

Title:

A look inside the “silent epidemic” of dental and oral diseases plaguing similar socio-demographic groups within the United States and Las Juntas, Costa Rica

Abstract:

Hay muchos problemas en el mundo con la salud general y bucal. En los Estados Unidos y Costa Rica, específicamente en Las Juntas, hay un problema de salud buco-dental y principalmente los niños, los adolescentes, y las mujeres embarazadas son afectadas. En Las Juntas, este grupos son mas importante en disminuyen las enfermedades de la salud buco-dental. En el Área de Salud Abangares, la salud Buco-dental de la población se ve afectada principalmente por alteraciones como: La Caries Dental, gingivitis, enfermedad periodontal, y apiñamiento. La enfermedad de mayor incidencia fue la caries dental para un 33% del total de las personas valoradas. Los niños son afectados principalmente por la caries dental en Las Juntas y las viejas personas son afectadas en los Estados Unidos. La caries se inicia a una edad muy temprana. Hay programas para ayuda la problema de la salud buco-dental y educación es la primer programa presentar a la gente de Las Juntas y casi todo del mundo.

Introduction:

In the past decade, there has been a significant change in perceptions worldwide regarding oral health and disease which has contributed to its acknowledgement as a vital

component of general health rather than a separate entity involving teeth and of quality of life. Since the beginning of the national oral health epidemic, the United States has put forth much effort in combating this problem by funding research and establishing prevention programs in several areas across the country. As a result of the United States' decision to address this health issue, progress and improvements in many areas of oral health have been made and oral health among Americans today is much better than a decade ago (CDC, 2005). The most significant problem Americans face with oral health and disease is the lack of an effective health infrastructure that meets the oral health needs of all Americans and integrates oral health effectively with overall health (CDC, 2005). The U.S. health care system is based on an individual level in which each person chooses their personal health care package depending on their annual income as well as other superficial characteristics that encourages the creation of particular social groups according to economic status. Unlike Canada and Costa Rica which are just two examples of a handful of nations that provide its citizens with government run health care programs that are based on the community, the United States government is not involved in the health care programs but rather U.S. health care is designed on an individual basis. This individualized and private health care system has been under much scrutiny for several years as a result of its inability to properly cater to the needs of all Americans and thus has been one of the key contributors to the growing gap between the socioeconomic and demographic groups within the United States. As a consequence of the non-widespread oral health care programs available, there are profoundly visible oral health disparities among the lower-income Americans.

Not only has the oral health and disease crisis been of a major concern at home, it has also been targeted by several countries around the world, especially the underdeveloped country of Costa Rica. As one of the more improved Latin American countries, Costa Rica has dealt with many similar health issues as the United States, especially with oral health. However, the major issues plaguing Costa Rica and more specifically, the rural communities like Las Juntas are not directly related to its health care system like in the U.S., but rather indirectly related via a branch concerning oral health care education, awareness, and hygiene.

Costa Rica offers a primary health care system in which all citizens, regardless of their socioeconomic background or whether they are employed or not are provided with an equal opportunity health care plan. This system confronts the problem the United States faces with regards to an unequal distribution of health care coverage amongst its citizens; however, there are several pitfalls with this system that have been overlooked and continue to contribute to Costa Rica's ongoing struggle with overall health as well as oral health amongst its people. The unifying health care program of Costa Rica has been shown to portray similar characteristics to the plans offered in the U.S. as a result of its contribution to similar socioeconomic disparities. With regards to oral and dental health in Costa Rica, the basic tools and health care environments available to all Ticos who so choose to take advantage of the available health care provided to them are covered under the primary health care system. However, the most significant problem that the country of Costa Rica and the people as a whole face is the lack of education and awareness of the dental problems that exist as well as a lack of an initiative to care for one's own teeth and oral cavity. This inadvertent and careless behavior that is common among the Ticos

in Las Juntas and the rest of the country has aided in the two most common dental and oral health problems seen among Latin Americans which are dental caries and periodontitis. Even though the government sponsored health care programs offer dental care for everyone all year, the procedures that are performed by the practicing dentists in the clinics are limited and basic and thus more often than not, patients are unable to receive the proper dental care needed to relieve them of their pain or prevent them from contracting other problems in their mouth or other areas of their body due to the expense of these procedures only completed by private dentists. The basic health infrastructure in Costa Rica was most likely designed with somewhat of a purpose to prevent the potential for the creation of socioeconomic disparities like those present in the United States. However, with the lack of oral health education and awareness, the people of Costa Rica and the rural community of Las Juntas are not using the available health care system provided to them and thus are acquiring worsening oral health and general health diseases that are leading to bigger and more complex problems that the primary health care system in Costa Rica was not designed to combat.

The existence of oral health outreach programs distributed across Costa Rica is on the rise and the major focus of these preventative programs is dental health education and awareness. Like the United States, drastic improvements have been seen in the oral health sector of the people of Costa Rica, which came about due to the successful outreach programs that the government has set up to educate its people and help eradicate this growing oral health problem. With these programs, it is the hope of Costa Rica as well as the World Health Organization that the oral health epidemic will diminish. It appears that the path most effective and that has the most potential for long-term success

is the education and awareness route to help overcome this health issue. By educating the people of Las Juntas and the rest of the country on oral health, hygiene, etc., the potential for cutting down on the number of oral health diseases and conflicts can be decreased and potentially aid in a nation-wide fight against this health problem.

Methods:

In order to obtain the relevant data needed to answer the question of whether a dental and oral health problem exists in Costa Rica and more specifically, Las Juntas, two interviews were set up with local dental practitioners. Before each interview took place, a list of questions in Spanish were compiled that covered such areas of the oral health issue as: possible improvements, the most prevalent dental problem, the population most affected by oral disease, the success of outreach programs, oral health education and awareness, etc. (See Appendix B) The first interview was set up Dr. Vera Homez, a local private dentist in Las Juntas and a practicing dentist for a government sponsored outreach program in other rural communities. Several questions relating to the available outreach programs were presented to the private dentist as well as questions concerning the most prominent dental problems and those people who fall victim most often to dental and oral health problems. Also, questions were posed on whether improvements over the past decade have been made in the area of oral health in Las Juntas. The other interview was set up with a local orthodontist who strictly worked for the primary clinic in Las Juntas. The second interview was more geared to retrieving statistical data over the past five years in order to see the possible improvements in the oral health care in Las Juntas. Also, questions relating to the general health care system in Costa Rica were created prior to the interview in order to enhance my knowledge of the primary health care system

existent in Costa Rica. Along with the two interviews that were conducted in Las Juntas, the information needed to see where the people of Las Juntas stood with regard to dental and oral health awareness was accomplished by distributing questionnaires that touched on all the different areas of oral health, hygiene, education, etc. to twenty different people in the small rural community. The questionnaires were created on the sole basis of acting as a guide for this research project. (See Appendix C) The surveys were distributed in hopes that they would provide the little data needed to construct the appropriate questions for the two interviews as well as provide some background on where the community stands with regard to dental and oral health knowledge and awareness.

Results:

After conducting two interviews and distributing the oral health questionnaires, it was quite apparent that the rural community of Las Juntas is facing, like many other similar rural communities around the world, an oral health problem. The most prevalent dental health problem that is seen across all age groups is dental caries, which is followed by gum disease and other periodontal diseases. According to the oral health data collected in 2005, from patients in Las Juntas who visited the primary health clinic, it was indicated that over 33% of all the individuals had dental caries. Of that 33%, children under five years of age showed the highest prevalence of dental caries at 50% followed by adolescents from age ten to twelve presented dental caries at an incidence of 46%. In relation to the United States, the statistics on children and adolescents in Costa Rica are almost double those numbers in the U.S. About 18% of lower-income children under the age of five present dental decay in at least one of their teeth and about 24% of adolescents from lower-income households presented tooth decay. From the

questionnaires distributed to a random few in Las Juntas, there were a few questions that stood out due to their responses by several Ticos. About 80% of the people in Las Juntas never heard of dental floss or knew what fluoride was used for. Also, about 60% of the individuals that took the questionnaire claimed that tooth decay was solely a result of not cleaning one's teeth on a daily basis rather than both not caring for one's teeth properly and sugar consumption. In the U.S., the majority of the lower-income Americans facing oral and dental health problems have somewhat of an idea of what fluoride is and definitely know what dental floss is and how it is to be used. Also, most all Americans know and understand the affect of sugar consumption on teeth (CDC, 2005).

Conclusion:

Preventative medicine and treatment are not only associated with the physical realm of the health sector, but are also strongly related to and rely heavily on the educational and social aspects of medicine. Education wasn't always on the forefront of lists when health organizations and policymakers were trying to combat global health problems decades ago, but rather treatments and other forms of eliminating the potential health risks were of the utmost importance. Today, more effort, money, and attention is being put on education and awareness of specific health problems like oral health in hopes to educate the public on this potentially debilitating disease and health risk and make them aware of dental and oral health in conjunction with general health. Educating both the young and the old will hopefully impact one of the age groups and make a big enough mark so that the message is sent home in an efficient and effective manner.

For the past decade or so, the CDC and WHO have shown that by enhancing the background knowledge of average American citizens on oral health and hygiene, the

incidence of dental caries and other problems decreased by 10% (CDC, 2005). With oral health education and awareness leading the list of health care issues that need to be improved in Costa Rica, Las Juntas seems as though it has gotten off to a good start in combating this problem. According to Dr. Fernando Cruz, an orthodontist at the primary clinic in Las Juntas, every year in June, a dentistry representative from the primary clinic in each community must visit each private and public school and provide the students with an oral health and hygiene presentation in hopes that the school children will learn something from the experience and bring the knowledge home to their families. Dr. Cruz as well as the private dentist Dr. Vera Homez that were both interviewed, praised the success of the oral health prevention programs in the schools and both claimed that a decrease in dental caries has been apparent since the start of the oral health program among school children. Dr. Cruz claimed that about a 5% decrease in dental caries was seen among adolescent children, which indicates that improvements have been made in Las Juntas with the oral health problem and that the outreach programs that are available to the public have been effective. Even though this positive outcome of the oral health programs is apparent on the outside, much work is still needed in overcoming this problem in Las Juntas and the entire country of Costa Rica. It is still quite obvious that more education and preventative programs are needed in Las Juntas as a result of the majority of those questioned during my survey (80%) did not know what dental floss was or what fluoride was used for. These are two very vital tools in the dental field as well as dental sealants that are used most readily to combat dental caries. As a result of dental caries leading the field in dental problems amongst the people of Las Juntas, more knowledge and awareness regarding tooth decay is needed in order to lessen the

occurrence of this oral health problem. Also, about 60% of those surveyed were unaware of the affect of sugar consumption on tooth decay and thought that only not cleaning one's teeth would result in dental caries. This misconception is extremely important in terms of indicating where the education is most needed amongst the people of Las Juntas and also answers a lot of questions regarding why there is so much sugar consumption among young children and not enough parental control over what goes in their mouths. This could be directly correlated to the reason for children under five years of age and adolescents significantly leading their parents and grandparents in the number of dental caries in Las Juntas.

Improvements in the oral health of children, adolescents, and pregnant women have been the greatest as suggested by Dr. Homez during her interview; however, there is little data on the oral health of the older population in Las Juntas as well as men in general. Due to their "macho" behavior and beliefs, few men visit the dentist for semi-annual cleanings and thus little data is collected on them and no conclusions can be made. Most of the oral health outreach programs are designed for children and adolescents who are of most concern for dentists and doctors. By educating children early on oral health and hygiene, the potential for good dental and oral health awareness and care for the rest of their life is heightened greatly. Not only is there positive potential for their oral health, but there is potential for improved oral health of others around them as well as future generation's oral health. This domino effect of oral health knowledge can quite possibly lessen this health crisis in a manner in which it will no longer affect the lives of all human beings in the World regardless of their background or demographic location.

Oral health and hygiene education and awareness are also on the list of top priorities in the United States fight against the oral health epidemic. However, making dental care accessible to all Americans no matter their background or status is the number one task for those people involved in the “war” against the health care system in the United States and the dental and oral health outreach programs. Most Americans are aware of their dental and oral health, however, as a result of the cost of dental insurance and the dental procedures that are needed to help remove the problems that exist in the mouths of most Americans, the oral health problems remain and continue to worsen because the ultimate root of the problem has yet to be uncovered. With the United States health care system being based individually and privately, this unequal coverage dilemma leads to a lopsided nation that portrays healthy, wealthy Americans and unhealthy, less-privileged, poorer Americans who are unable to afford the high costs of dental insurance and thus don’t have the equal opportunity like their other fellow Americans who live in the same “free and so-called equal opportunity” nation. If the U.S. health care system were re-designed in such a way that all Americans received equal medical and dental care and all procedures were covered, then perhaps the issue with different socioeconomic groups within the U.S. would not be of a concern.

Even though education and awareness in the oral health sector are not of primary importance to the fight against the oral health problem in the United States, outreach programs that have been set up in the U.S. to target lower-income families and promote oral health in school as another way to combat this health issue has seemed to show improvements. Dr. William R. Maas reflects on the most recent contributions by the health programs: “It’s also very encouraging to find the dental health of adults and

children in lower income areas improved. Thanks to programs in schools that promote tooth brushing and dental sealants, we're reaching more children at high risk for tooth decay and helping them to avoid cavities and fillings" (CDC, 2005). Progress has been made in the past decade in improving the dental disparities among the socioeconomic classes within the nation, but as Dr. Bruce Pihlstrom, DDS, director of the Division of Clinical and Dental Research at NIH asserts "...more effort is needed to improve the oral health of low-income Americans" (CDC, 2005).

An oral health report conducted in 2005, on more than 256 million Americans provided data on several dental conditions and compared the results according to socioeconomic status, ethnic background and age. The report found that there was a 15% decrease in tooth decay in permanent teeth for Americans aged 6 to 19 years since 1994 (Beltrán-Aguilar, 2005). Also, low-income children and adults have more than twice as much untreated decay as those from higher income households (CDC, 2005). This is similar to the difference in oral health between the U.S. and Costa Rica where more than twice as many children and adolescents have dental caries in Las Juntas compared to lower-income children and adolescents in the United States. Also, 15% of low-income adults had lost all of their teeth, compared to only 5% of people with higher income (CDC, 2005). Nearly all the dental conditions surveyed among the different age groups and ethnic backgrounds decreased from previous surveys conducted in 2002; however, the greatest improvements were seen among the high-income Americans who are of white, non-Hispanic background (Beltrán-Aguilar, 2005). These results indicate that despite the improvements in tooth decay, use of dental sealants, and tooth retention among Americans, disparities still remain a major problem in the oral health crisis in the

United States. A national public health plan for oral health needs to be established so that all Americans can receive the same oral health care regardless of their socioeconomic status, race, age, sex, etc. Until an effective national program is established, the oral health care gap among the American population in regard to socioeconomic status will continue to grow and have the potential for creating and/or contributing to other health risks.

The majority of oral health problems are reversible and easy to eradicate when detected early; however, if these problems are neglected then the potential for future oral health and/or general health issues is increased greatly. Recent research has provided compelling data that links periodontitis, the second most widespread oral health problem in Latin America, with diabetes and cardiovascular problems (CDC, 2005). With that in mind, eradicating the so-called “easy” oral health problems early could potentially reduce the onset of other health issues that are a result of the problems that arose in one’s oral cavity. Oral health awareness and education needs to be provided in an effective manner so that people of all backgrounds and around the World respond equally to oral health as they do to their overall health.

Appendix A:

As a young boy, Fernando Cruz Urpí shared a similar dream with two of his four brothers, which was to pursue a career in dentistry. After school each day, unlike the rest of the boys who would flee to the soccer fields, Fernando would go to his father’s dental practice and watch him care for his patients just like his father did when his grandfather was practicing dentistry. Being the youngest of five boys and growing up in Las Juntas,

Dr. Cruz attended the public schools in Las Juntas until he was fifteen years old and then went to San Jose and studied there for ten years. In San Jose, Dr. Cruz attended the dental school and then applied to a branch of the dental school where he could obtain a license to practice orthodontics. During his ten years in San Jose, Fernando met his future wife, Jennifer Martinez who was an American student studying abroad in San Jose at the dental school. After three years of dating, Fernando and Jennifer wed in Las Juntas and Jennifer decided to take some time off before obtaining her dental license. She agreed to live in Las Juntas with Fernando who had begun a private family practice in Las Juntas and was working for the primary clinic in Las Juntas as well. During her time off from school and while Dr. Cruz's practice was thriving, Jennifer got pregnant with their first child Nicole. Four years later, they had another daughter, Kate. After Kate was born, Jennifer decided to go back to the states with both her daughters and obtain her dental license from the University of Colorado, while Dr. Cruz remained in Las Juntas and took care of his patients. During his free time, Dr. Cruz would play soccer with other men his age or spend his time reading. Now Jennifer and Fernando both reside in Las Juntas and Dr. Cruz has his practice in Las Juntas and Jennifer works for the government as a dental outreach counselor and has just begun building a dental practice in a neighboring community.

Appendix B:

Preguntas para las entrevistas—(all of these questions were asked and then some; however, many of the questions were unanswered during the interviews)

¿Hay clínicas de dentista en Las Juntas o en Guanacaste?

¿Hay programas de prevención y promoción de la salud bucal en Las Juntas o en Guanacaste?

¿Enseñan los padres a sus niños lavarse los dientes en la casa? ¿Mandan que se cepillen los dientes cada día u aprenden sus niños estos hábitos en la escuela?

¿Qué es la enfermedad de mayor incidencia en Las Juntas?

¿Qué tipo de las personas de Las Juntas presenta los mayores problemas con las piezas?

What is the primary goal of the outreach programs?

Are the prevention programs at the schools showing any improvements?

What are some statistics that have been collected on the number of dental caries among children and adolescents?

What are the most apparent improvements so far in the oral health fight in Las Juntas?

Where does Las Juntas stand with regard to other rural communities in Costa Rica with respect to their fight against oral health?

Do you think the children are bringing home any knowledge about oral health and hygiene from the annual outreach program and then having some influence on their parents?

What is the dentist to patient ratio in Las Juntas and why aren't there more dentists in Costa Rica?

What do you think the future of Las Juntas is with regards to the oral health problem?

Appendix C:

Questionnaire:

Nombre:

Fecha de nacimiento:

Sexo:

Ocupación:

Podría por favor contestar a las siguientes preguntas. Rodear la respuesta más oportuna.

1.) ¿Ha ido alguna vez al dentista?

i) Una vez ii) Dos veces iii) A menudo iv) Nunca

2.) ¿Porqué está usted aquí?

i) Dolor de muelas ii) Desea ser examinado por una dentista

iii) Le aconsejaron el visitar a un dentista

3.) ¿Qué siente al ser examinado por un dentista?

i) Felicidad ii) Excitamiento iii) Ansioso iv) Temeroso v) Indiferente

4.) ¿Qué es lo que espera del dentista?

i) Revise su dentadura ii) Limpie su dentadura iii) Mire encías y lengua

iv) Empastar v) Sacar dientes

5.) ¿Usted considera su dentadura importante para?

i) Comer ii) Hablar iii) Físico iv) Inteligente

6.) ¿Cuántas veces se limpia usted los dientes?

i) Una vez al día ii) Dos veces al día iii) Ocasionalmente

iv) Cuando se requiere v) Nunca

7.) ¿Qué utiliza para su limpieza?

i) Cepillo de dientes ii) Pasta dentífrica iii) Hilo dental

iv) el enjuague bucal

8.) ¿Cuáles cree usted son las causas de la caída de dientes?

i) Comer azúcar ii) El no limpiarse los dientes iii) Comer verduras

iv) Fumar v) Beber alcohol

9.) ¿Cómo cree usted se podría evitar la caída de los dientes?

i) Limpiándolos ii) No limpiándolos iii) Comiendo más azúcar

iv) Comiendo menos azúcar v) Fumar vi) Bebiendo alcohol

10.) ¿Qué considera más perjudicial para sus dientes cuando come azúcar? (por favor escoger sólo una respuesta)

i) Una vez al día ii) Dos veces al día iii) Ocasionalmente
iv) Nunca

11.) ¿Considera el flúo importante para los dientes?

i) Si ii) No iii) No lo sé

12.) ¿De dónde obtenemos el flúo?

i) No lo sé ii) Pasta dentífrica iii) Agua iv) Azúcar v.) Bebidas gaseosas
vi) Fumar

13.) ¿Qué es lo que provoca las bebidas gaseosas?

i) Refuerza los dientes ii) Ablandan los dientes iii) Limpian los dientes
iv) Romper/ Castiga la dentadura

14.) ¿Sabe usted que es lo que causa cáncer oral?

i) Si ii) No

15.) ¿Qué es lo que lo causa?

i) No lo sé ii) Fumar iii) Beber alcohol iv) Comer azúcar
v) No limpiarse los dientes

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