Maternal Depression and Pediatric Patient Failure Rates

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THESIS
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LIST OF ABBREVIATIONS

ECC	Early Childhood Caries
S-ECC	Severe Early Childhood Caries
BMI	Body Mass Index
OHRQoL	Oral health Quality of Life
SDH	Social Determinants of Health
UIC	University of Illinois at Chicago
EHR	Electronic Health Record
CES-D-10	Center for Epidemiologic Studies Depression Scale

SUMMARY

The number of missed dental appointments is particularly high in "safety net clinics," which are defined as a network of public hospital clinics, community health centers and other healthcare organizations that provide care to the uninsured or underinsured.[1] Several reasons have been cited in the literature for missed pediatric dental visits such as parental forgetfulness, transportation issues, child illness, financial stress, parental work commitments and child school attendance.[2] Mothers, or female caregivers are the focus of this study as they tend to manage health responsibilities for their children.[3] The purpose of this study was to evaluate the association between maternal, or female caregiver, depression and pediatric patient appointment failure rates in a university-based pediatric dental clinic.

One hundred and seventy five female caregivers of patients presenting for initial examinations at the University of Illinois at Chicago (UIC) College of Dentistry pediatric dental clinic consented to participate in this study. Subjects completed a validated depression survey (CES-D-10), in English or Spanish, in addition to 13 demographics questions using the software Qualtrics via a tablet. Patients' charts were reviewed to determine if they returned to their next treatment appointment.

Of the 175 surveys completed, 36 children required treatment under general anesthesia, 13 had no subsequent appointment scheduled and 18 required no treatment, thus all were excluded from analysis. Of the remaining 108 participants, a positive correlation was seen between higher depression scores and pediatric patient appointment failures (rho = 0.474, $p < 0.01$).

Because dentists may not feel that they are equipped to screen patients that may suffer from depression, mechanisms are needed to provide this for them. For example, basic mental health education could be incorporated in dental education institutions and reinforced in continuing education courses. Moreover, interprofessional collaboration is necessary so that dentists are aware of what treatment resources are available for patients coping with mental health issues, such as depression. Lastly, general public awareness and understanding regarding mental health would benefit said individuals, as they would be more likely to seek professional help.

I. INTRODUCTION

A. Dental Caries Consequences

Tooth decay or "dental caries" is the most common chronic disease of childhood and is particularly prevalent in low socio-economic status populations.[4] Currently, untreated caries impacts 573 million children worldwide and is five times more common than asthma.[5] Early childhood caries (ECC) is defined as the presence of at least one carious lesion on a primary tooth in a child of six or below.[6] Moreover, severe early childhood caries (S-ECC) is defined as any sign of smooth-surface cares in a child below age three, at least one cavitated, missing or filled smooth surface for children aged three to five, at least one cavitated, missing or filled smooth surface in the maxilla or a decayed, filled or missing score of five or above for four year olds or above six for five year olds.[7] While a serious health concern, ECC and S-ECC often go untreated, which may negatively impact a child's quality of life.[8] This was demonstrated in a study which found that increased caries was correlated with decreased oral health quality of life (OHRQoL) scores.[8]

General health problems such as infection, failure to thrive, lack of sleep, low Body Mass Index (BMI) and anemia have been associated with untreated dental caries in children.[9,10,11,12] Moreover, significant health improvement after complete oral rehabilitation has also been demonstrated.[11] Other health problems related to the oral cavity such as speech pathology due to caries have also been noted in the literature.[13]

While long-term problems such as speech pathology can result from severe childhood caries, acute problems such as pain can create more stress. Untreated caries can disrupt a child's daily life and can lead to facial swelling, which has been demonstrated to lower OHRQoL scores.[14] This is consistent with Felipak and colleagues, who found that the

amount of untreated dental caries is positively associated with increased pain scores.[15] Pain can also negatively affect family members of the children suffering. This may be particularly true for lower socioeconomic status populations where living quarters may be tighter, thus disturbing sleep. With less sleep, school performance declines.[16] School performance declines even further when a child is suffering from both severe early childhood caries and systemic health issues. [16]

When a child is not taken routinely to well-child visits, this increases the likelihood of emergency department visits. Often, these emergency treatments lead to school absenteeism. In fact, children suffering from caries pain are three times more likely to miss school in comparison to their healthy counterparts.[17] In addition, missed school due to pain is associated with worse school performance. Interestingly, children who missed school due to routine care do not have poorer school performance.[17] Lastly, when comparing school absenteeism and age, the literature has demonstrated that younger children (age 12 and below) are more likely to miss school due to pain versus adolescents (ages 13 and above).[18]

B. Missed Dental Appointments

Both missed school days and missed dental appointments negatively affect children. Several reasons have been attributed to missed pediatric dental appointments including forgetfulness, transportation issues, pediatric illness, financial stress and parental work commitments.[2,19,20]

Researchers assessing missed pediatric dental appointments have reported that parent forgetfulness tends to be the main reason.[2] Moreover, parents who rely on memory alone, when compared to physical calendars, cell phones and appointment cards, are more likely to miss their child's dental appointment.[2] Parents have also reported missed dental

appointments due to child illness on the day of the appointment, lack of dental pain and work commitments.[2]

Parental work absences due to pediatric dental pain have been also noted in the literature.[21] Moreover, the literature has demonstrated that dental care is often delayed for children because parents are not able to miss work.[21] Lastly, parents have cited transportation issues resulting in delayed treatment for their child.[21]

Missed dental appointments cause a myriad of problems such as taking away treatment time for other patients. Further, when patients miss appointments, their treatment plan becomes more extensive and may lead to emergency visits. One study sought to describe why pediatric patients were attending the emergency department for non-trauma dental pain versus treatment from a dentist in a clinic. Findings indicated that the most common reasons for seeking treatment in the emergency department versus in a dental clinic were that the dentist's office was not open (34%), the patient had no dental insurance coverage (17%) and lack of a dental home (16%).[22]

Age is another factor for missed dental appointments, which was demonstrated to be inversely proportional to missed appointments.[23] In addition to age, socioeconomic status, large family size and previously missed appointments have proven to increase likelihood of future missed appointments.[24]

C. Parental Mental Health

Mental health issues, such as depression, affect more than 10% of the general population, afflicting twice as many women as men.[25] Individuals with depressive symptoms may report sadness, hopelessness and/or loss of interest in previously pleasurable activities.[25] One report demonstrated that depression prevalence has significantly increased in the United

States from 2005-2015.[26] Importantly, depression status in younger individuals increased more from 2005-2015 when compared to older individuals.[26]

The literature has shown that parental depression can negatively affect child mental health and cognitive development. For example, children of depressed mothers are at higher risk of developing mental health issues.[27] Similarly, children of depressed mothers are more likely to present with behavioral problems.[28] Lastly, depressed mothers tend to be less engaged with their children and have been shown to read less to them which has been demonstrated to negatively affect a child's developement.[29]

In addition to development issues, children of depressed caregivers are also at higher risk of acquiring physical health problems. For example, depressed mothers are more likely to use emergency services in a hospital and less likely to bring their children to well-child medical visits than those who do not have depressive symptoms.[30] Lack of routine care inhibits a provider from following a child over time thus resulting in poorer health outcomes. In addition, depressed caregivers are less likely to vaccinate their children.[31] Physical harm as an outcome of a depressed female caregiver has also been documented in the literature. For example, women who present with persistent depressive symptoms are twice as likely to physically abuse their child.[32]

Poor nutrition has also been demonstrated in children of depressed mothers. More specifically, female caregivers suffering from depression have reported poorer child health status and more food insecurity within the home.[33] In addition, one study conducted in a low income population in Los Angeles, found that children of depressed women were more likely to eat fewer vegetables, consume more sweets and sugary drinks and eat fast food more often.[29]

The literature becomes less abundant when maternal mental health is compared directly to oral health and dentistry however some studies have been cited. One study did find that depression has been correlated with diminished oral health outcomes. Results from said study demonstrated that the incidence of caries is positively associated with parental depression.[34] Moreover, researchers found that maternal depression is associated with diminished positive oral health behaviors, including at-home tooth brushing.[34] Lastly, intimate partner violence may be associated with both parental stress and diminished pediatric oral health although the pathways have not been clearly elucidated.[35]

To date, a literature search detected no published studies assessing maternal, or female caregiver, depression and attendance to pediatric dental visits.

D. Study Objectives

The purpose of this study was to evaluate the association between female caregivers' depression and their children's patient failure rates in a university-based pediatric dental clinic.

E. Study Hypothesis

H_0: Female caregiver depression has no association with missed pediatric dental appointments.

H_a: Children of female caregivers with depressive symptoms are more likely to miss their dental appointments.

II. MATERIALS AND METHODS

A. General Study Design and Recruitment

Female caregivers were selected if their child presented to the University of Illinois at Chicago (UIC) College of Dentistry Department of Pediatric Dentistry for an initial dental exam. Child appointments were found in the clinic schedule. Mothers and female caregivers, aged 18 years and older, were invited to participate. Each caregiver was approached in the waiting room of the pediatric dental clinic by the principal investigator (PI) while waiting for their child's dental appointment. After study consent was obtained, caregivers completed a demographic questionnaire and a depression survey. All questions were completed via Qualtrics, a secure survey program. Participants were given the opportunity to answer survey questions in either English or Spanish. Subject/patient pairs were then followed via the child's electronic dental chart number to determine if they presented to their next treatment appointment in the clinic. To protect privacy and confidentiality, the PI, who was authorized to view the daily schedule, was the only individual to screen and survey caregivers. In addition, survey responses were stored on a password-protected tablet in a locked drawer. When we examined the relationship between female caregiver depression and missed appointments, we excluded from analysis those who were not scheduled for treatment in the clinic (i.e. required treatment under general anesthesia) because we were unable to assess their follow up due to a long waitlist that exceeded the time of this project. Caregiver/patient pairs who required no treatment or did not have a subsequent appointment scheduled were also excluded from the analysis phase of this project. Because it was not possible to determine what treatment each child needed in the waiting room, exclusion was completed after the subjects took the surveys.

B. Study Approval

An expedited human subjects review approval was granted by the UIC Office for the Protection of Research Subjects Institutional Review Board on April 23rd, 2019, protocol number 2019-0216 (see Appendix A). After concluding that it would be best to include Spanish-speaking individuals to reach a broader population, approval for Spanish translation was granted on October 15th, 2019 (Appendix B).

C. Subject Eligibility

Female caregivers, 18 years of age or older who presented with their child to the UIC College of Dentistry Pediatric Dentistry Graduate Clinic, were invited to participate.

D. Informed Consent

Each female caregiver was initially approached via a recruitment script in either English (Appendix C) or Spanish (Appendix D) by the PI. If the female caregiver agreed to participate, a thorough explanation of the study was given and informed consent was obtained in either English (Appendix E) or Spanish (Appendix F). Survey completion in the clinic waiting room was determined to be the most effective method as mothers often were not able to provide full attention to the survey once the child was seated in the dental chair. Caregivers were asked to answer all questions and were given the opportunity to cease participation at any point. Caregivers agreed that the PI could review their child's dental chart. Lastly, some children were patients of the PI but caregivers were unaware of this at the time of survey completion.

E. Demographic Questionnaire

A 13-question demographics questionnaire was given to subjects in either English (Appendix G) or Spanish (Appendix H) via a tablet. A questionnaire was developed and tested and was translated into Spanish. Questions included caregiver's age, race, ethnicity, distance traveled to clinic, transportation issues, household income, employment status, childcare help, child's history of dental trauma, child's health status and child's previous dental experience.

F. Depression Survey

Each caregiver completed a 10-question survey about depression called the Center for Epidemiologic Studies Depression Scale (CES-D-10). The CES-D-10 is validated in English and Spanish, widely used survey that measures depressive symptoms in an individual.[36] For each of the 10 questions, the participant was asked how often she felt that way in a given week. The PI added up points in the following way: for all questions besides five and eight, less than one day equals zero points, one to two days equals one point, three to four days equals two points and five to seven days equals three points. For questions five and eight the scoring was inverted. Each answer was summed resulting in a total score. Per the CES-D-10 scoring criteria, individuals who received a score of 10 or higher suggests that an individual is at risk for clinical depression. Sensitivity of the CES-D-10 is 91% with a specificity of 92%. Positive predictive value is 92%.[37] Caregivers completed the questionnaires in a 2020 software (Qualtrics XM, Provo, U.T., USA) and the appointment data was recorded in a 14.7.7 Excel file (Microsoft Excel, Microsoft Corp., Santa Rosa, C.A., USA).

G. Patient Follow-up

Each patient/caregiver pair was tracked via the child's electronic dental chart number to determine whether they required treatment in the clinic and whether they returned for their next appointment. Findings were recorded in an Excel (Appendix I). Electronic chart numbers were kept until the child's scheduled subsequent treatment appointment and then deleted from the data set. The data set was kept on a password-protected computer in a locked room. Only the PI had access to the data.

H. Statistical Analysis

The study was designed with an initial goal of 200 subjects. Preliminary analysis showed significant results with 175, therefore, we decided to stop recruiting participants. Once data collection was completed, the survey data was exported from Qualtrics and entered into a new master Excel file. The master file contained survey (demographics and CES-D-10) data in addition to attendance data. Finally, this master file was exported for analysis via Statistical Package for Sciences 25.0 software (SPSS, IBM Corp., Armonk, N.Y., USA) for further statistical analysis. Of the 175 caregiver/patient pairs, 36 children required treatment under general anesthesia, 18 children required no treatment and 13 children had no subsequent appointment scheduled and thus were excluded (see Figure). Statistical analysis was performed on the remaining 108 caregivers. Descriptive statistics analysis was conducted in addition to a chi-square test. Statistical significant was set at a *p*-value < 0.05.

III. RESULTS

One hundred seventy-five caregivers completed the surveys, 28 of them in Spanish. Thirty-six surveys of caregivers whose children required treatment under GA and 31 who did not need to return were excluded. Table 1 shows the demographic characteristics and risk of depression for the remaining 108 participants. Their age ranged between 19 and 51 years (average = 33 years, standard deviation [SD] = 6.5 years), with 60.2% in the age group between 25 and 34 years. Almost 52% identified as Hispanic/Latina, 38% as white and 25% as black/African-American.

The overall rate of depression risk was 17.5% All six women who indicated they were from "multiple races" presented depression risk compared to almost 20% of white, black/African-American and Hispanic/Latina women. The age groups in which more women presented risk of depression were between 18 and 24 years of age (20%) and between 35 and 44 years (25%). Women older than 45 years did not present depression risk in our sample. Although we did not find significant associations between demographic characteristics and depression risk, probably due to a small sample size for subtests, there were some noteworthy observations. Most women at risk for depression had an annual family income below $29,999 (84.2% of all caregivers at risk for depression), considered their child very healthy (73.6%), lived 20 miles or farther from the clinic (68.4%), were either unemployed or employed part-time (68.4%), and had no help with childcare at home (58.8%). However, analysis of demographic characteristics as potential predictors of missed appointments (Table 2) revealed two statistically significant associations: (1) white caregivers were more likely to

fail their child's appointment ($x^2(1) = 7.80$, p = 0.02) and (2) Hispanic/Latina women were more likely to return ($x^2(1) = 4.10$, p = 0.04).

Seventy-seven children returned for treatment as scheduled. Their caregivers' average age was 32 years (SD = 7.5 years) and their average CES-D-10 score was six (SD = five, range = zero to 26). The average age of the 31 caregivers who failed to return was 33 years (SD = 6.7 years), with an average CES-D-10 score of nine (SD =5.4, range = zero to 26). The no-show rate for the return appointment was 28.7% (31/108), which was higher than our clinic's average annual rate (18%). Caregivers who had less depression risk were more likely to return for the child's scheduled appointment ($x^2(1) = 13.37$, p = 0.00, Table 3), i.e., there was a positive association between high depression risk and failed appointments ($r = 0.474$, p <0.01).

Figure. Treatment Flow Chart.

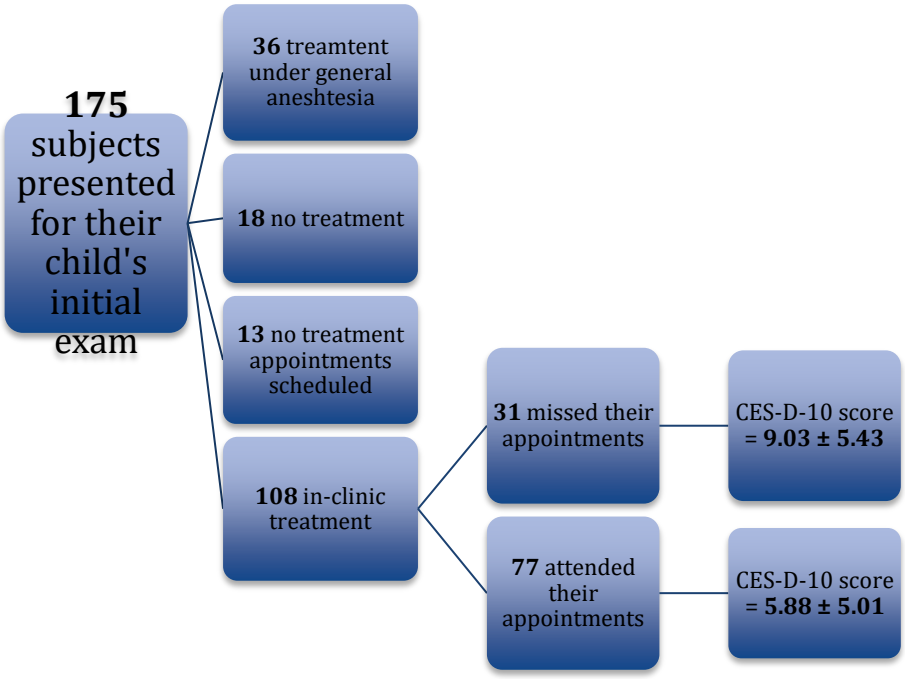

Table 1. Sample demographic characteristics and caretakers' risk for depression

DEMOGRAPHIC	N (%)	AT RISK OF DEPRESSION
TOTAL	**108 (100%)**	**19 (17.5%)**
Age Range (Chi square (1) = 3.21, P = .36)*		
Age 18-24	5 (4.6%)	1 (20.0%)
Age 25-34	65 (60.2%)	10 (15.4%)
Age 35-44	32 (30.0%)	8 (25.0%)
Age 45-54	6 (5.6%)	0 (0%)
Race (x^2 (1) = .39, P = .82)		
White	41 (38.0%)	8 (19.5%)
Black or African American	27 (25%)	5 (18.5)
American Indian or Native Alaskan	3 (2.8%)	0 (0%)
Asian	5 (4.6%)	0 (0%)
Native Hawaiian or Other Pacific Islander	0 (0%)	0 (0%)
Multiple Races	6 (5.6%)	6 (100%)
Other	26 (24.0%)	9 (34.6%)
Ethnicity (x^2 (1) = .07, P = .80)		
Hispanic or Latina	56 (51.8%)	10 (17.8%)
Distance from Clinic (x^2 (1) = 7.40, P = .19)		
0-5 Miles	5 (4.6%)	0 (0%)
6-10 Miles	31 (28.7%)	3 (9.7%)
11-15 Miles	13 (12.0%)	1 (7.7%)
16-20 Miles	11 (10.2%)	2 (18.2%)
>20 Miles	48 (44.4%)	13 (27.1%)
Transportation Issues (x^2 (1) = 3.70, P = .06)		
Yes	19 (17.6%)	6 (31.6%)
No	89 (82.4%)	13 (14.6%)
Household Income (x^2 (1) = 2.85, P = .72)		
<$10,000	36 (33.3%)	8 (22.2%)
$10,000-$19,999	18 (16.7%)	4 (22.2%)
$20,000-$29,999	30 (27.8%)	4 (13.3%)

$30,000-$39,999	14 (13.0%)	2 (14.3%)
$40,000-$49,999	6 (5.6%)	1 (16.7%)
>$50,000	4 (3.7%)	0 (0%)
Employment Status (x^2 (1) = 1.72, P = .42)		
Full-time Employed	44 (40.7%)	6 (13.6%)
Part-time Employed	41 (38.0%)	4 (9.7%)
Not Employed	23 (21.3%)	9 (39.1%)
Ability to take Time Off Work (x^2 (1) = 7.84, P = .10)		
Very Easy to Take Time Off Work	14 (12.9%)	0 (0%)
Somewhat Easy to Take Time Off Work	11 (10.2%)	1 (9.1%)
Moderately Easy to Take Time Off Work	26 (24.1%)	3 (11.5%)
Somewhat Difficult to Take Time Off Work	8 (7.4%)	3 (37.5%)
Very Difficult to Take Time Off Work	8 (7.4%)	3 (37.5%)
No answer	41 (37.9%)	
Childcare Help at Home (x^2 (1) = 2.16, P = .14)		
At Home Help With Childcare (Yes)	54 (50.0%)	7 (13.0%)
At Home Help With Childcare (No)	44 (40.7%)	10 (22.7%)
No answer	10 (9.2%)	
Child Health Status (x^2 (1) = 2.53, P = .63)		
Very Healthy	73 (67.6%)	14 (19.2%)
Somewhat Healthy	18 (16.7%)	1 (5.6%)
Moderately Healthy	5 (4.6%)	1 (20.0%)
Somewhat Unhealthy	2 (1.9%)	0 (0%)
Very Unhealthy	10 (9.3%)	3 (30.0%)
Child's History of Poor Dental Experience (x^2 (1) = .01, P = .93)		
Yes	44 (40.7%)	8 (18.2%)
No	64 (59.3%)	11 (17.2%)
Child History of Toothache or Dental Trauma (x^2 (1) = .27, P = .60)		
Yes	49 (45.4%)	10 (20.4%)
No	59 (54.6%)	9 (15.2%)

*Level of significance: p<.05

Table 2. Potential predictors of child's return for appointments (N = 108)*

DEMOGRAPHIC CHARACTERISTIC	RISK FOR APPOINTMENT FAILURE
Age range	X^2 (1) = 1.67, p = .64
Race	**X^2 (1) = 7.80, p = .02****
Ethnicity (Hispanic/Latina)	**X^2 (1) = 4.10, p = .04*****
Distance from clinic	X^2 (1) = 2.95, p = .70
Transportation issues	X^2 (1) = .14, p = .71
Household income	X^2 (1) = .60, p = .99
Employment status	X^2 (1) = .59, p = .75
Ability to take time off work	X^2 (1) = 2.14, p = .71
Childcare help at home	X^2 (1) = .01, p = .91
Child health status	X^2 (1) = 2.65, p = .62
Child's prior dental experience	X^2 (1) = .00, p = .98
Child trauma history	X^2 (1) = .06, p = .81

* Level of significance: p < .05

**White/Caucasian caretakers less likely to return

***Hispanic/Latina caretakers more likely to return

Table 3. Dichotomized Depression Scores and Appointment Failures

	APPOINTMENT FAILURE	
	NO	**YES**
Depression Risk	7	12
No Depression Risk	70	19

Chi square (1) = 13.37, p = 0.00

r = 0.474, p <0.01

IV. DISCUSSION

A. General Study Findings

To date, the literature has focused mainly on maternal depression and child health outcomes and only a limited amount has commented on pediatric oral health.[30,31,32] Furthermore, to our knowledge, no studies have been conducted to determine the relationship between female caregiver depression and missed child dental appointments.

B. Depression and Pediatric Patient Failure Rates

This study sought to determine the relationship between female caregiver depressive symptoms and missed pediatric dental appointments in a university-based clinic. Results revealed that female caregivers with more depressive symptoms were, indeed, more likely to miss their child's dental appointment. These findings are congruent with what was expected as previous research has suggested that poor maternal mental health is correlated with negative health outcomes.[38] When a child misses their routine dental appointment, they are either missing an exam, cleaning or planned treatment. If a child misses their recall appointment, new caries may not be noted and planned for restorative care. Further, if a child misses a treatment appointment, the carious lesion will inevitably worsen. Untreated caries can progress and lead to pain, swelling and infection, which increases the likelihood of emergency department visits. Therefore, female caregiver depression may lead to unnecessary, avoidable outcomes contrary to the interest and health of the child and to the economic interest of the taxpayer who pays for the resultant emergency department visits for

this population. In addition, emergency visits take time away from other patients with scheduled treatment time.

This problem needs to be addressed. One option might be to enable dental providers to identify and address depression. To accomplish this, there should be systems in place to educate and empower dental providers. Once the dental provider is given the education and tools to properly screen individuals, they should then be taught how to access resources for those individuals. Interprofessional training education will help facilitate this process and will create effective communication skills between healthcare professionals.

C. Dental Provider Education for In Office Screenings

While it is not the dentist's job to diagnose depression, it may be prudent to screen parents of their pediatric patients for depression, as they may be the only health care provider that person may be interacting with. Therefore, education should be provided to dentists to spot key features of depressive symptoms. For example, if a provider sees an individual who appears lethargic or aloof, then it may a good opportunity to inquire further. To date, not much research has covered dental providers screening for depression, however screening for depression in a primary care setting has been touched upon in the literature.[39] Unfortunately, however, primary care physicians have cited several barriers to addressing depression such as inadequate time per appointment.[40] Ideally, depression-screening education should be provided to dental providers during dental school and reinforced throughout their professional career. In terms of post-graduation education, one way to accomplish this would be to provide continuing education courses for credit. As dentists are required to accomplish a certain amount of continuing education hours per year, this would be a method of

incorporating mental health into their daily practice. At the very least, this would create mental health awareness for dentists and contribute to broader awareness in society.

D. Interprofessional Collaboration

Providing dentist with screening methods will not be sufficient if they lack resources. Therefore, resources must be made available. Resources will most likely be coming from different healthcare entities such as social work and psychological services. Therefore, for the sake of the person who may be battling depression, it is imperative that dentists are capable of effective communication and collaboration with those in different healthcare disciplines. Interprofessional teamwork has received significant attention in the past few decades and has started to become introduced into professional healthcare institutions.[41] The following four core competencies are now being incorporated into many programs adopting interprofessional collaboration education: mutual respect for those in different health care disciplines, understanding basic roles of those in different professions, communication skills and teamwork for their respective educational institutions and articulated an implementation plan.[42] Using these four competencies, the overall goal is to build a foundation for clinicians to work effectively with those within different healthcare disciplines, which will ultimately provide better health outcomes for the patient and for the population more broadly.[42]

With a strong background in interprofessional education, a clinician will be more likely to use these foundational concepts in their professional career. That is precisely what should occur in order to help provide help to the parents of pediatric dental patients who may have depressive symptoms. At the very least, the dental provider should be aware of what resources are available for the parents of their patients who may be struggling with mental

health. Better yet, the dental provider should maintain close relationships with physicians, psychologists and social workers in order to quickly refer patients in need.

E. National Health Campaign Models

In addition to providing education to dentists regarding screening and available resources, mental health education to the general population should also be considered to minimize stigma. Then, individuals suffering from depression might be more likely seek help. Mental illnesses are widespread and consequential and missed dental appointments due to female caregiver depression are just one small piece of a much larger puzzle. Clearly, more must be done to incorporate mental health screenings in the dental office. Perhaps a bigger public health strategy that includes dentistry, but goes beyond that one isolated profession, is required.

Several large-scale public health awareness models have been demonstrated in American history such as cigarette smoking and opioid addiction. In terms of smoking cessation, one Cochrane article found that national campaigns, in addition to cessation programs, can actually change attitudes.[43] On a similar note, a systematic review suggested that repetitive, simultaneous media messages via radio and television seem to contribute to improved health behavior in young populations.[44] Evidently, this model, along with other factors such as indoor clean air regulations, increased taxation, greater awareness of health effects, packaging requirements and age restrictions, to name a few, appears to be working as cigarette smoking prevalence has steadily decreased in the past several decades.[45]

The smoking cessation campaign is an example of a successful program that has created better health outcomes for large populations through awareness. Perhaps if mental health, particularly depression, was provided with a platform as prominent as smoking cessation, it could experience the same positive progress.

As demonstrated, national health campaigns can create positive change for the public. These same national public health campaigns can also induce positive change within healthcare provider behavior. For example, large efforts regarding the opioid crisis have been directed at health care professionals, particularly dentists, to cease over prescribing. As addiction and depression are both common and can be life threatening if not addressed, national organizations such as the American Dental Association and the Centers for Disease Control should consider creating guidelines for assessing parents of pediatric patients for depression. Perhaps more realistically, mental health associated organizations could push dentistry and other health care professions, to take mental health more seriously. Then, if some dentists would be willing to be early adopters if persuaded, this could model behavior for the rest of the profession.[46]

In conclusion, dentists should be provided with basic mental health education, which would provide them with the skills to screen individuals who may be presenting with depressive symptoms. Next, once an individual is flagged for depressive symptoms, the dental provider should have resources to offer. In order to have adequate resources in place, interprofessional relationships should be established with different health care providers such as social workers, pediatricians, primary care physicians and psychologists. If a relationship with other providers is already established, the dental provider can provide resources with

efficiency and ease. Basic interprofessional training for the dental provider will allow for a more effective and seamless transaction.

F. Study Limitations

There were several limitations noted in this study. First, this study was self-reported, which has the potential to introduce bias. Second, surveys were only provided in either English or Spanish. The late recruitment of Spanish preferring women is unlikely to affect the results. In addition, female caregivers with children who were screaming and/or crying were not approached to participate in the study as they were tending to their children. Some of these children had special healthcare needs and it was apparent that these mothers were overwhelmed in trying to tend to them. Perhaps these mothers would have yielded high CES-D-10 scores. In addition, other factors such as asking about number of children per household could have made the study stronger; it is possible that mothers with greater caregiving responsibilities were more vulnerable to depression. Moreover, providing all participants with mental health resources, such as pamphlets with a number to seek help from a social worker would have been beneficial, particularly given the high prevalence of depressive symptoms reported in our sample.

Validity could have compromised in this study. For example, Raja et al., explored patients' comfort in discussing sensitive and personal information with oral health providers. This study found that participants may not be comfortable openly discussing depressive symptoms. It may be that some participants were hesitant to discuss depressive symptoms in the context of oral healthcare, and our survey may have actually underestimated the prevalence of depression in the current sample.[47] In addition, mental health is a particularly sensitive issue in the Latina population and therefore the stigma may have affected how

questions were answered therefore potentially affecting the validity of this study.[48] Furthermore, seasons were not taken into account with these data, therefore seasonal trends may have affected estimates. Lastly, although the informed consent stated that study participation did not influence services at the clinic, because the PI was also the provider for some of the caregivers, it is possible that subjects may have felt coerced to participate in this study.

G. Future Studies

Future studies should focus on different dental settings. As this study was conduced in a university-based setting, it would be interesting to conduct a similar study in a federally qualified health clinic (FQHC) or in a private practice setting. In addition, as this study was conducted in an urban environment, other studies should look at rural clinics in addition to in different cities, states or countries.

Longitudinal studies should also be conducted over a longer period of time. Following subjects over a long period of time would help determine if individuals are reporting depressive symptoms due to short term stressors or are actually experiencing long term instability.

Future studies can incorporate larger samples to conduct multivariate analysis. In this study, the mean depression score and the standard deviation were nearly equivalent, which might indicate undetected effects that could be explored in a multivariate model. It should be noted, however, that there were no bivariate associates that would have allowed for building a multivariate model in the usual way, which had been the intent.

In this study, it was determined whether or not a child missed their dental appointment but it is unknown if a different legal guardian was supposed to bring them to

their subsequent appointment. In addition, future studies should consider determining *why* the child was not brought to their dentist appointment.

Lastly, some safety net clinics have started to employ interprofessional resources, such as social workers, in-house. It would be interesting to compare how missed dental appointments at such clinics compare to those without such resources.

V. CONCLUSION

This study demonstrated that patients of female caregivers with depressive symptoms are more likely to fail their dental appointment.

APPENDICES
APPENDIX A

Approval Notice

Initial Review – Expedited Review

April 23, 2019

Amanda Pappas, DMD, MPH

Pediatric Dentistry

RE: **Protocol # 2019-0216**
"Maternal Depression and Pediatric Patient Failure Rates"

Dear Dr. Pappas:

Members of Institutional Review Board (IRB) #2 reviewed and approved your research protocol under expedited review procedures [45 CFR 46.110(b)(1)] on April 18, 2019. You may now begin your research.

Your research meets the criteria for approval under the following category(ies): Protocol reviewed under expedited review procedures [45 CFR 46.110] Category: **5, 7**

Please note the following information about your approved research protocol:

Please note that as per the revised Federal Regulations (2018 Common Rule) and OPRS policies your research no longer requires a Continuing Review; therefore, the approved documents are stamped only with an approval date. Although your research no longer requires a Continuing Review, you will receive annual reminder

notices regarding your investigator responsibilities (i.e., submission of amendments, final reports, and prompt reports), and will be asked to complete an Institutional Status Report which will be sent to you via email every 3 years. If you fail to submit an Institutional Status Report, your research study will be administratively closed by the IRB. For more information regarding Continuing Review and Administrative Closure of Research visit: [49].

Please note that minor administrative revisions were made to the recruitment and consent documents by OPRS staff to bring the documents in compliance with UIC IRB Board determination(s). Please remember to use only those approved documents to recruit and enroll subjects into this research project.

Protocol Approval Date: April 18, 2019

Approved Subject Enrollment #: 200

Performance Sites: UIC

Sponsor: None

Research Protocol(s):

a) Maternal Depression and Pediatric Patient Failure Rates; Version 1.2; 04/22/2019

Documents that require an approval stamp or separate signature can be accessed via OPRS Live. The documents will be located in the specific protocol workspace. You must access and use only the approved documents to recruit and enroll subjects into this research project.

Recruitment Material(s):

a) Recruitment Script; Version 1.3; 04/23/2019

Informed Consent(s):

a) Informed Consent Document; Version 1.3; 04/19/2019
b) Research involves activities related to screening, recruitment, or determining eligibility per 45 CFR 46.116(g).

Assent(s):

a) A waiver of child assent for children as secondary subjects has been granted under 45 CFR 46.116(f) for this research (minimal risk; permission will be obtained from parents/guardians).

HIPAA Authorization(s):

a) A waiver of HIPAA authorization granted [45CFR164.512(i)(1)(i)(A)] for recruitment purposes only (identification of potential subjects via medical records); minimal risk.

Additional Determinations for Research Involving Minors:

The Board determined that this research satisfies 45CFR46.404, research not involving greater than minimal risk. Therefore, in accordance with 45CFR46.408, the IRB determined that only one parent's/legal guardian's permission/signature is needed. Wards of the State may not be enrolled unless the IRB grants specific approval and assures inclusion of additional protections in the research required under 45CFR46.409. If you wish to enroll Wards of the State contact OPRS and refer to the tip sheet.

Please remember to:

→ **Use only the IRB-approved and stamped consent document(s) when enrolling new subjects.**

→ Use your **research protocol number** (2019-0216) on any documents or correspondence with the IRB concerning your research protocol.

→ Review and comply with the policies of the UIC Human Subjects Protection Program (HSPP) and the guidance ***Investigator Responsibilities***.

Please note that the UIC IRB has the right to ask further questions, seek additional information, or monitor the conduct of your research and the consent process.

Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact the OPRS office at (312) 996-1711 or me at (312) 996-9299. Please send any correspondence about this protocol to OPRS via OPRS Live.

Sincerely,

Allison A. Brown, PhD
IRB Coordinator, IRB # 2
Office for the Protection of Research Subjects

cc: Sheela Raja (Faculty Sponsor), Pediatric Dentistry, M/C 850
Marcio Da Fonseca, Pediatric Dentistry, M/C 850
Privacy Office, Health Information Management Department, M/C 772

APPENDIX B

Approval Notice

Amendment – Expedited Review

UIC Amendment # 1

October 8, 2019

Amanda Pappas, DMD, MPH

Pediatric Dentistry

RE: **Protocol # 2019-0216**
"Maternal Depression and Pediatric Patient Failure Rates"

Dear Dr. Pappas:

Your application was reviewed and approved on October 8, 2019. The amendment to your research may now be implemented.

Please note the following information about your approved amendment:

Amendment Approval Date: October 8, 2019

Amendment:

Summary: UIC Amendment # 1 dated September 20, 2019 and received via OPRSLive on September 26, 2019 is an investigator-initiated amendment to add Spanish translated documents (translators' certifications; CES-D-10 (Spanish), v1.4, 9/20/2019; Demographics (Spanish), v1.4, 9/20/2019; Recruitment Script (Spanish), v1.4, 9/20/2019; Informed Consent (Spanish), v1.4, 4/19/2019).

Approved Subject Enrollment #: 200

Performance Sites: UIC

Sponsor: None

Documents that require an approval stamp or separate signature can be accessed via OPRS Live. The documents will be located in the specific protocol workspace. You must access and use only the approved documents to recruit and enroll subjects into this research project.

Recruiting Material(s):

a) Recruitment Script (Spanish); Version 1.4; 09/20/2019

Informed Consent(s):

a) Informed Consent Document (Spanish); Version 1.4; 04/19/2019

Please be sure to:

→ **Use only the IRB-approved and stamped consent document(s) and/or HIPAA Authorization form(s) when enrolling subjects.**

→ Use your research protocol number (2019-0216) on any documents or correspondence with the IRB concerning your research protocol.

→ Review and comply with the policies of the UIC Human Subjects Protection Program (HSPP) and the guidance ***Investigator Responsibilities***.

Please note that the IRB has the right to ask further questions, seek additional information, or monitor the conduct of your research and the consent process.

Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact the OPRS at (312) 996-1711 or me at (312) 996-9299. Please send any correspondence about this protocol to OPRS via OPRS Live.

Sincerely,

Allison A. Brown, PhD
IRB Coordinator, IRB # 2
Office for the Protection of Research Subjects

cc: Sheela Raja (Faculty Sponsor), Pediatric Dentistry, M/C 850
Marcio Da. Fonseca, Pediatric Dentistry, M/C 850
Privacy Office, Health Information Management Department, M/C 772

APPENDIX C

Hello. My name is Dr. Pappas and I am conducting a research study on how patients experience the healthcare system. May I talk to you about a survey we are doing?
[If patient is not interested in the survey]: *Thank you for your time.*
[If patient is expresses interest in the survey]: *We are conducting a voluntary survey of how patients experience the healthcare system. It will take you about 15 minutes. The survey is about parental mental health and how that may affect how and when their children seek treatment. If you accept, you will take a brief demographics survey followed by a depression survey. If you have enough time prior to your child's scheduled appointment, you can take it here in the waiting room today. If you prefer, you can take it after your appointment is over if there are still research personnel available. The survey does ask you about personal information, including issues like depression, as already mentioned. You name is not connected to the survey in any way. Again, the survey is completely voluntary. Do you have any questions? Would you like to hear more?*
[If the patient is not interested, thank them for their time].
[If patient expresses interest in the survey]: *Thanks so much for your interest. I will first have you read and sign the informed consent document. If you choose to continue, you can take the survey right here in the waiting room. Can I answer any questions? Would you like to participate?*
[If patient would like to participate, provide them with the informed consent document and have them sign it. Then, give them the Survey].
[If patient is not interested]. *Thanks so much for your time. I appreciate it.*

APPENDIX D

Hola. Mi nombre es Dr. Pappas y estoy realizando un estudio de investigación sobre las experiencias con el sistema de salud de los pacientes.¿Puedo hablar con usted sobre una encuesta que estamos haciendo?
[Si el paciente no está interesado en la encuesta]: *Gracias por su tiempo.*
[Si el paciente expresa interés en la encuesta]: *Estamos realizando una encuesta voluntaria sobre las experiencias con el sistema de salud de los pacientes. Tardará unos 15 minutos. La encuesta trata sobre la salud mental de los padres y cómo eso puede afectar cómo y cuándo sus hijos buscan tratamiento. Si acepta, tomará una breve encuesta demográfica seguida de una encuesta de depresión. Si tiene suficiente tiempo antes de la cita de su hijo, puede tomarla aquí en la sala de espera hoy. Si lo prefiere, puede tomarlo después de que termine su cita si todavía hay una persona de investigación disponible. La encuesta le pregunta sobre información personal, incluidos temas como la depresión, como ya se mencionó. Su nombre no está conectado a la encuesta de ninguna manera. Nuevamente, la encuesta es completamente voluntaria. ¿Tiene usted alguna pregunta? ¿Te gustaría escuchar mas?* [Si el paciente no está interesado, agradézcale su tiempo].
[Si el paciente expresa interés en la encuesta]: Muchas gracias por su interés. Primero le pediré que lea y firme el documento de consentimiento informado. Si elige continuar, puede realizar la encuesta aquí mismo, en la sala de espera. ¿Puedo responder alguna pregunta? ¿Te gustaría participar?
[Si el paciente desea participar, proporcióneles el documento de consentimiento informado y pídales que lo firmen. Luego, entrégueles la Encuesta].
[Si el paciente no está interesado]. Muchas gracias por su tiempo. Lo agradezco.

APPENDIX E

University of Illinois at Chicago
Research Information and Consent for Participation in Social, Behavioral, or Educational Research
Maternal Depression and Pediatric Patient Failure Rates

Principal Investigator/Researcher Name and Title: Amanda Pappas, DMD, MPH
Faculty Advisor Name and Title: Sheela Raja, PhD
Department and Institution: University of Illinois at Chicago College of Dentistry Post Graduate Pediatric Dentistry
Address and Contact Information:

University of Illinois at Chicago
801 S. Paulina Street
Room 267 (MC850)
Chicago, IL 60612-7211
Phone 312 996-1984

About this research study
You are being asked to participate in a research study. Research studies answer important questions that might help change or improve the way we do things in the future.

Taking part in this study is voluntary
Your participation in this research study is voluntary. You may choose to say "no" to this research or may choose to stop participating in the research at any time. Deciding not to participate, or deciding to stop participating later, will not result in the loss of any services, class standing, and/or professional status to which you are entitled, and will not affect your relationship with the University of Illinois at Chicago (UIC) and/or University of Illinois Hospital and Health Sciences System (UI Health).

This consent form will give you information about the research study to help you decide whether you want to participate. Please read this form and ask any questions you have before agreeing to be in the study.

You are being asked to participate in this research study because you stated you are the patient's mother, are over age 18 and your child is here for an initial examination at UIC Pediatric Dentistry.

200 subjects will be enrolled in this research study.

Important Information
This information gives you an overview of the research. More information about these topics may be found in the pages that follow.

WHY IS THIS STUDY BEING DONE?	We want to evaluate how maternal mental health affects how patients receive health care.
WHAT WILL I BE ASKED TO DO DURING THE STUDY?	You will be asked to complete a brief, online demographic questionnaire, followed by a questionnaire regarding mental health.
HOW MUCH TIME WILL I SPEND ON THE STUDY?	The estimated total time of your participation in this study will take approximately 15 minutes.
ARE THERE ANY BENEFITS TO TAKING PART IN THE STUDY?	Being in this research study will not benefit you directly. We hope that your participation in the study may benefit other people in the future by helping us learn more about mental health and patient failure rates.
WHAT ARE THE MAIN RISKS OF THE STUDY?	The primary risks presented by this research study are breaches of privacy (others outside of the study may find out you are a subject) and/or confidentiality (others outside of the study may find out what you did, said, or information that was collected about you during the study). You may be uncomfortable with some of the questions you may be asked in the survey. This survey includes some items about mental health such as depression. You can skip and/or not respond to any questions that may make you uncomfortable. For details and a list of risks you should know about, please see the "What Are the Potential Risks and Discomforts of the Study" section below.
DO I HAVE OTHER OPTIONS BESIDES	This research study is not designed to provide treatment or therapy, and you have the option to decide not to take part at all or you're

TAKING PART IN THE STUDY?	your participation at any time without any consequences.
QUESTIONS ABOUT THE STUDY?	For questions, concerns, or complaints about the study, please contact Amanda Pappas, DMD, MPH at 312-996-1984 or email at pappas1@uic.edu and Sheela Raja, PhD at 312-996-1984 If you have questions about your rights as a study subject; including questions, concerns, complaints, or if you feel you have not been treated according to the description in this form; or to offer input you may call the UIC Office for the Protection of Research Subjects (OPRS) at 312-996-1711 or 1-866-789-6215 (toll-free) or e-mail OPRS at uicirb@uic.edu. If you have questions or concerns regarding your privacy rights under HIPAA, you should contact the University of Illinois HIPAA Privacy Office at (844) 341-2201 or hipaa@uillinois.edu.

Please review the rest of this document for details about these topics and additional things you should know before making a decision about whether to participate in this research. Please also feel free to ask the researchers questions at any time.

What procedures are involved?

This research will be performed at the University of Illinois College of Dentistry Pediatric Dentistry Department waiting area.

The study procedures are:

- Mothers over 18 years of age who present with their biological child to UIC COD Department of Pediatric Dentistry for comprehensive initial exams will be selected.
- English and Spanish speakers competent enough in English to fully comprehend informed consent will be asked to participate.
- In total, from start to finish, it will take you approximately 15 minutes to participate in this study.
- During this study, Amanda Pappas will collect information about you for the purposes of this research. Your child's name will need to be initially collected with their surveys. As soon as you take the survey, the Principal Investigator will replace your name with your child's database number. In five weeks, the database number will be deleted.
- We will be accessing information about your child's attendance at dental appointments for the next 6 months.
- We will be linking your chart number to today's survey, which will be kept in a separate document. Your chart number will be deleted from your individual survey once our data collection is complete, in approximately 6 months.

What are the potential risks and discomforts of the study?

You may be uncomfortable with some of the questions asked in the survey. This survey includes

some items about mental health such as depression. You can skip and/or not respond to any questions that may make you uncomfortable.

What about privacy and confidentiality?

Efforts will be made to keep your personal information confidential; however, we cannot guarantee absolute confidentiality. In general, information about you, or provided by you, during the research study, will not be disclosed to others without your written permission. However, laws and state university rules might require us to tell certain people about you. For example, study information which identifies you and the consent form signed by you may be looked at and/or copied for quality assurance and data analysis by:

- Representatives of the university committee and office that reviews and approves research studies, the Institutional Review Board (IRB) and Office for the Protection of Research Subjects.
- Other representatives of the State and University responsible for ethical, regulatory, or financial oversight of research.
- Government Regulatory Agencies, such as the Office for Human Research Protections (OHRP).

A possible risk of the study is that your participation in the study or information about you might become known to individuals outside the study. Your survey results and data collected from records will be coded, stored on a password protected laptop which will be stored in a locked drawer in a locked room to prevent access by unauthorized personnel. Your individual data will be destroyed after collection of data. When the results of the study are published or discussed in conferences, no one will know that you were in the study.

Please remember that there is an exception to protecting subject privacy and confidentiality if child, elder, and/or disabled adult abuse or neglect of an identifiable individual, or the threat of imminent self-harm or harm to others is disclosed. If such information is disclosed, the researchers may be obligated to inform the appropriate authorities.

Will health information about you be created, used or shared with others during this study?

State and federal laws, including the Health Insurance Portability and Accountability Act (HIPAA), require researchers to protect your health information. This section of this form describes how researchers, with your authorization (permission), may use your protected health information in this research study. By signing this form you are authorizing Amanda Pappas/Sheela Raja to create, get, use and store protected health information that identifies you for the purposes of this research. You information will not be shared

The health information includes all information created and/or collected during the research as described within this consent form and/or any health information in your child's medical record that is needed for the research and that specifically includes your child's attendance at dental appointments for the next 6 months.

During the conduct of the research, the researchers may use or share your health information:

- With each other and with other researchers involved with the study;
- With law enforcement or other agencies, when required by law;
- With representatives of government agencies, review boards including the University of Illinois at Chicago Institutional Review Board, the University of Illinois Medical Center and its representatives, and other persons who watch over the safety, effectiveness, and conduct of research.

How will your health information be protected?
The researchers agree to protect your health information and will only share this information as described within this research consent/authorization form.

Right to Refuse to Sign this Authorization
You do not have to sign this Consent/Authorization. However, because your child's health information is required for research participation, you cannot be in this research study if you do not sign this form. If you decide not to sign this Consent/Authorization form, it will only mean you cannot take part in this research. Not signing this form will not affect your non-research related treatment, payment or enrollment in any health plans or your eligibility for other medical benefits.

What are the costs for participating in this research?
There are no costs to you for participating in this research.

Will I be reimbursed for any of my expenses or paid for my participation in this research?
You will not be offered payment for being in this study.

Can I withdraw or be removed from the study?
If you decide to participate, you have the right to withdraw your consent and leave the study at any time without penalty.

The researchers and/or funder also have the right to stop your participation in this study without your consent if:
- They believe it is in your best interest.

If you choose to no longer be in the study and you do not want any of your future information to be used, you must inform the researcher Amanda Pappas in writing at the address on the first page. The researcher Amanda Pappas may still use your information that was collected prior to your written notice.

Your Authorization for release of health information for this research study *expires* at the end of the study, but can be canceled sooner if you decide to withdraw your permission.

You may change your mind and cancel this Authorization at any time. To cancel this Authorization, you must write to: Amanda Pappas, 801 S. Paulina, Room 267 (MC850), Chicago, IL 60612-7211.

If you cancel this Authorization, you may no longer be allowed to take part in the research study. Even if you cancel this Authorization, the researchers may still use and disclose health information they have already obtained as necessary to maintain the integrity and reliability of the research and to report any adverse (bad) effects that may have happened to you.

Remember:
Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University. If you decide to participate, you are free to withdraw at any time without affecting that relationship.

What are my rights as a research subject?
If you have questions or concerns regarding your privacy rights under HIPAA, you should contact the University of Illinois at Chicago Privacy Officer at Ph: (312) 996-2271.

Signature of Subject
I have read the above information. I have been given an opportunity to ask questions and my questions have been answered to my satisfaction. I agree to participate in this research. I will be given a copy of this signed and dated form.

If you have not already received a copy of the Notice of Privacy Practices, you should ask for one.

Your signature below indicates that you are providing both consent to participate in the research study and authorization for the researcher to use your protected health information in this research study.

_____ _____
Signature Date

_____
Printed Name

_____ _____
Signature of Person Obtaining Consent Date (must be same as subject's)

_____
Printed Name of Person Obtaining Consent

I have read the above information. I have been given an opportunity to contact the researchers and ask questions, and my questions have been answered to my satisfaction. I agree to participate in this research.

APPENDIX F

Universidad de Illinois en Chicago
Información de investigación y consentimiento para participar en investigación social, conductual o educativa
Depresión materna y tasas de fracaso de pacientes pediátricos

Nombre y cargo del investigador principal / investigador: Amanda Pappas, DMD, MPH
Nombre y cargo del asesor académico: Sheela Raja, PhD
Departamento e Institución: Universidad de Illinois en Chicago Facultad de Odontología

Postgrado en Odontología Pediátrica

Dirección e información de contacto:

University of Illinois at Chicago

801 S. Paulina Street

Room 267 (MC850)

Chicago, IL 60612-7211

Phone 312 996-1984

Sobre este estudio de investigación
Se le pide que participe en un estudio de investigación. Los estudios de investigación responden preguntas importantes que podrían ayudar a cambiar o mejorar la forma en que hacemos las cosas en el futuro.

Participar en este estudio es voluntario
Su participación en este estudio de investigación es voluntaria. Puede optar por decir "no" a esta investigación o puede dejar de participar en la investigación en cualquier momento. Decidir no participar, o decidir dejar de participar más tarde, no dará como resultado la pérdida de ningún servicio, posición en la clase y / o estado profesional al que tenga derecho, y no afectará su relación con la Universidad de Illinois en Chicago (UIC) y / o el Hospital de la Universidad de Illinois y el Sistema de Ciencias de la Salud (UI Health), o cualquiera de las agencias u organizaciones que colaboran en esta investigación.

Este formulario de consentimiento le dará información sobre el estudio de investigación para ayudarlo a decidir si desea participar. Lea este formulario y haga cualquier pregunta que tenga antes de aceptar participar en el estudio.

Se le pide que participe en este estudio de investigación porque dijo que es la madre del paciente, tiene más de 18 años y su hijo está aquí para un examen inicial en UIC Pediatric Dentistry.

Se inscribirán 200 sujetos en este estudio de investigación.

Información importante
Esta información le brinda una visión general de la investigación. Puede encontrar más información sobre estos temas en las páginas siguientes.

¿POR QUÉ SE ESTÁ HACIENDO ESTE ESTUDIO?	Queremos evaluar cómo la salud mental materna afecta la forma en que los pacientes reciben atención médica.
¿QUÉ SE PEDIRÁ QUE HAGA DURANTE EL ESTUDIO?	Se le pedirá que complete un breve cuestionario demográfico en internet, seguido de un cuestionario sobre salud mental.
¿CUÁNTO TIEMPO PASARÉ EN EL ESTUDIO?	El tiempo total estimado de su participación en este estudio tomará aproximadamente 15 minutos.
¿HAY ALGUNA VENTAJA DE PARTICIPAR EN EL ESTUDIO?	Estar en este estudio de investigación no lo beneficiará directamente. Esperamos que su participación en el estudio pueda beneficiar a otras personas en el futuro al ayudarnos a aprender más sobre la salud mental y las tasas de fracaso del paciente.
¿CUÁLES SON LOS PRINCIPALES RIESGOS DEL ESTUDIO?	Los riesgos principales que presenta este estudio de investigación son violaciones de la privacidad (otras personas ajenas al estudio pueden descubrir que usted es un sujeto) y / o confidencialidad (otras personas ajenas al estudio pueden descubrir lo que hizo, dijo o la información recopilada sobre ti durante el estudio). Es posible que se sienta incómodo con algunas de las preguntas que se le hagan en la encuesta. Esta encuesta incluye algunos ítems sobre salud mental como la depresión. Puede omitir y / o no responder a cualquier pregunta que pueda incomodarlo. Para obtener detalles y una lista de riesgos que debe conocer, consulte la sección "¿Cuáles son los posibles riesgos y molestias del estudio" a continuación?
¿TENGO OTRAS OPCIONES ADEMÁS	Este estudio de investigación no está diseñado para proporcionar tratamiento o terapia, y usted tiene la opción de decidir no participar o participa en cualquier momento sin ninguna consecuencia.

¿PREGUNTAS SOBRE EL ESTUDIO?	Para preguntas, inquietudes o quejas sobre el estudio, comuníquese con Amanda Pappas, DMD, MPH al 312-996-1984 o envíe un correo electrónico a pappas1@uic.edu y Sheela Raja, PhD al 312-996-1984 Si tiene preguntas sobre sus derechos como sujeto de estudio; incluidas preguntas, inquietudes, quejas o si considera que no ha sido tratado de acuerdo con la descripción en este formulario; o para ofrecer su opinión, puede llamar a la Oficina de Protección de Sujetos de Investigación de UIC (OPRS) al 312-996-1711 o al 1-866-789-6215 (sin cargo) o enviar un correo electrónico a OPRS a uicirb@uic.edu. Si tiene preguntas o inquietudes con respecto a sus derechos de privacidad bajo HIPAA, debe comunicarse con la Oficina de Privacidad de HIPAA de la Universidad de Illinois al (844) 341-2201 o hipaa@uillinois.edu.

Revise el resto de este documento para obtener detalles sobre estos temas y cosas adicionales que debe saber antes de tomar una decisión sobre si participar en esta investigación. Por favor, siéntase libre de hacer preguntas a los investigadores en cualquier momento.

¿Qué procedimientos están involucrados?

Esta investigación se realizará en la sala de espera del Departamento de Odontología Pediátrica de la Facultad de Odontología de la Universidad de Illinois.

Los procedimientos de estudio son:

- Se seleccionarán madres mayores de 18 años que se presenten con su hijo biológico al Departamento de Odontología Pediátrica de UIC COD para exámenes iniciales completos.
- Se pedirá a los hablantes de inglés y español que sean lo suficientemente competentes en inglés para comprender plenamente el consentimiento.
- En total, de principio a fin, le llevará aproximadamente 15 minutos participar en este estudio.
- Durante este estudio, Amanda Pappas recopilará información sobre usted para los fines de esta investigación. El nombre de su hijo deberá recopilarse inicialmente con sus encuestas. Tan pronto como responda la encuesta, el investigador principal reemplazará su nombre con el número de la base de datos de su hijo. En cinco semanas, se eliminará el número de la base de datos.
- Accederemos a información sobre la asistencia de su hijo a las citas dentales durante los próximos 6 meses.
- Vincularemos su número de historia clinicas a la encuesta de hoy, que se guardará en un documento separado. Su número de historia clinicas se eliminará de su encuesta individual una vez que se complete nuestra recopilación de datos, en aproximadamente 6 meses.

Cuáles son los posibles riesgos y molestias del estudio?

• Puede sentirse incómodo con algunas de las preguntas formuladas en la encuesta. Esta encuesta incluye algunos ítems sobre salud mental como la depresión. Puede omitir y / o no responder a cualquier pregunta que pueda incomodarlo.

¿Qué pasa con la privacidad y la confidencialidad?

Se harán esfuerzos para mantener su información personal confidencial; sin embargo, no podemos garantizar absoluta confidencialidad. En general, la información sobre usted, o proporcionada por usted, durante el estudio de investigación, no será revelada a otros sin su permiso por escrito.

Sin embargo, las leyes y las reglas de la universidad estatal pueden requerir que le informemos a ciertas personas sobre usted. Por ejemplo, la información del estudio que lo identifica a usted y el formulario de consentimiento firmado por usted pueden ser revisados y / o copiados para garantizar la calidad y el análisis de datos por:

- Representantes del comité universitario y la oficina que revisa y aprueba los estudios de investigación, la Junta de Revisión Institucional (IRB) y la Oficina para la Protección de los Sujetos de Investigación.
- Otros representantes del Estado y la Universidad responsables de la supervisión ética, regulatoria o financiera de la investigación.
- Agencias reguladoras del gobierno, como la Oficina de Protección de la Investigación Humana (OHRP).

Un posible riesgo del estudio es que su participación en el estudio o información sobre usted pueda ser conocida por personas ajenas al estudio. Los resultados de la encuesta y los datos recopilados de los registros se codificarán, se almacenarán en una computadora portátil protegida con contraseña que se almacenará en un cajón cerrado en una habitación cerrada para evitar el acceso de personal no autorizado.

Sus datos individuales serán destruidos después de la recopilación de datos.

Cuando los resultados del estudio se publiquen o discutan en conferencias, nadie sabrá que usted estuvo en el estudio. Recuerde que existe una excepción a la protección de la privacidad y confidencialidad del sujeto si se revela el abuso o negligencia de un individuo identificable por parte de un niño, anciano o adulto discapacitado, o si se revela la amenaza de autolesión o daño inminente a otros. Si se divulga dicha información, los investigadores pueden estar obligados a informar a las autoridades correspondientes.

¿Se creará, usará o compartirá información de salud sobre usted durante este estudio?

Las leyes estatales y federales, incluida la Ley de Responsabilidad y Portabilidad del Seguro de Salud (HIPAA), requieren que los investigadores protejan su información de salud. Esta sección de este formulario describe cómo los investigadores, con su autorización (permiso), pueden usar su información de salud protegida en este estudio de investigación. Al firmar este formulario,

autoriza a Amanda Pappas / Sheela Raja a crear, obtener, usar y almacenar información de salud protegida que lo identifique a los fines de esta investigación.

La información de salud incluye toda la información creada y / o recopilada durante la investigación como se describe en este formulario de consentimiento y / o cualquier información de salud en el registro médico de su hijo que se necesite para la investigación y que incluya específicamente la asistencia de su hijo a las citas dentales por los próximo 6 meses.

Derecho a negarse a firmar esta autorización
No tiene que firmar este Consentimiento / Autorización. Sin embargo, debido a que la información de salud de su hijo es necesaria para participar en la investigación, no puede participar en este estudio de investigación si no firma este formulario. Si decide no firmar este formulario de consentimiento / autorización, solo significará que no puede participar en esta investigación. No firmar este formulario no afectará su tratamiento, pago o inscripción no relacionados con la investigación en ningún plan de salud ni su elegibilidad para otros beneficios médicos.

¿Cuáles son los costos para participar en esta investigación?
No hay costos para usted por participar en esta investigación.

¿Se me reembolsará alguno de mis gastos o se me pagará por mi participación en esta investigación?
No se le ofrecerá el pago por participar en este estudio.

¿Puedo retirarme o ser retirado del estudio?
Si decide participar, tiene derecho a retirar su consentimiento y abandonar el estudio en cualquier momento sin penalidad.

Los investigadores y / o financiadores también tienen derecho a detener su participación en este estudio sin su consentimiento si:
• Creen que es lo mejor para usted.

Si decide no seguir participando en el estudio y no desea que se use su futura información, debe informar a la investigadora Amanda Pappas por escrito a la dirección en la primera página. La investigadora Amanda Pappas aún puede usar su información recopilada antes de su notificación por escrito.

Su autorización para divulgar información de salud para este estudio de investigación caduca al final del estudio, pero puede cancelarse antes si decide retirar su permiso.

Puede cambiar de opinión y cancelar esta Autorización en cualquier momento. Para cancelar esta autorización, debe escribir a: Amanda Pappas, 801 S. Paulina, Room 267 (MC850), Chicago, IL 60612-7211.

Si cancela esta autorización, es posible que ya no se le permita participar en el estudio de investigación. Incluso si cancela esta Autorización, los investigadores aún pueden usar y divulgar información de salud que ya hayan obtenido según sea necesario para mantener la integridad y confiabilidad de la investigación y para informar cualquier efecto adverso (negativo) que pueda haberle sucedido.

Recuerde:
Su participación en esta investigación es voluntaria. Su decisión de participar o no no afectará sus relaciones actuales o futuras con la Universidad. Si decide participar, puede retirarse en cualquier momento sin afectar esa relación.

Si tiene preguntas o inquietudes con respecto a sus derechos de privacidad bajo HIPAA, debe comunicarse con el Oficial de Privacidad de la Universidad de Illinois en Chicago al teléfono: (312) 996-2271.

Firma del sujeto

He leído la información anterior. Se me ha dado la oportunidad de hacer preguntas y mis preguntas han sido respondidas a mi entera satisfacción. Acepto participar en esta investigación. Me darán una copia de este formulario firmado y fechado.

Si aún no ha recibido una copia del Aviso de Prácticas de Privacidad, debe solicitar una.

Su firma a continuación indica que está dando su consentimiento para participar en el estudio de investigación y la autorización para que el investigador la use.

_____ _____
Firma Fecha

_____
Nombre

_____ _____
Firma de la persona que obtiene el consentimiento Fecha (debe ser la misma que la del sujeto)

_____
Nombre de la persona que obtiene el consentimiento

He leído la información anterior. Se me ha dado la oportunidad de contactar a los investigadores y hacer preguntas, y mis preguntas han sido respondidas a mi entera satisfacción. Acepto participar en esta investigación.

APPENDIX G

1. What is your gender?
    a. Male
    b. Female
    c. Other
2. How old are you?
    a.
3. Which of the following do you consider yourself to be? (Circle all that apply)
    a. White
    b. Black or African-American
    c. American Indian or Alaskan Native
    d. Asian
    e. Native Hawaiian or other Pacific islander
    f. From multiple races
    g. Some other race (please specify) _____
4. Are you Hispanic or Latino?
    a. Yes
    b. No
5. How far do you live from the clinic?
    a. 0-5 miles
    b. 6-10 miles
    c. 11-15 miles
    d. 16-20 miles
    e. > 20 miles
6. Do you have issues with transportation when you bring your child to the dentist?
    a. Yes
    b. No
7. What was your total household income before taxes during the past 12 months?
    a. Less than $10,000
    b. $10,000 to $19,999
    c. $20,000 to $29,999
    d. $30,000 to $39,999
    e. $40,000 to $49,999
    f. $50,000 or more
8. Are you employed?
    a. Yes, full-time
    b. Yes, part-time
    c. I'm not employed at the moment
9. If you are employed, how difficult is it for you to take time off of work for your child's dentist appointments? (1= Very easy, 5 = Extremely difficult)
    a. 1
    b. 2
    c. 3
    d. 4
    e. 5
10. Do you have a spouse or someone else in the home who helps care for your child(ren)?
    a. Yes
    b. No
11. In general, how healthy is your child? (1 = Very healthy, 5 = Very sick)
    a. 1
    b. 2
    c. 3
    d. 4
12. Has your child ever had an unpleasant dental experience in a dental office?
    a. Yes
    b. No
13. Has your child ever had a toothache or trauma to the teeth (hit the teeth)?
    a. Yes
    b. No

APPENDIX H

¿1. Cuál es tu género?
a. Masculino
b. Hembra
c. Otro

¿2. Cuántos años tienes?
a.

3. ¿Cuál de los siguientes se considera usted? (Encierra en un círculo todo lo que corresponda)
a. Blanco
b. Negro o afroamericano
c. Indio Americano o Nativo de Alaska
d. asiático
e. asiático, Nativo de Hawaii u otra isla del Pacífico
f. De múltiples razas sol.
g. Alguna otra raza (por favor especifique) _____

4. ¿Eres hispano o latino?
a. Sí
b. No

5. ¿A qué distancia vive de la clínica?
a. 0-5 millas
b. 6-10 millas
c. 11-15 millas
d 16-20 millas
e. > 20 millas

6. ¿Tiene problemas con el transporte cuando lleva a su hijo al dentista?
a. si
b. No

7. ¿Cuál fue el ingreso total de su hogar (antes de impuestos) durante los últimos 12 meses?
a. Menos de $ 10,000
b. $10,000 a $19,999
c. $ 20,000 a $ 29,999
d. $ 30,000 a $ 39,999
e. $ 40,000 a $ 49,999
f. $ 50,000 o más

8. ¿Estás empleado/a?
a. Sí, a tiempo completo
b. Sí, a tiempo parcial
c. No estoy empleado/a en este momento

9. Si está empleado, ¿qué tan difícil es para usted tomarse un tiempo libre del trabajo para las citas con el dentista de su hijo? (1 = Muy fácil, 5 = Extremadamente difícil)
a. 1
b. 2
c. 3
d. 4
e. 5

10. ¿Tiene un cónyuge u otra persona en el hogar que ayuda a cuidar a sus hijos?
a. Sí
b. No

11. En general, ¿qué tan saludable es su hijo? (1 = Muy saludable, 5 = Muy enfermo)
a. 1
b. 2
C. 3
D. 4

12. ¿Alguna vez ha tenido su hijo una experiencia dental desagradable en una cita?
a. Sí
b. No

13. ¿Alguna vez su hijo ha tenido dolor de muelas o trauma en los dientes (golpeó los dientes)?
a. Sí
b. No

APPENDIX I

Axium Number	Date of Initial Exam	Failed next apt?	Depressed?	Additional Notes

APPENDIX J

Center for Epidemiologic Studies Short Depression Scale (CES-D-R 10)

Below is a list of some of the ways you may have felt or behaved.

Please indicate how often you have felt this way during the past week by checking the appropriate box for each question.

	Rarely or none of the time (less than 1 day)	**Some or a little of the time** (1-2 days)	**Occasionally or a moderate amount of time** (3-4 days)	**All of the time** (5-7 days)
1. I was bothered by things that usually don't bother me.	☐	☐	☐	☐
2. I had trouble keeping my mind on what I was doing.	☐	☐	☐	☐
3. I felt depressed.	☐	☐	☐	☐
4. I felt that everything I did was an effort.	☐	☐	☐	☐
5. I felt hopeful about the future.	☐	☐	☐	☐
6. I felt fearful.	☐	☐	☐	☐
7. My sleep was restless.	☐	☐	☐	☐
8. I was happy.	☐	☐	☐	☐
9. I felt lonely.	☐	☐	☐	☐
10. I could not "get going."	☐	☐	☐	☐

APPENDIX K

INSTRUCCIONES:

Por favor, complete las preguntas que siguen colocando un "✓" en la casilla apropiada.

1. En cada una de las frases que siguen, marque la casilla que mejor indique la frecuencia con que usted se sintió o se comportó de esta manera durante la última semana.

(Marque una casilla.)

	Raramente o nunca (Menos de 1 día)	**Algo o un poquito** (1-2 días)	**Ocasional-mente o moderada-mente** (3-4 días)	**Siempre o todo el tiempo** (5-7 días)
a. Me molestaron cosas que normalmente no me molestan.	☐ 0	☐ 1	☐ 2	☐ 3
b. Tuve dificultad para mantener mi mente en lo que estaba haciendo.	☐ 0	☐ 1	☐ 2	☐ 3
c. Me sentí deprimido.	☐ 0	☐ 1	☐ 2	☐ 3
d. Tuve la impresión de que todo lo que hice necesitó esfuerzo.	☐ 0	☐ 1	☐ 2	☐ 3
e. Me sentí esperanzado acerca del futuro.	☐ 3	☐ 2	☐ 1	☐ 0
f Me siento miedoso.	☐ 0	☐ 1	☐ 2	☐ 3
g. Mi sueño fue intranquilo.	☐ 0	☐ 1	☐ 2	☐ 3
h. Yo estuve feliz.	☐ 3	☐ 2	☐ 1	☐ 0
i. Me sentí solitario.	☐ 0	☐ 1	☐ 2	☐ 3
j. No pude ponerme "en marcha".	☐ 0	☐ 1	☐ 2	☐ 3

REFERENCES

1. Nguyen OK, Makam AN, Halm EA. National Use of Safety-Net Clinics for Primary Care among Adults with Non-Medicaid Insurance in the United States. Gorlova OY, ed. *PLoS ONE*. 2016;11(3):e0151610. doi:10.1371/journal.pone.0151610

2. Bhatia R, C Vora E, Panda A. Pediatric Dental Appointments No-show: Rates and Reasons. *Int J Clin Pediatr Dent*. 2018;11(3):171-176. doi:10.5005/jp-journals-10005-1506

3. Ranji U, Salganicoff A. Data Note: Balancing on Shaky Ground: Women, Work and Family Health. :8.

4. Colak H, Dülgergil CT, Dalli M, Hamidi MM. Early childhood caries update: A review of causes, diagnoses, and treatments. *J Nat Sci Biol Med*. 2013;4(1):29-38. doi:10.4103/0976-9668.107257

5. Kassebaum NJ, Smith AGC, Bernabé E, et al. Global, Regional, and National Prevalence, Incidence, and Disability-Adjusted Life Years for Oral Conditions for 195 Countries, 1990-2015: A Systematic Analysis for the Global Burden of Diseases, Injuries, and Risk Factors. *J Dent Res*. 2017;96(4):380-387. doi:10.1177/0022034517693566

6. American Academy of Pediatric Dentistry Council on Clinical Affairs. Policy on early childhood caries (ECC): unique challenges and treatment options. *Pediatr Dent*. 2005;27(7 Suppl):34-35.

7. Drury TF, Horowitz AM, Ismail AI, Maertens MP, Rozier RG, Selwitz RH. Diagnosing and reporting early childhood caries for research purposes. A report of a workshop sponsored by the National Institute of Dental and Craniofacial Research, the Health Resources and Services Administration, and the Health Care Financing Administration. *J Public Health Dent*. 1999;59(3):192-197. doi:10.1111/j.1752-7325.1999.tb03268.x

8. Abanto J, Tsakos G, Paiva SM, Carvalho TS, Raggio DP, Bönecker M. Impact of dental caries and trauma on quality of life among 5- to 6-year-old children: perceptions of parents and children. *Community Dent Oral Epidemiol*. 2014;42(5):385-394. doi:10.1111/cdoe.12099

9. Liang J-J, Zhang Z-Q, Chen Y-J, et al. Dental caries is negatively correlated with body mass index among 7-9 years old children in Guangzhou, China. *BMC Public Health*. 2016;16:638. doi:10.1186/s12889-016-3295-3

10. Clarke M, Locker D, Berall G, Pencharz P, Kenny DJ, Judd P. Malnourishment in a population of young children with severe early childhood caries. *Pediatr Dent*. 2006;28(3):254-259.

11. Acs G, Lodolini G, Kaminsky S, Cisneros GJ. Effect of nursing caries on body weight in a pediatric population. *Pediatr Dent*. 1992;14(5):302-305.

12. Low W, Tan S, Schwartz S. The effect of severe caries on the quality of life in young children. *Pediatr Dent*. 1999;21(6):325-326.

13. Li MY, Zhi QH, Zhou Y, Qiu RM, Lin HC. Impact of early childhood caries on oral health-related quality of life of preschool children. *Eur J Paediatr Dent*. 2015;16(1):65-72.

14. Fernandes IB, Souto-Souza D, Primo-Miranda EF, Marques LS, Ramos-Jorge ML, Ramos-Jorge J. Perceived impact of dental pain on the quality of life of children aged 1-3 years and their families. *Eur Arch Paediatr Dent*. 2019;20(6):557-563. doi:10.1007/s40368-019-00435-7

15. Felipak PK, Menoncin BLV, Reyes MRT, Costa LR, de Souza JF, Menezes JVNB. Determinants of parental report of dental pain and discomfort in preschool children-The Dental Discomfort Questionnaire. *Int J Paediatr Dent*. January 2020. doi:10.1111/ipd.12614

16. Blumenshine SL, Vann WF, Gizlice Z, Lee JY. Children's school performance: impact of general and oral health. *J Public Health Dent*. 2008;68(2):82-87. doi:10.1111/j.1752-7325.2007.00062.x

17. Jackson SL, Vann WF, Kotch JB, Pahel BT, Lee JY. Impact of poor oral health on children's school attendance and performance. *Am J Public Health*. 2011;101(10):1900-1906. doi:10.2105/AJPH.2010.200915

18. Krisdapong S, Prasertsom P, Rattanarangsima K, Sheiham A. School absence due to toothache associated with sociodemographic factors, dental caries status, and oral health-related quality of life in 12- and 15-year-old Thai children. *J Public Health Dent*. 2013;73(4):321-328. doi:10.1111/jphd.12030

19. Murdock A, Rodgers C, Lindsay H, Tham TCK. Why do patients not keep their appointments? Prospective study in a gastroenterology outpatient clinic. *J R Soc Med*. 2002;95(6):284-286. doi:10.1258/jrsm.95.6.284

20. Lacy NL, Paulman A, Reuter MD, Lovejoy B. Why we don't come: patient perceptions on no-shows. *Ann Fam Med*. 2004;2(6):541-545. doi:10.1370/afm.123

21. Edelstein B, Vargas CM, Candelaria D, Vemuri M. Experience and policy implications of children presenting with dental emergencies to US pediatric dentistry training programs. *Pediatr Dent*. 2006;28(5):431-437.

22. Dorfman DH, Kastner B, Vinci RJ. Dental concerns unrelated to trauma in the pediatric emergency department: barriers to care. *Arch Pediatr Adolesc Med*. 2001;155(6):699-703. doi:10.1001/archpedi.155.6.699

23. Sharp DJ, Hamilton W. Non-attendance at general practices and outpatient clinics. *BMJ*. 2001;323(7321):1081-1082. doi:10.1136/bmj.323.7321.1081

24. Barron WM. Failed appointments. Who misses them, why they are missed, and what can be done. *Prim Care*. 1980;7(4):563-574.

25. Cassano P, Fava M. Depression and public health: an overview. *J Psychosom Res*. 2002;53(4):849-857.

26. Weinberger AH, Gbedemah M, Martinez AM, Nash D, Galea S, Goodwin RD. Trends in depression prevalence in the USA from 2005 to 2015: widening disparities in vulnerable groups. *Psychol Med*. 2018;48(8):1308-1315. doi:10.1017/S0033291717002781

27. Olfson M, Marcus SC, Druss B, Alan Pincus H, Weissman MM. Parental depression, child mental health problems, and health care utilization. *Med Care*. 2003;41(6):716-721. doi:10.1097/01.MLR.0000064642.41278.48

28. Leadbeater BJ, Bishop SJ. Predictors of behavior problems in preschool children of inner-city Afro-American and Puerto Rican adolescent mothers. *Child Dev*. 1994;65(2 Spec No):638-648.

29. Thompson SM, Jiang L, Hammen C, Whaley SE. Association of Maternal Depressive Symptoms and Offspring Physical Health in Low-Income Families. *Matern Child Health J*. 2018;22(6):874-882. doi:10.1007/s10995-018-2462-9

30. Flynn HA, Davis M, Marcus SM, Cunningham R, Blow FC. Rates of maternal depression in pediatric emergency department and relationship to child service utilization. *Gen Hosp Psychiatry*. 2004;26(4):316-322. doi:10.1016/j.genhosppsych.2004.03.009

31. Minkovitz CS, Strobino D, Scharfstein D, et al. Maternal depressive symptoms and children's receipt of health care in the first 3 years of life. *Pediatrics*. 2005;115(2):306-314. doi:10.1542/peds.2004-0341

32. Chung EK, McCollum KF, Elo IT, Lee HJ, Culhane JF. Maternal depressive symptoms and infant health practices among low-income women. *Pediatrics*. 2004;113(6):e523-529. doi:10.1542/peds.113.6.e523

33. Casey P, Goolsby S, Berkowitz C, et al. Maternal depression, changing public assistance, food security, and child health status. *Pediatrics*. 2004;113(2):298-304. doi:10.1542/peds.113.2.298

34. Gavic L, Tadin A, Mihanovic I, Gorseta K, Cigic L. The role of parental anxiety, depression, and psychological stress level on the development of early-childhood caries in children. *Int J Paediatr Dent*. 2018;28(6):616-623. doi:10.1111/ipd.12419

35. Lang R, Lorenzetti DL, Milaney K, et al. The Relation Between Exposure to Intimate Partner Violence and Childhood Dental Decay: A Scoping Review to Identify Novel Public Health Approaches to Early Intervention. *J Can Dent Assoc*. 2019;84:j5.

36. González P, Nuñez A, Merz E, et al. Measurement properties of the Center for Epidemiologic Studies Depression Scale (CES-D 10): Findings from HCHS/SOL. *Psychol Assess*. 2017;29(4):372-381. doi:10.1037/pas0000330

37. Zhang W, O'Brien N, Forrest JI, et al. Validating a shortened depression scale (10 item CES-D) among HIV-positive people in British Columbia, Canada. *PLoS ONE*. 2012;7(7):e40793. doi:10.1371/journal.pone.0040793

38. McLearn KT, Minkovitz CS, Strobino DM, Marks E, Hou W. The timing of maternal depressive symptoms and mothers' parenting practices with young children: implications for pediatric practice. *Pediatrics*. 2006;118(1):e174-182. doi:10.1542/peds.2005-1551

39. Siu AL, US Preventive Services Task Force. Screening for Depression in Children and Adolescents: US Preventive Services Task Force Recommendation Statement. *Pediatrics*. 2016;137(3):e20154467. doi:10.1542/peds.2015-4467

40. Olson AL, Kemper KJ, Kelleher KJ, Hammond CS, Zuckerman BS, Dietrich AJ. Primary care pediatricians' roles and perceived responsibilities in the identification and management of maternal depression. *Pediatrics*. 2002;110(6):1169-1176. doi:10.1542/peds.110.6.1169

41. Gilbert JHV, Yan J, Hoffman SJ. A WHO report: framework for action on interprofessional education and collaborative practice. *J Allied Health*. 2010;39 Suppl 1:196-197.

42. Schmitt M, Blue A, Aschenbrener CA, Viggiano TR. Core competencies for interprofessional collaborative practice: reforming health care by transforming health professionals' education. *Acad Med*. 2011;86(11):1351. doi:10.1097/ACM.0b013e3182308e39

43. Bala MM, Strzeszynski L, Topor-Madry R. Mass media interventions for smoking cessation in adults. *Cochrane Database Syst Rev*. 2017;11:CD004704. doi:10.1002/14651858.CD004704.pub4

44. Carson KV, Ameer F, Sayehmiri K, et al. Mass media interventions for preventing smoking in young people. *Cochrane Database Syst Rev*. 2017;6:CD001006. doi:10.1002/14651858.CD001006.pub3

45. Jamal A, Phillips E, Gentzke AS, et al. Current Cigarette Smoking Among Adults - United States, 2016. *MMWR Morb Mortal Wkly Rep*. 2018;67(2):53-59. doi:10.15585/mmwr.mm6702a1

46. Everett Rogers. *Diffusion of Innovations*.

47. Sheela Raja, Marcio da Fonseca, Emily Rabinowitz. Patient preferences on sharing private information in dental settings. *JADA*. 2020;151(1):33-42. doi:https://doi.org/10.1016/j.adaj.2019.08.015

48. Rastogi M, Massey-Hastings N, Wieling E. Barriers to Seeking Mental Health Services in the Latino/a Community: A Qualitative Analysis. *Journal of Systemic Therapies*. 2012;31(4):1-17. doi:10.1521/jsyt.2012.31.4.1

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ABSTRACT: Pappas A., da Fonseca M., Le Hew C., Stanford C., Raja, S. Maternal Depression and Pediatric Patient Failure Rates: A Literature Review. University of Illinois at Chicago, College of Dentistry, Clinic and Research Day 2019.

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PRESENTATIONS: Poster Presentation, University of Illinois at Chicago, College of Dentistry, Clinic and Research Day, March 8, 2019
Title: Maternal Depression and Pediatric Patient Failure Rates: A Literature Review
Co-authors: Marcio da Fonseca, Charles Le Hew, Clark Stanford, Sheela Raja

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PUBLICATIONS: Wasserstrom, J. A., Kapur, S., Jones, S., Faruque, T., Sharma, R., Kelly, J. E., Pappas, A., Ho, W., Kadish, A., Aistrup, G. L. (2008). Characteristics of intracellular Ca2+ cycling in intact rat heart: a comparison of sex differences. *American Journal of Physiology-Heart and Circulatory Physiology*, *295*(5), H1895-H1904.

Wasserstrom, J. A., Shiferaw, Y., Chen, W., Ramakrishna, S., Patel, H., Kelly, J. E., O'Toole, M., Pappas, A., & Akintilo, L. (2010). Variability in timing of spontaneous calcium release in the intact rat heart is determined by the time course of sarcoplasmic reticulum calcium load. *Circulation research*, *107*(9), 1117-1126.