health promoters.

Funding

Self - funded.

Authors' contribution

All authors participated in the development of the research.

Conflicts of interests

The authors declare no conflict of interest.

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