A QUALITY IMPROVEMENT PROJECT TO DECREASE SCREEN USE IN CHILDREN AGED 0-5 VIA A PARENTAL EDUCATION PROGRAM

A Doctor of Nursing Practice Project Report

by

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This Doctor of Nursing Practice Project Report meets the standards for scope and quality of Texas A&M University – Corpus Christi and is hereby approved.

Tammy McGarity, DNP
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December 2023
ABSTRACT

Critical brain development occurs between the ages of zero and five (American Academy of Pediatrics [AAP], 2016). The digitalization of childhood impacts how children experience play, learn, and build relationships (Hutton et al., 2020). The purpose of this QI project was to increase provider use of the “Family Media Plan” and determine if a parent education would decrease screen-time. This QI project sought to answer the question, will the use of screen-time education, increase provider use of the “Family Media Plan,” increase parent knowledge and decrease screen-time, in children under five years? This QI initiative was reviewed by the Texas A&M University- Corpus Christi Institutional Review Board (IRB) for project/study and approval to proceed was received. The setting for this QI project was a primary care clinic. Participants were recruited from patients under five, that presented for well visit. Pre-test, post-test design was selected to evaluate efficacy of the intervention. A modified version of the HomeSTEAD survey was selected to measure behavior change. Eight families completed the initial survey and received the educational intervention. A mean of 115.714 minutes was calculated to the question “on average, how much time does the child spend on screened devices per day?” Seven (n-7) families responded to the follow-up telephone interview. A mean of 102.857 minutes was calculated, demonstrating a 12.858-minute decrease and resulting in an 11% decrease from the pre-intervention response. A simple chart review was conducted to identify use of the “Family Media Plan.” Seven of the seven participant EHR had a complete “Family Media Plan.” This study only addressed the amount of time spent with screened media devices and did not differentiate between educational and non-educational programming, nor did it address the varying impact of screen-time versus indoor/outdoor play.
DEDICATION

My DNP project is dedicated to my husband and children, who offered continual encouragement and support. You stood by my side though this journey and did not allow me to utter the word quit. I would not be here without your love and devotion. I would also like to dedicate this project to my parents, who instilled in me the desire to pursue my education and continue to reach for the stars. It was your belief in me that set me on the path to this day.
ACKNOWLEDGEMENTS

I would like to offer a heartfelt thank you to my faculty chair, Dr. Tammy McGarity, who was a tireless mentor throughout this process. She was a light in the darkness even when felt defeated and prepared to give up. It was only through her steady belief and unwavering support that I was able to complete this project. I would also like to express my gratitude to Ana Vega for lending your time and expertise, when needed, to this project. I would never have been able to reach this milestone without you.

Additionally, I would like to offer my thanks to all of the graduate faculty that has provided me guidance and support throughout this process. It was with the assistance of those faculty members, who fostered a rich learning environment, that I found the strength to complete my project and achieve my dream of obtaining my DNP degree.
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1. INTRODUCTION

Background

More than 17% of U.S. children 3 to 17 years of age, experience a developmental disability and one in four children displays a learning deficit by the time of school entry (Zablotsky et al., 2019; Madigan, Browne, & Racine, et al., 2019). Critical brain development occurs between the ages of zero and five (American Academy of Pediatrics [AAP], 2016). Behavioral and cognitive development occurs rapidly during this time and can be greatly influenced by home and environmental factors. The use of digital technologies such as social media, smartphones and screen media devices are commonplace in home and can develop into an alternative for parental interaction and hands-on play. The digitalization of childhood impacts how children experience play, learn, and build relationships (Hutton et al., 2020). Portability and affordability have increased access to various media devices including TV, internet, and gaming platforms. According to Common Sense Media (2017), 90% of U.S. households contain at least one smartphone, desktop/laptop computer, tablet, or streaming media device, and 42% of kids aged 0-8 years have a device of their own. While there may be some benefits to high-quality, interactive screen-time, excessive use has been associated with harmful physical, behavioral, and cognitive outcomes (Madigan, et al., 2019).

According to Common Sense Media (2017), children zero to eight years of age spend an average of 2 hours and 19 minutes per day consuming media, with children from lower-income homes spending an average of 1 hour 39 minutes more on media devices than their higher-income counterparts. This disparity leaves children from low socio-economic backgrounds more likely to experience the clinical and psychological effects of excessive screen-time (Domingues, 2017). Developmental and educational gaps create a burden on the communities necessitating
greater government and public expenditures for remediation and special education (Madigan et al., 2019). Motor skills, language development, and psychosocial skills are hallmark development at this age, a delay in any aspect can leave a child unprepared for school entry and academic success, leading to life-long disparities.

The term screened media device refers to any device, static or portable, that can be used to consume media. Excessive screen-time refers to the consumption of media in amounts above recommendation by the AAP and the WHO. Passive screen-time is defined as indirect screen use or background playing screen media.

Early exposure to screen-time can lead to passive viewing, habit formation, and digital addiction. In the 1970's the average age of initial television exposure occurred at four years of age as compared to four months today (Christakis, 2015). The World Health Organization (WHO) (2019) and the American Academy of Pediatrics (AAP) (2016) have prioritized the impact of screen-time on obesity, sleep, and child development. These organizations have published screen-time recommendations and guidelines to address the situation and mitigate the potentially negative health outcomes associated. The AAP (2016) policy statement includes recommendations geared at assisting pediatricians in providing screen-time counseling to patients and their families. The AAP (2016) encourages pediatricians to start screen-time counseling early and to direct families in the use of the “Family Media Plan”, which can assist families in setting screen-time priorities.

The purpose of this quality improvement (QI) project is to increase provider use of the “Family Media Plan” and decrease screen-time in children under five, using a parental education program. In 2016, the AAP put out a call for continued research into the risk and benefits of media with a prioritization on interventions that reduce media use. This call has given rise to
multiple studies and reviews of the literature that underlie these guidelines. Several of these studies will be discussed in the review of the literature section of this paper.

The term screened media device refers to any device, static or portable, that can be used to consume media. Excessive screen-time refers to the consumption of media in amounts above recommendation by the AAP and the WHO. Passive screen-time is defined as indirect screen use or background playing screen media.

The setting for this QI project is a pediatric primary care clinic in South Texas. This clinic consists of one physical clinic location staffed by one nurse practitioner (NP) and three medical assistants (MA). An organizational assessment screen-time education was conducted by interview with a NP who supports the use of screen-time reduction. The AAP (2016) outlined clear media use recommendations and guidance for parents and providers (see Appendix A). Assessment of the clinic revealed screen-time education was to be provided during routine well visits but was inconsistent in delivery and content. The electronic well visit template, housed in the electronic medical record (EMR), was capable of tracking screen-time education as a part of anticipatory guidance, but was unused. This QI project aims to decrease excessive screen-time in children under five by providing parental education, including a “Family Media Plan,” as recommended by the AAP.

Review of Literature

Population-based studies demonstrated associations between excessive television viewing in early childhood. Cognitive, language, and social/emotional delays have been noted, likely secondary to decreases in parent-child interaction (AAP, 2016). Madigan et al. (2019), conducted a longitudinal cohort study including 2441 participants of the All Our Families study conducted in Canada, to investigate the directional association between screen-time and child development.
Data were collected between October 20, 2011, and October 2016, at 24, 36 and 60 months of age. The study found higher levels of screen-time at 24 and 36 months of age were significantly associated with poorer performance on developmental screening tests at 36 months. In 2008, the Canadian Healthy Infant Longitudinal Development (CHILD) study was launched as a platform for the collection of robust research throughout pregnancy, childhood, and beyond (CHILD Cohort Study, 2023). Over 3,500 pregnant women were recruited between 2009 and 2012. Information is captured on these participants at varying times by various research teams to further understanding of disease development. Tamana et al. (2019), analyzed data from the CHILD Cohort Study for association between screen-time and pre-school inattentive and aggressive behaviors. Data was collected at three and five years of age. The study found, at age five, children with more than 2 hours of screen-time per day were 5.9 times more likely to report externalized inattention behaviors as compared to children exposed to 30-minutes of screen-time per day (Tamana et al., 2019). The study also found that screen-time viewing in excess of 2-hours per day was strongly associated with a T-score above the clinical cut off for attention deficit hyperactivity disorder (ADHD) diagnosis per the DSM-5 (Tamana et al., 2019). Hu et al. (2018), utilized a stratified, random sample approach to select participants for conducted a study to explore the association between screen time of parents and their children. Hu et al., utilized a stratified, randomized approach to recruit 558 five-year-old children in the Guangdong Province of China into the study. Hu and colleges (2018) found that screen use was positively related to the types and screen viewing habits of parents, likewise, a decrease in parental viewing patterns was also associated with a decrease in children’s screen use. In addition, Hu, and colleges (2018), observed that parental restriction on TV viewing and computer use were positively associated with cognitive and social development. Positive social and cognitive development was
associated with educational and kid friendly programming, whereas cartoons and generic programming were not. In fact, passive screen time of children in this study was negatively associated with their mathematics achievement, science performance, executive functioning, and social skills (Hu et. al, 2018). The findings demonstrated by Hu et al. support the impact of parental influence on screen viewing practices in children under the age of five. Axelsson et al. (2022), conducted an online cross-sectional survey with a correlational design on caregivers of Australian children between the ages of two years eleven months and five years eleven months, to determine associations between screen exposure and sleep, language, and cognition. The study was conducted from September 2021 and February 2022, and utilized the Ages and Stages-3 survey as a screening tool to measure development in the children of participating caregivers. 106 caregivers of Australian children completed the survey. Caregivers reported screen media use an average of one hour on educational content and two hours spent on entertaining content. The study found an association between longer durations of screen media use for entertainment and shorter sleep duration. The study also found that greater amounts of screen-time was associated with lower scores in communication and problem solving on ASQ-3, as well as an increase in attention difficulties.

Intervention research has demonstrated the positive impact of parenting strategies and parental behavior on a child’s development (Attai, 2020). Parental understanding and knowledge of screen time recommendations have demonstrated a gap between AAP media use recommendations and current behaviors. The study previously cited by Hu and colleges (2018) sough to determine if there was a positive relationship between the screen time of Chinese parents and their children. The study found children took cues on screen-time from their parents. In other words, parental screen time was associated with screen time habit displayed by the
children, alternatively decreased screen use by parents resulted in decreased screen time in the children (Hu et. al, 2018). This study demonstrates parental screen media use and parental attitudes towards screen media as a potential determinant of the amount of time a child spends in screened media use. Likewise, the study supports the use of an intervention directed at parental behavioral change as a mediator for behavior change in the children as well. Mendelsohn, Dreyer, Brockmeyer, Berkule-Silberman, Huberman, & Tomopoulos (2011), conducted a single blind, 3-way, randomized control trial on education interventions delivered to parents to examine how reduced media exposure and enhanced parenting could mediate the effect of excessive media use. The study included 410 mother-newborn dyads enrolled after childbirth, between November 2005 and October 2008. The dyads were randomly placed in either the video interaction project (VIP) intervention, the building blocks (BB) interventions, or the control group. The VIP intervention group received one on one sessions with a child specialist to facilitate interaction and play and printed learning material. The BB intervention group received parenting material via the mail. A 24-hour recall diary was used to obtain outcomes pertaining to media exposure. At six months mean media exposure was 146.5 min for all the groups combined. The VIP intervention was associated with reduced screen time (standard mean 131.6 minutes) as compared to the BB intervention (standard mean 151.5 minutes) and the control group (standard mean 155.4 minutes). For families with a 9th grade or higher education, the VIP intervention was shown to enhance parent-child interaction over the BB intervention and the control group. Additionally, the study results conclude the primary care setting is a potential platform for media education. Yilmaz, Demirli Caylan, & Karacan, (2015), conducted a two-group randomized control trial to determine if a simple intervention conducted in the primary care setting, would be effective in reducing screen time with the aim of reducing body mass
index (BMI) and parental report of aggressive behavior. Fliers were distributed to families with children aged two thru six years that presented to the Social Pediatrics Department in Dr Sami Ulus Children’s hospital for a well visit between September 2010 and October 2012. 412 families agreed to participate. A baseline interview questionnaire, consisting of questions related to demographics, parental education and employment, housing, and screen-time, was conducted with each participating family. Families were then randomly placed in an intervention or control group. The intervention group then received education components at two-week intervals for eight weeks that included printed material and interactive CDs directed at decreasing screen use. Following the intervention, home visits were made at two, six, and nine months for data collection purposes. At each home visit families were provided a follow up questionnaire. BMI and aggressive behavior were measured at the last visit. Child aggression was measured using the Child Behavior Checklist (2 through 6). The study reported less screen use in the intervention group (21.15 ± 6.12 minutes per day) as compared to the control group (93.96 ± 18.84 minutes per day). The study also showed decreased aggression scores, based on the Child Behavior Checklist (2 through 6), in the intervention group (3.35 ± 1.46) as compared to the control group (3.85 ± 1.38). This study infers an educational interventions can yield positive results.

Project Purpose and Aims

The purpose of this QI project was to increase provider use of the “Family Media Plan,” as recommended by the AAP, and determine if a parental educational program provided during scheduled well visits would increase parental knowledge as evidenced by decreased screen-time. This QI project sought to answer the question, will the use of a prescribed parent screen-time education program, including AAP recommendations, as compared to current clinic screen-time education, increase provider use of the “Family Media Plan,” and increase parental knowledge as
evident by a decrease in screen-time in children under five years of age? This QI initiative was supported by competencies outlined by nursing various professional nursing bodies in advance nursing practice. The DNP Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes conceptualizes effective communication and collaborative skills in the development and implementation of practice models (American Association of Colleges of Nursing [AACN], 2006). This essential was demonstrated by way of interprofessional collaboration utilized during the organizational assessment, intervention design, and implementation of this QI initiative. NONPF Domain IV: Practice Scholarship and Translational Science. NONPF Domain IV requires nurse practitioners to utilize knowledge and principles of translation and improvement science to improve quality and safety for providers and patients. This essential was met through utilization of current evidence-based research in identifying a gap in knowledge, as well as, translating current evidence for effective intervention implementation that met the needs of the clinic site and patient population.

The aim of this QI project was to increase provider use the “Family Media Plan,” as recommended by the AAP, and increase parental knowledge as evidenced by decreased screen-time, thereby decreasing negative developmental outcomes which are associated with excess screen-time in children under five years of age who present to a pediatric primary care clinic for well child checks.

Aim #1:

a. General goal: Decrease excessive screen-time in children under five years of age.

b. Outcome objective: Decrease total screen-time by 10% in children under age five. Setting small goals can increase self-efficacy thereby increasing confidence in the ability to attain goals (Swobida, Miller, & Wills, 2017).
c. Process objective: Use a modified version of the Home Self-administered Tool for Environmental assessment of Activity and Diet (HomeSTEAD) Physical Activity and Media Inventory to identify the amount of time in hours the participating child spends on screened media devices.

d. Relationship to intervention: pre-and post-intervention measurements of screen-time in minutes will be used to analyze efficacy of the intervention.

e. Specific goal: Decrease use of screened media devices as evidenced by a 10% reduction in minutes post-intervention as compared to pre-intervention measurements.

Aim #2:

a. General Goal: Increase provider use of the “Family Media Plan” during pediatric well visits.

b. Outcome Objective: Assist families with the development of realistic participant specific “Family Media Plan” as recommended by the AAP.

c. Process Objective: Providers will assist in the creation of a “Family Media Plan” for participating families while present for scheduled well visit.

d. Relationship to Intervention: The creation of a “Family Media Plan” will allow for the identification of opportunities to initiate behavior changes and decrease screen-time.

e. Specific Goal: Increase provider use of the “Family Media Plan” in 80% of participant charts during chart review. According to Reid Chassiakos et al. (2016), the adoption of a “Family Media Plan” can minimize unhealthy
behaviors and habits, however, only 16% of pediatricians ask about media use and only 29% of parents rely on pediatricians for advice about media use.

**Guiding Frameworks**

The guiding framework for this QI project will be Plan Do Study Act (PDSA). The PDSA model, introduced by Walter Shewhart in the 1920s, provides a framework for developing, testing, and implementing changes with the use of cycles leading to improvements (Institute for Healthcare Improvement [IHI], 2021). The PDSA cycles enable an investigator to test changes on a small scale, to build on the learning from previous test cycles in a structured way and to give stakeholders the opportunity to evaluate whether the proposed changes will succeed (IHI, 2021). The Planning phase comprises the creation of a plan to address the concerns identified during the organizational assessment. The Do phase encompasses the implementation of the plan including obtaining participant consent, initial survey of screen-time, and screen-time education. The Study phase consists of the post education follow-up survey and the Act phase will follow as the organizational stakeholders determine any necessary changes for the purpose of continuation and sustainability of the QI initiative.

This QI project will follow the underpinnings of the PDSA model and will be guided by the conceptual framework described by Kurt Lewin in his Change Theory. The Change Theory, developed by Kurt Lewin, theorized a three-stage model of unfreezing, change, and refreezing utilizing the concepts of driving forces, restraining forces, and equilibrium, which requires prior learning to be rejected and replaced (Petiprin, 2016). In phase one, unfreezing, parents will receive education on the AAP screen-time recommendation establishing a driving force to unfreeze current learning. In phase two, the change stage, a unique “Family Media Plan” will be developed by the family that establishes age-appropriate restrictions and limitations of screen-
time and will act as a guide to achieving the desired behavior change. Phase 3, refreezing, will evaluate the change or effectiveness of the intervention, and offer reinforcement and additional guidance if needed (Figure 1).

Figure 1

Guiding Framework and Change Model
2. METHODS

Ethical Issues

This quality improvement initiative was reviewed by the Texas A&M University-Corpus Christi Institutional Review Board (IRB) for project/study classification and received a determination of does not meet the criteria for Human Subjects Research and approval to proceed was received (see Appendix C). A letter was provided by the office manager of the clinic offering full support for the project and acknowledging the collection of PHI for the purpose of this project only (see Appendix D).

Data will be collected from EMR at the participating pediatric primary care clinic. Study participants will be designated by a medical record (MR) number and entered into the analysis software. Data will be collected and accessed by the project director solely while physically present in the clinic. Confidentiality of participant personal information will be maintained as per clinic guidelines. A Health Insurance Portability and Accountability Act (HIPPA) confidentiality agreement was completed at the facility and allows collection of Personal Health Information (PHI) for the purposes of this project (see Appendix D).

Project Design

The AAP has made age-specific screen-time recommendations to guide parents and providers as they attempt to meet the developmental needs of infants and young children. The AAP recognizes that children aged zero to five are in a critical time for building relationships and establishing health behaviors. Children under age two, in particular, learn from social interaction and exploration and are thus ill equipped to learn from traditional digital media (AAP, 2016). This QI project is focused specifically on children of this age range due to the
potential for negative health outcomes associated with screen-time and the reliance children of this age have on their parents for behavioral change.

This QI project used pre-test, post-test study design to evaluate changes in screen-time behaviors in children zero to five years of age after a parent education intervention was completed during routine well child checks at a pediatric primary care clinic. Pretest-posttest design is commonly used in behavioral research, primarily for the purpose of comparing groups, the measurement of change provides a vehicle for assessing the effects of specific counseling and allied health interventions (Dimitrov & Rumrill, 2003). Thus, a parent education program was selected to expand parent awareness of the recommendations listed in the AAP position statement and to encourage behavioral change related to screen-time.

The AAP (2016), recommends providers start discussions related to media use early and Bright Futures/AAP (2017), recommends age based anticipatory guidance be delivered on TV and digital media use at each scheduled well visit. Printed screen-time educational material was provided for distribution to families by the patient care provider. Additionally, the family was encouraged to complete a “Family Media Plan,” during the well visit, for home reinforcement. The “Family Media Plan” was then placed in the EMR for later review.

Implementation of this QI experienced an interruption due to the declaration of a viral pandemic. Quarantine and self-isolation measures were highly recommended by state and national public health institutions. A marked decrease in patients seeking routine care was noted following quarantine and isolation recommendations. Recruitment for this project was impacted due to the decrease in patient contact during this time. Potential barriers to this project include lack of participation, lack of parental awareness, and conflicting parental beliefs or attitudes toward screen-time. The shift to digital learning associated with the lockdown of schools, and
community quarantines related to the viral pandemic may have also acted as a barrier to the success of this project. Please see Risk Assessment (Table 1) for a list of risks and countermeasures that can be taken to mitigate these risks.

**Table 1**

*Risk Assessment*

<table>
<thead>
<tr>
<th>Risk</th>
<th>Restraining Force</th>
<th>Impact</th>
<th>Probability</th>
<th>Countermeasures</th>
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<tbody>
<tr>
<td>Lack of interest in</td>
<td>Time obligation</td>
<td>Inability to</td>
<td>Moderate</td>
<td>Offer incentive to participate</td>
</tr>
<tr>
<td>participation</td>
<td></td>
<td>proceed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parental literacy</td>
<td>Inability to read or complete media plan</td>
<td>Inability to</td>
<td>Low</td>
<td>Assist in creation of media plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>proceed</td>
<td></td>
<td>while in office.</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Review verbally with parent or family member</td>
</tr>
<tr>
<td>Parental awareness</td>
<td>Inability to differentiate high quality programming</td>
<td>Inability to complete media plan</td>
<td>Low</td>
<td>Provide a list of developmentally appropriate programming based on age</td>
</tr>
<tr>
<td>Viral pandemic</td>
<td>Lock-down measures</td>
<td>Inability to</td>
<td>High</td>
<td>Offer education through televisit and follow-up virtually</td>
</tr>
<tr>
<td></td>
<td></td>
<td>proceed</td>
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**Intervention**

One of the key factors of the Change Theory is the rejection of prior learning and behaviors associated with screen-time and its substitution with age-appropriate recommendations informed by AAP. Prior to recruitment, an educational in-service was provided to one clinic nurse practitioner and three clinic MA’s. The educational in-service included current AAP screen-time recommendations, parent educational material, and use of the “Family Media Plan.”

On initial contact, families who met criteria for inclusion, were given study information and instructed that completion of the initial survey served as consent to participate in the QI project. Participating families then completed the modified HomeSTEAD survey as a measure of pre-intervention screen-time. The modified HomeSTEAD survey assesses a family’s access to and beliefs about indoor and outdoor play. Upon completion of the survey, families received age-specific screen-time guidance by verbal instruction and were provided a printed leaflet designed by Common Sense Media which outlined screen-time recommendations consistent with the AAP policy statement (see Appendix E). The participating family was then encouraged to create a “Family Media Plan” prior to conclusion of the visit. The “Family Media Plan” is a personalized plan intended to assist families in establishing an appropriate balance between screen and non-screen time activities. Sample “Family Media Plan” (Appendix F). A copy of the “Family Media Plan” was given to the family and a copy was scanned into the EMR upon completion. A follow-up survey was completed at 1-month via telephone interview by the student investigator. Repeat measures will continue to be taken at all follow-up well visits per the Bright Futures/AAP “Periodicity Schedule” (Appendix B).
Data Collection

Once inclusion and exclusion criteria were determined, parents were given an introductory letter of consent by either the clinic staff or the student investigator stipulating completion of project survey indicated their consent to participate in this QI project. Once consent was obtained demographic data were collected to include age, ethnicity/race, and family income. The demographic information was collected to quantify frequency of each variable. A modified version of the HomeSTEAD survey was utilized to collect pre- and post- intervention behavioral change with respect to screen-time in children under five years of age. The HomeSTEAD survey takes inventory of beliefs and behaviors related to screen-time as well as to indoor or outdoor play. Reliability and validity of this survey were confirmed using test-retest and criterion and construct by the survey creators (Hales et al., 2013).

The initial survey focused on data specific to screen media use, including amount of time, educational verses non-educational use, and access to outdoor play. Parental education was given by the clinic NP and a patient specific “Family Media Plan” was then completed by the parent and a copy was made and scanned into the EMR. A telephone interview was conducted 4 weeks after initial contact by the student investigator to obtain follow-up HomeSTEAD survey data. A mean score was calculated pre- and post- intervention to determine if aim #1, decrease excessive screen-time by 10% post intervention, was satisfied. To satisfy aim #2, a review of the EMR for the “Family Media Plan” was conducted to obtain the frequency of use. Paper survey data was entered into Qualtrics at the time of collection for ease of aggregation and analysis.

Study participants were identified by MR number that was stored on clinic premises. Data were collected and accessed solely by the student investigator while physically present in the...
Confidentiality of participant personal information was maintained as per clinic guidelines.

**Data Analysis**

Due to technological challenges a paper survey was utilized for data collection. Data were then entered into the Qualtrics survey software for ease of reporting. Mean scores were used to analyze data obtained from survey responses to identify if the goal for aim #1 was met. Microsoft Excel was used for data analysis and for table formatting. Quantitative data calculations, including averages, were used to determine the percentage of change in pre and post intervention survey results. Simple quantitative calculation of frequencies was used to identify whether goal for aim #2 was satisfied.
3. RESULTS

Outcomes

This quality improvement (QI) project aimed at decreasing screen use in children under 5 through the implementation of a parental education program provided during scheduled well visits. This QI program was originally scheduled to take place at an alternate location; however, project implementation was planned to take place during the COVID-19 pandemic. Varying degrees of lockdown measures in place at the start of and during implementation of the QI intervention led to a decrease in census and a drop-in scheduled well visits.

As restrictions were lifted and patients returned to the clinic for well visits and catch-up preventative care, staff found themselves overwhelmed and unable to assist in the project. Due to this development and change in practice location was decided upon and a new IRB determination was sought, and implementation occurred at the alternate clinic location.

A training and brainstorming session was conducted for this QI project and included one NP and three MAs with the staff to determine the best methods for implementation focused on meeting the project aims. It was determined that the initial survey would be given as a part of the age-based admission packet on check-in by the MA. Families were informed that completion of the initial survey denoted agreement to participate in the study. A total of eight families, with children aged zero to five years, completed the initial survey (Figure 2).
Figure 2

Flowchart of Participants

Note. This figure reflects the number of participants in this study.

Aim #1, decrease use of screened media devices by 10% post-intervention as compared to pre-intervention measurements, participants received the educational material on initial contact, while present in clinic. The initial survey collected data pertaining to demographics, access to screened devices, access to outdoor play, and screen use. To questions requiring a time response participants were given the options N/A or none, less than 1 hour (calculated as 30 minutes), 1-2 hours (calculated as 90 minutes), 2-4 hours (calculated as 180 minutes) and greater than 4 hours (calculated as 240 minutes). Pre-intervention screen-time responses ranged from 1-2 hours to 2-4 hours. A mean of 115.714 minutes of screen-time was calculated pre-intervention to the question “on average, how much time does the child spend on screened devices per day? (TV, tablet, cell phone, etc.).” The follow-up survey was conducted approximately 1-month post-intervention. A total of seven (n=7) families responded to post-intervention telephone interview. A mean of 102.857 minutes of screen-time was calculated post-intervention to the question “on average, how much time does the child spend on screened devices per day? (TV, tablet, cell
phone, etc.).” Evaluation of survey results demonstrate a decrease in the mean of 12.858 minutes post intervention, indicating an 11% decrease in screen-time in the surveyed population.

**Figure 3**

*Screen-time Bar Graph*

<table>
<thead>
<tr>
<th>Change to Mean Screen-time Use</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.9858 Minutes</td>
<td>11%</td>
</tr>
</tbody>
</table>

*Note.* Screen-time use per participant pre- and post-education intervention.

Aim #2, increase provider use of the “Family Media Plan” to 80% of participants during pediatric well visit. After receiving education, families were encouraged by the clinic provider, to complete a paper copy of the “Family Media Plan,” as recommended by the AAP. The clinic staff then scanned a copy of the “Family Media Plan” into the patients EMR for tracking purposes. At the completion of the project, a simple chart review was conducted to identify provider use of the “Family Media Plan.” Upon review of the EMR, seven of the seven participant records demonstrated a complete “Family Media Plan.”
4. DISCUSSION

Summary

Excess screen use in early childhood has been associated with cognitive, language, and social/emotional delays. Potential risks associated with media include reduced physical activity, inadequate sleep, and unhealthy influences like cyberbullying, are important topics to discuss with families as well (Reid Chassiakos et al., 2016).

It is objectively necessary to address the potential for negative outcomes associated with excess screen use in early childhood that can impact the social, cognitive, and behavioral development of this very young and vulnerable population within the community. Children under five years of age are at the greatest risk for deleterious effects on developmental outcomes associated with external factors. Unfortunately, children in this age range have the least amount of control over their environmental exposures. It is up to the parents and caregivers to ensure that the home environment offers ideal opportunity and activities that promote physical and cognitive development.

Limitations

Several limitations were identified during the course of this QI project. This study was initially planned for implementation in January of 2021 and was impacted by the coronavirus pandemic. Pandemic related lockdowns impacted patient contact and resulted in a smaller sample size. Pandemic related hesitancy may have prevented parents from seeking preventative care leading to missed well visits. Pandemic related school closures and lockdown measures resulted in an increase in the use and reliance on media devices to remain in contact with family and friends and to provide entertainment for those at home. Additionally, due to time constraints, follow-up was conducted only four weeks after initial contact which may not have been
sufficient for families to demonstrate behavioral change. Lastly, options for survey responses were listed in broad time frame groupings, >1 hour, 1-2 hours, and 2-4 hours, this made it difficult to track and account for small changes in behavior. Many of the surveyed families reported behavior changes that were of smaller time frames. This project aimed for a 10% change in behavior and was unable to demonstrate these small changes due to overly broad time frame options. Small time frame increments should be considered in future projects to identify and track behavior changes in 15-to-30-minute increments.

**Interpretation**

The evidence-based educational intervention introduced in this QI project was effective in decreasing screen-time in the surveyed population. The percentage decrease in the mean surpassed the proposed decrease of 10%. The results demonstrate that an educational intervention provided by the pediatric primary care provider can be effective. This result is consistent with evidence that demonstrates parental education as an effective intervention. Furthermore, the results support primary care clinics as ideal locations for distribution of educational material. Lastly, the introduction of a structured parental education program improves educational offerings as evident by increased use of the “Family Media Plan.”

**Conclusions**

Children today are developing in an environment that is saturated with digital media and screened media devices are pervasive in the lives of even very young children. This quality initiative set out to determine if a parent education intervention would be effective in decreasing screen-time in children under five years of age. While this study did demonstrate a small change in media consumption associated with the educational intervention, this study only addressed the
amount of time spent with screened media devices and did not differentiate between educational and non-educational programming, nor did it address the varying impact of screen-time versus indoor/outdoor play and the implications these variables can have on cognitive development in this population. Lastly, additional research is warranted in investigating the impact of socio-economic status on amounts of screen time. Additional research is needed to identify correlations and provide additional guidance to pediatric providers that wish to provide evidence-based guidance to parents and caregivers.
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https://doi.org/10.1542/peds.2016-2593


APPENDIX A

AMERICAN ACADEMY OF PEDIATRICS RECOMMENDATIONS FOR CHILDREN’S MEDIA USE

Pediatricians:
- Start the conversation early. Ask parents of infants and young children about family media use, their children’s use habits, and media use locations.
- Help families develop a Family Media Use Plan with specific guidelines for the child and parent.
- Educate parents about brain development in the early years and the importance of hands-on, unstructured, and social play to build language, cognitive, and social-emotional skills.
- For children younger than 18 months, discourage use of screen media other than video-chatting.
- For parents of children 18 to 24 months of age who want to introduce digital media, advise that they choose high-quality programming/apps and use them together with children, because this is how toddlers learn best. Letting children use media by themselves should be avoided.
- Guide parents to resources for finding quality products (e.g., Common Sense Media, PBS Kids, Sesame Workshop).
- In children older than 2 years, limit media to 1 hour or less per day of high-quality programming. Recommend shared use between parent and child to promote enhanced learning, greater interaction, and limit setting.
- Recommend no screens during meals and for 1 hour before bedtime.
- Problem-solve with parents facing challenges, such as setting limits, finding alternate activities, and calming children.

Families
- Avoid digital media use (except video-chatting) in children younger than 18 to 24 months.
- For children ages 18 to 24 months, if you want to introduce digital media, choose high-quality programming, and use media together with your child. Avoid solo media use in this age group.
- Do not feel pressured to introduce technology early; interfaces are so intuitive that children will figure them out quickly once they start using them at home or in school.
- For children 2 to 5 years of age, limit screen use to 1 hour per day of high-quality programming, co-view with your children, help children understand what they are seeing, and help them apply what they learn to the world around them.
- Avoid fast-paced programs (young children do not understand them as well), apps with lots of distracting content, and any violent content.
- Turn off televisions and other devices when not in use.
- Avoid using media as the only way to calm your child. Although there are intermittent times (e.g., medical procedures, airplane flights) when media is useful as a soothing strategy, there is concern that using media as strategy to calm could lead to problems with limit setting or the inability of children to develop their own emotion regulation. Ask your pediatrician for help if needed.
- Monitor children’s media content and what apps are used or downloaded. Test apps before the child uses them, play together, and ask the child what he or she thinks about the app.
- Keep bedrooms, mealtimes, and parent–child playtimes screen free for children and parents. Parents can set a “do not disturb” option on their phones during these times.
- No screens 1 hour before bedtime and remove devices from bedrooms before bed.
# APPENDIX B

## AMERICAN ACADEMY OF PEDIATRICS RECOMMENDATIONS FOR PREVENTIVE PEDIATRIC HEALTH CARE

Reformatted from the AAP's "Clinical Practice Guidelines for Preventive Pediatric Health Care". (Rev. 2018, replacing the 2016 edition). Copyright © 2018 by the American Academy of Pediatrics. All rights reserved.

<table>
<thead>
<tr>
<th>Age (in years)</th>
<th>Recommendations</th>
<th>Notes</th>
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<td>4-6 mos.</td>
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<td>16-18 mos.</td>
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<td>19-23 mos.</td>
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<tr>
<td>24-29 mos.</td>
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<td>36 mos.-4 yrs.</td>
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<tr>
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</tr>
<tr>
<td>9 yrs.-12 yrs.</td>
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</tr>
<tr>
<td>13 yrs.-18 yrs.</td>
<td>None</td>
<td></td>
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</tbody>
</table>

**Notes:**

1. For full enumeration see the AAP's "Clinical Practice Guidelines for Preventive Pediatric Health Care". The recommendations are meant to be used as guidelines, and not as requirements or requirements for reimbursement.
2. For full description of preventive health care services and the corresponding guidelines, see the AAP's "Clinical Practice Guidelines for Preventive Pediatric Health Care". The recommendations are meant to be used as guidelines, and not as requirements or requirements for reimbursement.
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7. For full description of preventive health care services and the corresponding guidelines, see the AAP's "Clinical Practice Guidelines for Preventive Pediatric Health Care". The recommendations are meant to be used as guidelines, and not as requirements or requirements for reimbursement.
8. For full description of preventive health care services and the corresponding guidelines, see the AAP's "Clinical Practice Guidelines for Preventive Pediatric Health Care". The recommendations are meant to be used as guidelines, and not as requirements or requirements for reimbursement.
9. For full description of preventive health care services and the corresponding guidelines, see the AAP's "Clinical Practice Guidelines for Preventive Pediatric Health Care". The recommendations are meant to be used as guidelines, and not as requirements or requirements for reimbursement.
10. For full description of preventive health care services and the corresponding guidelines, see the AAP's "Clinical Practice Guidelines for Preventive Pediatric Health Care". The recommendations are meant to be used as guidelines, and not as requirements or requirements for reimbursement.
11. For full description of preventive health care services and the corresponding guidelines, see the AAP's "Clinical Practice Guidelines for Preventive Pediatric Health Care". The recommendations are meant to be used as guidelines, and not as requirements or requirements for reimbursement.
12. For full description of preventive health care services and the corresponding guidelines, see the AAP's "Clinical Practice Guidelines for Preventive Pediatric Health Care". The recommendations are meant to be used as guidelines, and not as requirements or requirements for reimbursement.

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**Disclaimer:** This document is intended for informational purposes only and is not a substitute for professional medical advice. **Do not substitute this information for medical advice**. Always consult with your child's healthcare provider for guidance on appropriate preventive care for your child. **For up-to-date information, visit the American Academy of Pediatrics website at [www.aap.org](http://www.aap.org).**
Dear Pamela Greene,

Activities meeting the DHHS definition of research or the FDA definition of clinical investigation and involve human subjects are subject to IRB review and approval. On 02/15/2022, the Office of Research Compliance reviewed the project below and determined that the proposed activity does not meet the FDA definition of a clinical investigation or DHHS definition of research.

**Type of Review:** Review Board Response Review Submission form  
**Title of Study:** A Quality Improvement Project to Decrease Screen Use In Children Aged 0-5 via a Parental Education Program  
**Principal Investigator:** Pamela Greene  
**IRB Number:** TAMU-CC-IRB-2022-0375  
**Submission Action:** IRB Review not Required for projects not meeting the definition of research

This project is aimed at: Assessing and ensuring compliance with a standard or regulation: Media and Young Minds, American Academy of Pediatrics Policy Statement. The results will be used evaluate the effectiveness of a parental education program that is delivered in a primary care clinic during scheduled well visits provided as a part of physician provided anticipatory guidance. The results of the study will be used to determine if the aims are met.

Therefore, this project does not require IRB review and you may proceed. This IRB Declaration is in effect from 02/15/2022 and does not expire.

Limits to this determination:

1. This determination corresponds with the versions of the application and attachments in the electronic system most recently approved as of the date of this letter. This determination is issued with the understanding the data collected will be used internally by the organization for internal use and not be generalizable. Any planned changes require submission to the IRB to ensure that the research continues to meet the criteria for a non-human subject research determination.
2. This project may NOT be referenced as "IRB approved" or "research".

The following statement can be included in the manuscript: "This project was reviewed and determined to not meet the definition of research involving human subjects by the Texas A&M University IRB - Corpus Christi Institutional Review Board."

Please do not hesitate to contact the Office of Research Compliance with any questions at irb@tamucc.edu.

Sincerely,

Rebecca Ballard, JD  
Office of Research Compliance
APPENDIX D

LETTER OF SUPPORT / HIPPA AGREEMENT

2120 Baldwin Blvd
Corpus Christi, TX 78405
PHONE: 361.500.0096
FAX: 361.444.5153

1504 Waldron Rd
Corpus Christi, TX 78418
PHONE: 361.937.5311
FAX: 361.937.5576

January 27, 2022

Dr. Bunny Forgione
Executive Associate Dean
College of Nursing and Health Sciences
Texas A&M University – Corpus Christi
6300 Ocean Drive
Corpus Christi, TX 78412

Dear Dr. Forgione,

The purpose of this letter is to provide Pamela Ortiz, RN, CPNP-PC, a Doctor of Nursing Practice student at Texas A&M University College of Nursing and Health Sciences, support in conducting a quality improvement project at Antrados, PA dba The Children’s Center of Corpus Christi. The project, Parental Education to Decrease the Impact of Screen Use on the Cognitive Development of Children 0-5 Years of Age, entails providing education on the screen time guidelines provided by the American Academy of Pediatrics to parents of your patients aged 0-5.

The purpose of this project is to inform parents of the developmentally appropriate use of screened devices and the harmful effects of excessive screen use. The Children’s Center of Corpus Christi was selected for this project because of the age and demographics of the patient population. Pamela Ortiz, RN, CPNP-PC, is employed at this institution and has an interest in improving care at this facility.

I, Gloria R Rodriguez, Medical Office Administrator, along with Dr. Mohamad Hassan’s approval, at Antrados, PA dba The Children’s Center of Corpus Christi, do hereby fully support Pamela Ortiz, RN, CPNP-PC in the conduct of this quality improvement project, Parental Education to Decrease the Impact of Screen Use on the Cognitive Development of Children 0-5 Years of Age at The Children’s Center of Corpus Christi.

I also approve Pamela Ortiz, RN, CPNP-PC, to access protected health information (PHI) for purposes of conducting this quality improvement project. She has signed a HIPAA release form (only include this paragraph if you will be accessing PHI).

Sincerely,

Gloria R. Rodriguez, Medical Office Administrator
APPENDIX E

AGE BASED MEDIA USE

Age-Based Media Use Advice

18-24 MONTHS

1. MAKE A PLAN

Before you introduce screen-based media...

Make family rules about how adults and kids use media and tech at home. Go to HealthyChildren.org/MediaUsePlan to create a plan that works for your family. (Despite what you may hear from companies and advertisers, children — especially babies — do not need to learn to use technology right away. There’s plenty of time for that as they grow!)

2. STRIKE A BALANCE

Play with your baby. Babies and toddlers learn best from loving caregivers, so include plenty of active and social fun in your toddlers’ daily routine by reading, dancing, singing, and playing interactive games like peekaboo. If you want to use apps or videos with your baby, make sure you use them together.

Video-chat with long-distance family and friends. Toddlers will respond to voices and facial expressions even if it’s through a device.

Create screen-free times and zones — for example, at bedtime, in the stroller, at mealtime, in restaurants, and at least one hour before bed.

3. BE A ROLE MODEL

Choose high-quality and age-appropriate media — especially books. If you do use screen-based media with your baby, make sure the content is positive and simple, and as much as possible, use it with your child.

Go to www.commonsensemedia.org to find books, apps, and more.

Turn off the TV when no one is watching it, and — as much as possible — put away your own devices when you’re with your child.

Use privacy settings online to keep photos and personal information about your baby private.

For helpful tips, visit commonsense.org

Create a family media plan

healthychildren.org/mediauseplan

HealthyChildren.org is the only parenting website backed by 66,000 pediatricians committed to the health and well-being of all infants, children, adolescents, and young adults. Here you’ll find information regarding the American Academy of Pediatrics recommendations for child health, parenting resources, and information you can trust.
2-5 YEARS

1. MAKE A PLAN

Make family rules about how adults and kids use media and tech before you introduce screens. Go to HealthyChildren.org/MediaUsePlan to create a plan that works for your family.

2. STRIKE A BALANCE

Balance screen use with reading, being active, drawing, playing imagination games, and being with friends and family. Limit screen entertainment to an hour a day. Don’t forget 10-14 hours of sleep and at least an hour of exercise a day.

Create screen-free times and zones once you start using digital media — for example, at bedtime, in the stroller, at mealtimes, and in restaurants.

Put devices to bed at least an hour before bedtime, and charge them outside of kids’ bedrooms.

3. BE A ROLE MODEL

Choose high-quality and age-appropriate media. When you introduce screen-based media, make sure the content is positive and simple, and as much as possible, use it along with your kid. Use www.commonsensemedia.org to find TV shows, books, apps, and more.

Support kids online. As kids begin to explore websites and digital games, sit with them to make sure they don’t find inappropriate content. Look for ways to connect what they learn online with experiences offline.

6-12 YEARS

1. MAKE A PLAN

Make family rules about how and when media and devices will be used and which games, websites, and apps are OK to play, visit, and download. Go to HealthyChildren.org/MediaUsePlan to create a plan that works for your family.

2. STRIKE A BALANCE

Balance screen use with reading and hobbies, as well as being with friends and family. Don’t forget 9-12 hours of sleep and at least an hour of exercise a day!

Create screen-free times and zones for the whole family — for example, in the bedroom, at school, and during homework and mealtimes.

Put devices to bed at least an hour before bedtime, and charge them outside of kids’ bedrooms.

3. BE A ROLE MODEL

Watch and play high-quality and age-appropriate media together. Use www.commonsensemedia.org to find TV shows, books, apps, and more.

Teach manners with devices, including putting away devices during conversations and meals (and model these behaviors, too!).

Talk about digital citizenship, which includes being safe and respectful online, as well as talking about any bullying or uncomfortable interactions with a trusted adult.

Consider parental controls that limit access to inappropriate content. Also, review privacy settings on kids’ apps to make sure they’re keeping photos and personal information private.

13-18 YEARS

1. MAKE A PLAN

Make family rules about what types of media are OK and why. Have conversations about mature content and pornography. Go to HealthyChildren.org/MediaUsePlan to create a plan that works for your family.

2. STRIKE A BALANCE

Balance screen use with reading and hobbies, as well as being with friends and family. Don’t forget 8-10 hours of sleep and at least an hour of exercise a day!

Create screen-free times and zones for the whole family — for example, at mealtimes, in the bedroom, while driving, and during homework.

Put devices to bed at least an hour before bedtime, and charge them outside of teens’ bedrooms.

3. BE A ROLE MODEL

Guide teens toward high-quality media. Watch and play together when possible. Encourage educational and creative games and apps that promote healthy social interactions. Use www.commonsensemedia.org to find movies, books, apps, and more.

Teach manners with devices, including putting away devices during conversations and meals (and model these behaviors, too!).

Talk about digital citizenship, which includes being safe and respectful online, respecting others’ privacy, and talking about any bullying or uncomfortable interactions with a trusted adult.

Review privacy settings with teens on their devices and social media platforms to make sure they’re keeping personal information private. Talk about how to navigate requests to share photos, passwords, or other private information with friends.

For helpful tips, visit commonsense.org

Common Sense is committed to making kids the nation’s top priority. We are a trusted guide for the families, educators, and advocates who help kids thrive. We provide resources to harness the power of media, technology, and public policy to improve the well-being of every child.
Son's Media Plan

Mobile devices & TVs are not allowed in the following screen-free zones in our home:

- Bedroom
- Kitchen or dining room table.

We will not use mobile devices or other screens during the following times:

- Family time
- Mealtimes
- One hour before bed

Devices will charge overnight in:

- Parent's bedroom

When we have recreational screen time, we will:

- Co-view (watching media with a parent or adult)
- Co-play (playing video games & using apps with a parent or adult)
- NOT play video games that are against our family’s rules both at home & at someone else’s house
- NOT download apps, movies, games without permission & asking an adult if they are appropriate for my age
- NOT visit new websites or video sites without asking permission
- Use media to be creative.
- Watch “educational” shows & use apps that have been reviewed & vetted by trusted sources to actually be educational such as PBS or Common Sense Media
- NOT spend lots of time watching fast-paced shows or apps with lots of bells & whistles

By decreasing screen time, we will have more time for:

- Looking at books, going to the library
- Playing outside
- Playing with blocks, Legos & puzzles
- Being with my family

We will be good digital citizens by:

- Telling a parent or other trusted adult if we get messages or photos that make us uncomfortable
- Do not give out personal information online
- Do not share private photos online
- Review Privacy Settings on all sites with your children
- Do notbefriend, chat with or virtually game with someone without a parent’s permission

We will get enough sleep & exercise by doing the following:

- Get 10-13 hours of sleep (including naps)
- Turn off the TV or mobile device one hour before bedtime

(Healthy Children.org)
APPENDIX G

DATA COLLECTION FORM

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
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<tbody>
<tr>
<td>1. Age of the Child</td>
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</tr>
<tr>
<td>2. Race/Ethnicity of child</td>
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<tr>
<td>3. Family Income</td>
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</tr>
<tr>
<td>4. On average, how many screened devices does the child have access to?</td>
<td></td>
</tr>
<tr>
<td>5. On average, how much time does the child spend on non-screened educational activities?</td>
<td></td>
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<tr>
<td>6. On average, how much time does the child spend on screened educational activities?</td>
<td></td>
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<tr>
<td>7. On average, how much time does the child spend on non-screened recreational screen use?</td>
<td></td>
</tr>
<tr>
<td>8. On average, how much time does the child spend in outdoor play</td>
<td></td>
</tr>
<tr>
<td>9. On average, how much time does the child spend parental interaction activities?</td>
<td></td>
</tr>
<tr>
<td>10. On average, how much total time does the child spend on screened devices?</td>
<td></td>
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</tbody>
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Screen use and Physical Play in Children Under 5 Years
Questioner

Demographic Information

Q1 MR number

Screened media plays a huge role in daily life for a large portion of families across the globe. Screen use and physical play impact the growth and development of our children.

As a doctoral nursing student at Texas A&M University-Corpus Christi, I am conducting a quality improvement project to better understand current screen use and physical play behaviors of families with children under 5 years of age. The goal of this quality improvement project is to inform families of the current American Pediatric Associations Screen Time Recommendations and to provide families the tools to develop healthy screen use behaviors.

Weight and height information may be collected as a part of this survey.

Completion of this survey indicates you are willing to participate in this project.

This study will involve:
1: Completion of this survey
2: Completion of a "Family Media Plan"
3: A follow up telephone call approximately 4 weeks after completion of this survey

If you have any questions or concerns, you may contact the Principal Investigator:
Q2 Please list your preferred follow up telephone number?

________________________________________________________________

Q3 Family Income

○ < $15,000
○ $15,000-$55,000
○ $55,000 or above

Q4 Who lives in the home with the patient

○ Please list
○ Other

Please answer the following questions on a regular day without regard to Quarantine related changes.

Q1 On average, how much time does the child spend on screened devices per day? (TV, tablet, cell phone, etc…)

○ less than 1 hour
○ 1-2 hours
○ 2-4 hours
○ 4-6 hours
○ Greater than 6 hours

Q2 On average, how much time does the child spend on screened educational activities per day? (TV, tablet, cell phone, etc…)

○ Less than 1 hour
○ 1-2 hours
○ 2-3 hours
○ 3-4 hours
○ Greater than 4 hours
Q3 On average, how much time does the child spend on non-screened indoor play per day? (Board games, reading, coloring, imaginative play, etc...)
- Less than 1 hour
- 1-2 hours
- 2-3 hours
- 3-4 hours
- Greater than 4 hours

Q4 On average, how much time does the child spend playing outdoor play per day?
- Less than 1 hour
- 1-2 hours
- 2-3 hours
- 3-4 hours
- Greater than 4 hours

Q5 On average, how much time does the child spend parental interaction activities?
- Less than 1 hour
- 1-2 hours
- 2-3 hours
- 3-4 hours
- Greater than 4 hours
Q1 Do you and the patient have access to the following

- A yard for play
- A park
- Outdoor play area/Swim area

Q2 Does the patient have access to the following

- TV
- Computer/laptop
- Tablet
- Video gaming systems
- Portable video gaming systems
- Cell phone
- Screened devices in a vehicle (DVD, etc..)
- Other

3 Does the patient have their own device from the list below

- TV
- Computer/laptop
- Tablet
- Video gaming systems
- Portable Video gaming systems
- Cell phone
- Screened devices in a vehicle (DVD, etc..)
- None
Q1 Do you limit use of any of the following during the week (Monday-Friday)?

- TV or Videos
- Computer/Laptop
- Videogames
- Tablet use
- Cell phone use
- None
- All of the above

Q2 Do you limit use of any of the following during the weekends (Saturday-Sunday)?

- TV or Videos
- Computer/Laptop
- Videogames
- Tablet use
- Cell phone use
- None
- All of the above

Q3 Do you have any rules related to use of screened devices? (TV, video games, tablet, computer, etc...)

- Yes
- No

Q4 How well are rules related to use of screened devices enforced? (TV, video games, tablet, computer, etc...)

- Not well at all
- Slightly well
- Moderately well
- Very well
- Extremely well
Q5 Who is responsible for setting rules related to use of screened devices? (TV, video games, tablet, computer, etc...)

○ ________________________________

Explicit Modeling

Q1 How often do you or another adult in the household play outside with your child?

○ Daily
○ 4-6 times a week
○ 2-3 times a week
○ Once a week
○ Never

Q5 How often do you or another adult in the household watch TV or play videogames with your child?

○ Daily
○ 4-6 times a week
○ 2-3 times a week
○ Once a week
○ Never

Implicit Modeling

Q1 Do you believe that children who do regular physical activity are more healthy

○ Definitely not
○ Probably not
○ Might or might not
○ Probably yes
○ Definitely yes
Q5 The following are good entertainment for my child.
- TV or Videos
- Computer/Laptop
- Video games
- Tablets
- Cell phones

Q6 The following devices helps my child learn.
- TV or Videos
- Computer/Laptop
- Video games
- Tablets
- Cell phones