

Do screen time policies matter? The association between the presence of screen time policies in child care facilities and child care provider knowledge, provider advocacy and facility practices.

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Table of Contents

Abstract	1
Introduction	4
Methods	7
Study Sample.....	7
Training Questions.....	7
Demographics.....	9
Categorization of Data and Free-Text Answers.....	9
Statistical Analysis.....	10
Results	12
Aim 1 – Sample 1	12
Aims 2 and 3 – Sample 2.....	13
Discussion	15
Conclusion	19
Figures and Tables	20
Appendix	28
Provider Knowledge Questions.....	28
Facility Practices Questions.....	29
Provider Advocacy Questions.....	31
References	33

Abstract

Background: Childhood obesity affects millions of children in the United States; the estimated prevalence of obesity among two to five year olds has doubled between 1980 and 2008. The American Academy of Pediatrics (AAP) and many agencies of the United States Department of Health and Human Services identify screen time as an important risk factor for childhood obesity. Screen time is commonly defined as time spent watching TV, videotapes, or DVDs, playing video or computer games, surfing the Internet, and anything else that requires watching a screen. Child care environments and the policies that impact those environments are a prime area for obesity prevention efforts including screen time reduction because a large proportion of children spend time in these settings.

Objectives: This study aims to 1) describe child care providers' screen time knowledge, provider advocacy with families around screen time issues, and child care facility screen time practices 2) examine whether factors such as child care facility type (home-based versus center-based) and years of child care experience are associated with knowledge, provider advocacy for screen time recommendations with families, and facility practices regarding screen time issues 3) investigate associations between screen time policies in child care facilities and child care provider knowledge, provider advocacy, and facility practices regarding screen time issues.

Methods: Training questions from a Washington State Training and Registry System (STARS) screen time training module called *Media Aware Child Care* were used to collect information regarding child care provider screen time knowledge, provider advocacy for screen time recommendations with families, facility screen time practices,

type of child care program provider works at (home-based or center-based facility), and whether the facility possesses a screen time policy. Knowledge, advocacy, and facility practices scores were calculated for each participant based on their answers to training questions. Two-sample *t* tests were used to compare knowledge, advocacy, and facility practices scores by facility type, years of child care experience and presence of screen time policy.

Results: Participants in this study were somewhat knowledgeable about screen time viewing statistics, adverse effects of screen time, and national screen recommendations. They reported feeling strongly towards educating family members about screen time issues. One-third of all participants reported they did not have or use TV in their child care facility. Center-based providers were more likely to report that their facility did not have/use TV compared to home-based providers ($p < .001$). Average knowledge scores were significantly higher for providers that worked at home-based facilities versus center-based facilities ($P = 0.003$). Years of child care experience was not a determinant of provider screen time knowledge, provider advocacy, and facility practices. In settings where a TV was used, child care providers who worked at child care facilities with an established screen time policy reported more positive screen time behaviors than providers who worked at facilities that did not have a screen time policy ($P < 0.001$).

Conclusion: This study supports the recommendation for child care facilities to develop screen time policies. Home-based facilities should specifically be targeted for intervention because of the high rates of screen time viewing. More efforts are needed

to educate all child care providers about screen time issues and promote site-based screen time policy implementation.

Introduction

Childhood obesity affects millions of children in the United States; the estimated prevalence of obesity among two to five year olds has doubled between 1980 and 2008 (1). With the future population at increased risk for developing chronic diseases at younger ages, it is imperative that early action be taken to promote and support healthy behaviors.

The American Academy of Pediatrics (AAP) and many agencies of the United States Department of Health and Human Services identify screen time as an important risk factor for childhood obesity (2, 3). Screen time is defined in the general literature as time spent watching television, videotapes, or DVDs, playing video or computer games, surfing the Internet, and anything else that requires watching a screen such as portable or handheld devices (4). The AAP recommends that children younger than two have no screen time and children two and older should limit screen time to one or two hours of high quality programming per day (5). However, it is estimated that the average amount of time children younger than two participate in screen time activities is one hour and 20 minutes per day while older children between ages eight and 10 on average engage in approximately four hours of screen media per day (6, 7). At 74% of total viewing, television continues to contribute the most to total screen time from birth to eight years of age (8). Importantly, the prevalence of obesity in children is highest among those who watch four or more hours of television per day and lowest among those who watch one or fewer hours of television per day (9). Greater levels of total screen time have been associated with adverse health and behavioral effects such as cardiovascular disease, type 2 diabetes, irregular sleep patterns, and poorer eating habits (10, 11, 12, 13, 14).

High screen time levels are related to psychological detriments such as poorer school performance, delayed language development, antisocial behavior, and aggressive behavior (15, 16, 17). Intervention studies have shown a positive influence of decreased amounts of screen time on both physical (e.g. obesity prevention) and psychological health (e.g. violent behavior prevention) (18, 19).

Child care facilities are a prime area of focus for obesity prevention because a large proportion of children spend time in these environments. In 2010, an estimated 71% of children younger than four received nonparental care in the United States (20). Many young children spend a considerable amount of time with screens while in child care facilities (21, 22). Thus, an effort to decrease screen time by establishing policies in all child care facilities has been recommended by many national and federal organizations such as the American Academy of Pediatrics, Institute of Medicine and Center for Disease Control and Prevention. The National Resource Center for Health and Safety in Child Care provides policy and practice recommendations for early care and education programs regarding screen time (23). A model screen time policy prohibits any form of screen time for children under age two and allows a maximum of 30 minutes of total screen time per week in no more than 15-minute increments of computer use for children over age two (23). Recommendations state that children of all ages should not be allowed to eat while the TV or other sources of screen time is on (23). Screen time in child care should only be utilized for educational or physical activity purposes (23). Lastly, it is recommended that children's screen time should be free of advertisements because advertisements have the ability to promote poor eating habits and age-inappropriate activities (24).

Child care settings provide opportunities for reaching families with screen time reduction messages. Child care programs should inform parents and guardians if screen media are used in their child care setting (23). The child care provider-parent relationship is very important to creating a supportive environment for a child's development. One study illustrates that more communication between mother and child care provider was related to more supportive and sensitive interactions between the provider and child, and mother and child (25). Fostering a good relationship between provider and parent sets the stage for an open dialogue about screen time issues, initiatives being taken in the child care facility, and current screen time practices at home. It is important that a child's development of new skills and healthy habits while in child care are consistent with what occurs outside of child care.

Child care providers are gatekeepers for screen time policies and environments in child care settings. Little research has focused on whether the presence of screen time policies in child care facilities is related to screen time outcomes. This study aims to: 1) Describe child care providers' screen time knowledge, provider advocacy with families around screen time issues, and child care facility screen time practices 2) Examine whether factors such as child care facility type (home-based versus center-based) and years of child care experience are associated with knowledge, provider advocacy for screen time recommendations with families, and facility practices regarding screen time issues in child care settings without TVs 3) Investigate associations between the presence of screen time policies in child care facilities and child care provider knowledge, provider advocacy with families, and facility practices regarding screen time issues in child care settings without TVs.

Methods

Study Sample

The University of Washington (UW) Center for Public Health Nutrition's Washington Active Bodies Active Minds (WAABAM) provides *Media Aware Child Care* as a free online training for early childhood professionals about ways to reduce screen time in child care settings. Child care providers may receive continuing educational credits upon completion of the training since *Media Aware Child Care* is Washington State Training and Registry System (STARS)-approved. During and after the training, participants complete training questions to assess their screen time knowledge, opinions of screen time-related scenarios, and child care facility screen time practices. Training questions are provided in the Appendix.

Media Aware Child Care's question data are continuously collected by the UW's Center for Public Health Nutrition's online database. Participants included in this study completed the training from November 8th, 2012 to January 2nd, 2013. Sample 1 (n=398) includes all child care providers in the study. Sample 2 (n=215) is a sub-group of sample 1 that only includes providers that do not have or use a TV in their child care facility (**Figure 1**). Providers were categorized as not having or using a TV in their facility if they answered "We do not have/use TV in our child care facility so we do not have a written screen time policy" in Question 11.

Training Questions

The training consists of 16 multiple-choice questions. Questions were categorized into three topics: knowledge, advocacy, and practices. Refer to the Appendix for training questions for each category.

Knowledge

Questions in this domain assess the provider's concrete knowledge of screen time usage, adverse effects of screen time, and national screen time guidelines. A higher score indicates that the child care provider answered knowledge questions correctly about screen time issues, whereas a lower score indicates a less-knowledgeable provider.

Advocacy

Questions in this domain assess the provider's proactivity in educating families about screen time issues. A higher score indicates a child care provider who strongly advocates for screen time issues when speaking with a family member or guardian, whereas a lower score indicates a child care provider who is less inclined to advocate for screen time issues.

Facility Practices

Questions in this domain assess the provider's facility's screen time practices. A higher score indicates a child care provider whose facility participates in more screen time-lowering behaviors, whereas a lower score indicates a facility that does not participate in many screen time-lowering behaviors. One particular question in this domain assesses whether or not the provider works at a child care facility with an official screen time policy. Sample 2 (n=215) is partitioned based on the answer to this question.

Each participant was assigned a total score for knowledge, advocacy, and practices based on a scoring scheme (**Figure 2**). A scoring method for each outcome variable was used to transform the categorical answers gathered from advocacy and

facility practices questions into quantitative data. The maximum amount of points possibly awarded to each participant for knowledge, advocacy and practices were seven, six and five, respectively. Details about the scoring system are provided in the Appendix.

Demographics

Demographic information obtained from the online training questions includes the child care provider's years of experience and type of child care facility the provider works at.

Categorization of Data and Free-Text Answers

In addition to multiple-choice responses, many questions offered the option to answer questions regarding demographics, behavior and attitude in free-text. These categories were as follows:

Years of Experience

Participants that reported having less than one year of child care experience were categorized as having 0.5 year of experience for analysis purposes.

Type of Child Care Facility

The five options available when asked what type of child care facility participants worked at included family child care home, early learning center, head start, preschool, and other. Five child care settings (before/afterschool program, Montessori, YMCA/Boys, and Girls Club, other [center], other [undistinguishable]) were added as categories to describe the participants in greater detail. The final eight child care facility categories were further

concentrated into two labels: home-based facility and center-based facility.

Facilities identified as a family child care home were labeled as a home-based facility. All other child care facilities (i.e. early learning center, Head Start, Preschool/Afterschool program, Montessori, YMCA/Boys and Girls Club, other [center]) were categorized as a center-based facility.

Advocacy and Facility Practices Questions

Free-text responses were either assigned to a comparable multiple-choice answer present for that particular question or recoded under the category “answer does not address the question” (**Table 1**). Free-text responses that were sensible but did not fit into any existing answer category were established as a new answer category (**Table 2**).

Statistical Analysis

Descriptive statistics were used to describe sample 1 (n=398) as a whole and also sample 1 segmented by the categories “does have/use TV” and “does not have/use TV.” Pearson Chi-Square test was used to determine if there was a difference observed between type of facility and whether the child care facility had/used TV. Means and proportions were also calculated for sample 2 (n=215). Two-sample *t* tests were used on sample 1 to compare knowledge, advocacy, and practices scores based on years of child care provider experience and whether participants worked at a home-based or center-based child care facility. Participants in sample 2 were also analyzed with two-sample *t* tests categorized by the presence of screen time policy at the provider’s child care facility. Since nine sets of comparisons were completed in this analysis, the Bonferroni correction determined that an alpha of 0.005 was appropriate to

verify statistical significance between comparison groups. All analyses were conducted using SPSS Statistical Software (version 21.0, 2012, IBM Corp, Armonk, NY).

Results

Aim 1 – Sample 1

Sample 1 includes information from all 398 participants. Descriptive statistics for sample 1 and sample 2 are shown in **Table 3**. A majority of participants (58%) correctly identified the American Academy of Pediatrics' screen-time guideline for children under two years old, however only 15% were familiar with the recommendation for children over the age of two. Almost all participants (99%) correctly identified the possible negative effects of receiving too much screen time at a young age. Common practices reported by participants include limiting screen time as transition activities (43%), not using screen time as reward or punishment (41%), and planning screen time activities ahead of time with TV listings or available DVDs (41%). Behaviors that were not as common amongst providers included covering, hiding or completely removing TVs from the room (12%) and putting posters about fun activities or turning off screens on the walls in their child care facility (9%). In a hypothetical scenario where participants have the opportunity to make a difference in the amount of screen time a child receives, a minority of participants (7% or less) reported that they would do or say nothing.

Participants were more likely to take an active stance for screen time issues in situations regarding screen time usage in the child care facility. However, participants were less inclined to take an active stance for screen time issues in a scenario that involved speaking to guardians about screen time viewing in the child's home setting.

One-third of participants in sample 1 reported they did not have/use TV in their child care facility, whereas two-thirds reported they do have/use TVs (**Table 4**). Center-based providers were more likely to report that their facility did not have/use TV

compared to home-based providers ($p < .001$). Amongst those who reported having/using TVs in child care facilities, approximately half of the participants had screen time policies and half did not. Sample 1 participated in minimal amounts of screen time-reducing practices on average. Average knowledge and advocacy scores for have/use TV and do not have/use TV groups were comparable.

Aims 2 and 3 – Sample 2

After exclusion criteria were applied to sample 1, 215 child care provider participants were used for sample 2 analyses. Sample 2 included all providers that had TVs. Both sample 1 and sample 2 analysis groups were similar in distribution of child care provider experience and score averages (**Figure 3 and Figure 4**). Sample 2 had a more balanced representation of home-based providers (43%) and center-based providers (57%) compared to sample 1 (32% and 66%, respectively). The proportion of providers with zero to 10 years and 11 to 43 years of child care experience was evenly distributed, as was the proportion of providers that did and did not have a screen time policy in their child care facility (53% and 43%, respectively).

Comparative analyses for sample 2 are shown in **Table 5**. Average knowledge scores were significantly higher for providers that worked at home-based facilities versus center-based facilities ($P = 0.003$). A primary association was seen between less experienced and more experienced provider groups in the advocacy score category ($P = 0.027$), but it was no longer considered significant under the corrected P value of 0.005. Years of provider child care experience was not a determinant of provider screen time knowledge, provider level of screen time advocacy, or facility screen time practices.

Child care providers' facilities that had established screen time policies provided more appropriate screen time-reducing encounters ($P < 0.001$) compared to providers who worked at facilities without a screen time policy. Although there was a primary association ($P = 0.036$) seen between the groups regarding average attitude scores, the relationship was no longer significant after correcting for multiple comparisons. Average advocacy scores across the different comparison groups were similar to the whole group's average score of 4.40 out of 6 points.

Discussion

Evidence gathered from this study suggests that child care providers can successfully exclude TVs from their facilities and that the presence of screen time policies in child care facilities that have TVs is associated with more screen time-reducing practices. This supports the national recommendation for child care facilities to establish screen time policies. There is currently no federal law that restricts the amount of screen time children are allowed in child care settings. Seventeen states have screen time regulations in child care centers, and 15 states regulate screen time in child care homes (26). However, each state's regulations vary and do not necessarily align with National Resource Center for Health and Safety in Child Care's screen time recommendations (26).

This study supports previous findings that there are differences between home- and center-based child care settings. Toddlers and preschool-aged children receive significantly more hours of TV in home-based child care facilities compared to center-based facilities (21, 22). Tandon *et al* found that children who attend home-based child care programs receive suboptimal amounts of physical activity (27). Among facilities that had/used TVs, data from this study shows no significant difference in home and center-based screen-reducing practices. In this study, home-based child care providers had higher knowledge of screen time issues than center-based providers. This leads to the assumption that a more educated provider would also participate in more screen time-reducing practices, although this was not observed. One possible explanation for this contradiction is that individual provider knowledge may not be a large determinant in decreasing screen time viewing in child care facilities.

A stronger influence on screen time viewing could be the presence of a screen time policy that instates and demands commitment to behavior change. This study supports this idea since data shows that child care facilities with screen time policies have more favorable screen time practices than those without a policy. About one-third of participants in this study stated that they did not have/use TV in their child care facility and did not have a screen time policy. These child care facilities are still encouraged to develop official screen time policies because it illustrates to staff and parents that the facility and staff members are dedicated to this concerning issue. Exposing child care providers to screen time issues and providing a framework for providers to follow helps support screen time-reducing endeavors in child care settings.

Although data on the average amount of screen time children received in child care were not available, it is important to acknowledge the potential difference that providers can play in decreasing screen time within the child care setting. Data from the Early Childhood Longitudinal Study-Birth Cohort estimated that children receive about three and a half hours of TV per day at home and about half an hour of TV per day in the child care setting (21). Thirty minutes may seem insignificant, however it meets 25% of the recommended daily screen time usage for children less than two years of age set by the AAP. Eighty percent of children younger than the age of five with working mothers spend about five days a week enrolled in nonparental care, so even small decreases in child care screen time can make a difference for population health (28).

Child care providers have the opportunity to not only influence how much screen time children receive in child care, but they also have a role in communicating with parents about screen time issues (29). Current guidelines established by the National

Resource Center for Healthy and Safety in Child Care and Early Education suggest that parents should be informed if screen media are used in child care facilities (23). Many participants in this study reported being outspoken about screen time concerns with parents. The Kaiser Family Foundation emphasizes that a parent's beliefs and habits regarding media are strongly related to how much time their children spend with media (30). Therefore, screen time interventions can focus on educating child care providers about screen time recommendations and providing the training and resources needed for providers to confidently speak to parents about these issues. Intervention studies are needed to further determine the effectiveness of this approach to decrease screen time viewing by reaching families through child care settings.

There are some limitations to our study. The training question results are descriptive and only present a cross sectional description of the provider's knowledge, provider advocacy, and facility practices relating to screen time. Thus, we are unable to establish causality between screen time policies in child care facilities and provider knowledge, provider advocacy and facility practices.

There are a couple of factors that limit the generalizability of the results. One is the potential for selection bias. Training results are collected from participants enrolled in a voluntary online training. Child care providers receive educational units when they complete the training and survey. Thus, people who take the STARS *Media Aware Child Care* may already have a greater interest of screen time issues compared to the general population of providers, which limits the generalizability of study results. A second limitation is that *Media Aware Child Care* training was designed to meet the continuing education needs of Washington state providers. Therefore, the majority of

respondents are from Washington state, which limits the generalizability of study results compared to other states.

Lastly, this study focuses on TV as the main source of screen time, however the definition of screen time includes many other outlets such as computer screens and handheld devices. It is becoming increasingly difficult to account for a child's total screen time exposure throughout the day when mobile handheld devices have become more popular and accessible for younger children. Half (52%) of all children now have access to one of the mobile devices at home: smart phone (41%), video iPod (21%), or iPad/Tablet (8%) (8). This makes it challenging to quantify screen time exposure, create new intervention strategies, and develop research.

Conclusion

This study supports the recommendation for child care facilities to develop screen time policies. Although the data described were only associations, the results provide evidence to warrant controlled intervention studies on the establishment of screen time policies to change child care environments. There are different levels of intervention possible for decreasing screen time in child care programs such as changing state child care licensing requirements, encouraging child care providers to voluntarily participate in Quality Rating & Improvement System (QRIS) standards, and training and educating individual providers (31). Home-based facilities should continue to be targeted for intervention because of the high rates of screen time viewing. Establishing screen time policies and encouraging screen time-reducing practices appears feasible in both center-based and home-based child care facilities. These policies and practices can be integrated into comprehensive plans to promote appropriate uses of screens in health care and school settings as well. More efforts are needed to educate all child care providers about screen time issues and promote site-based policy screen time policy change.

Figures and Tables

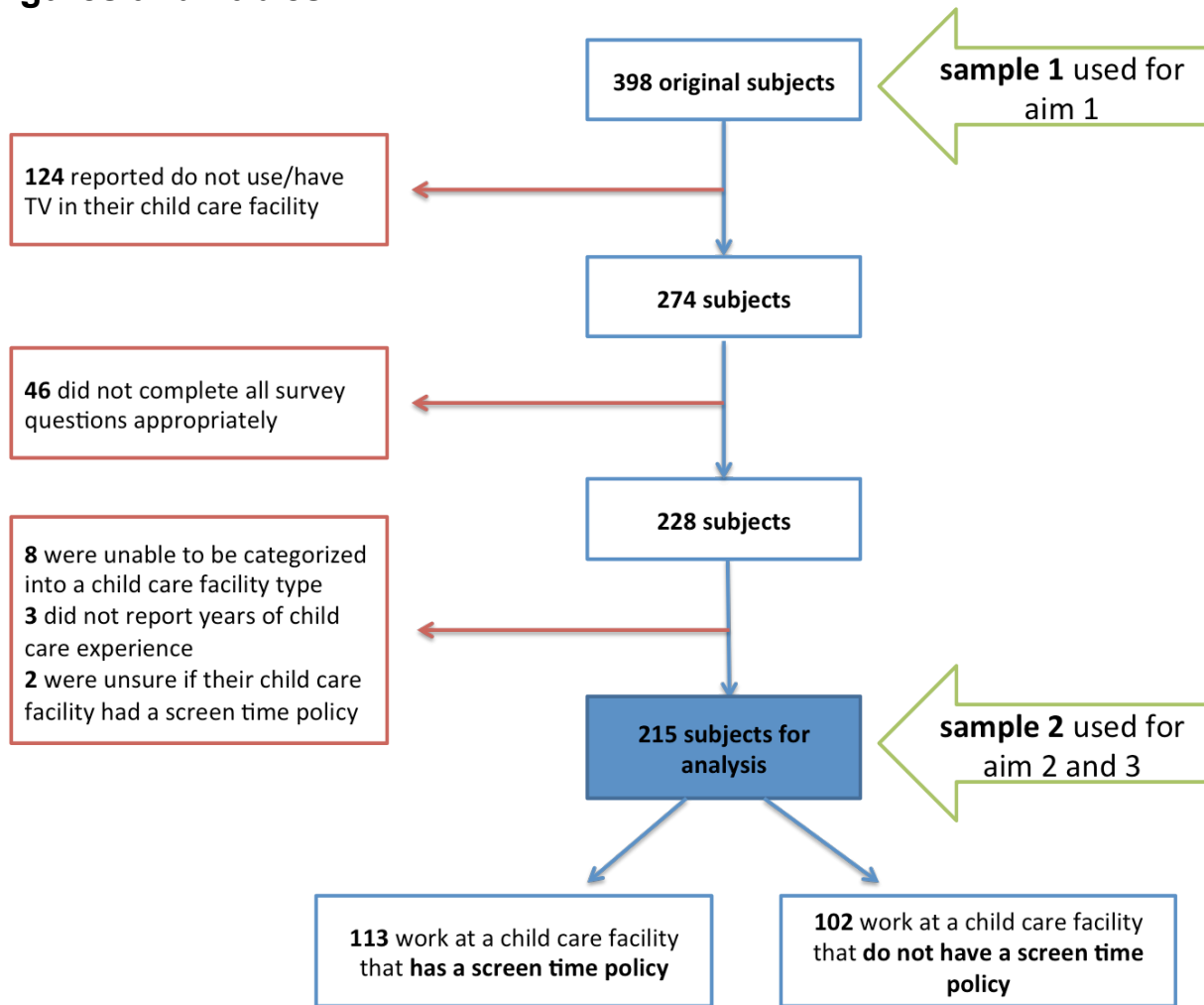


Figure 1
Sample groups for each study aim.

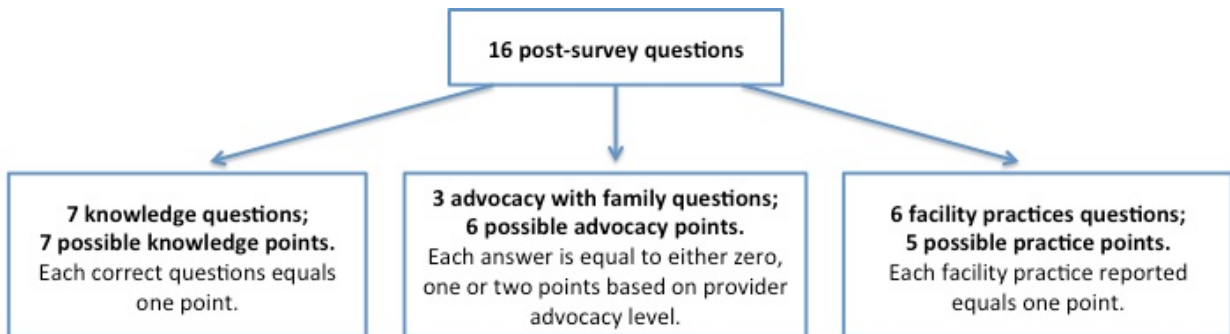


Figure 2
Division of question domains and question scoring schemes.

Figure 3

Histogram plots that illustrates the sample 1's (n=398) normal distribution of average survey scores and left-skewed years of child care provider experience.

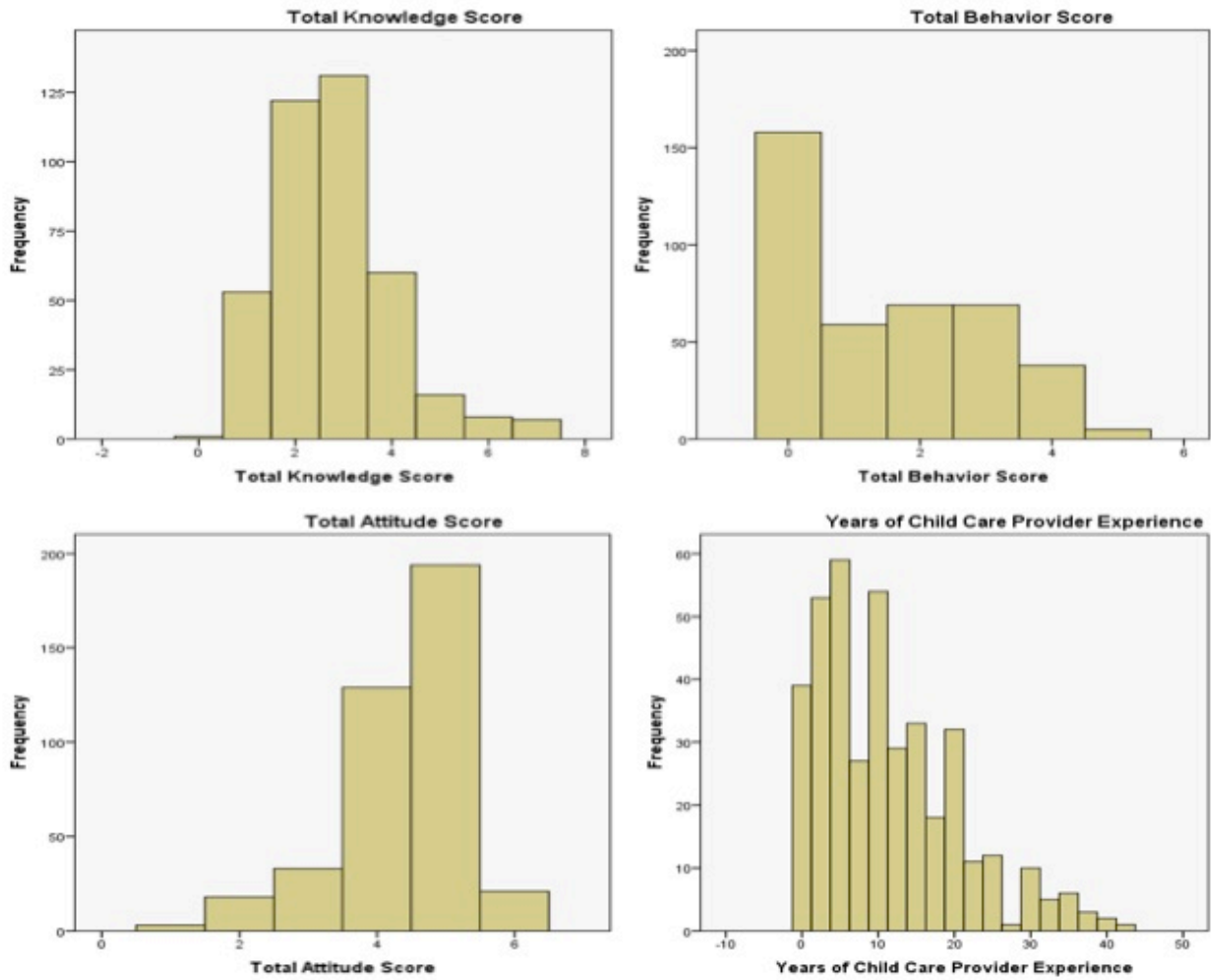
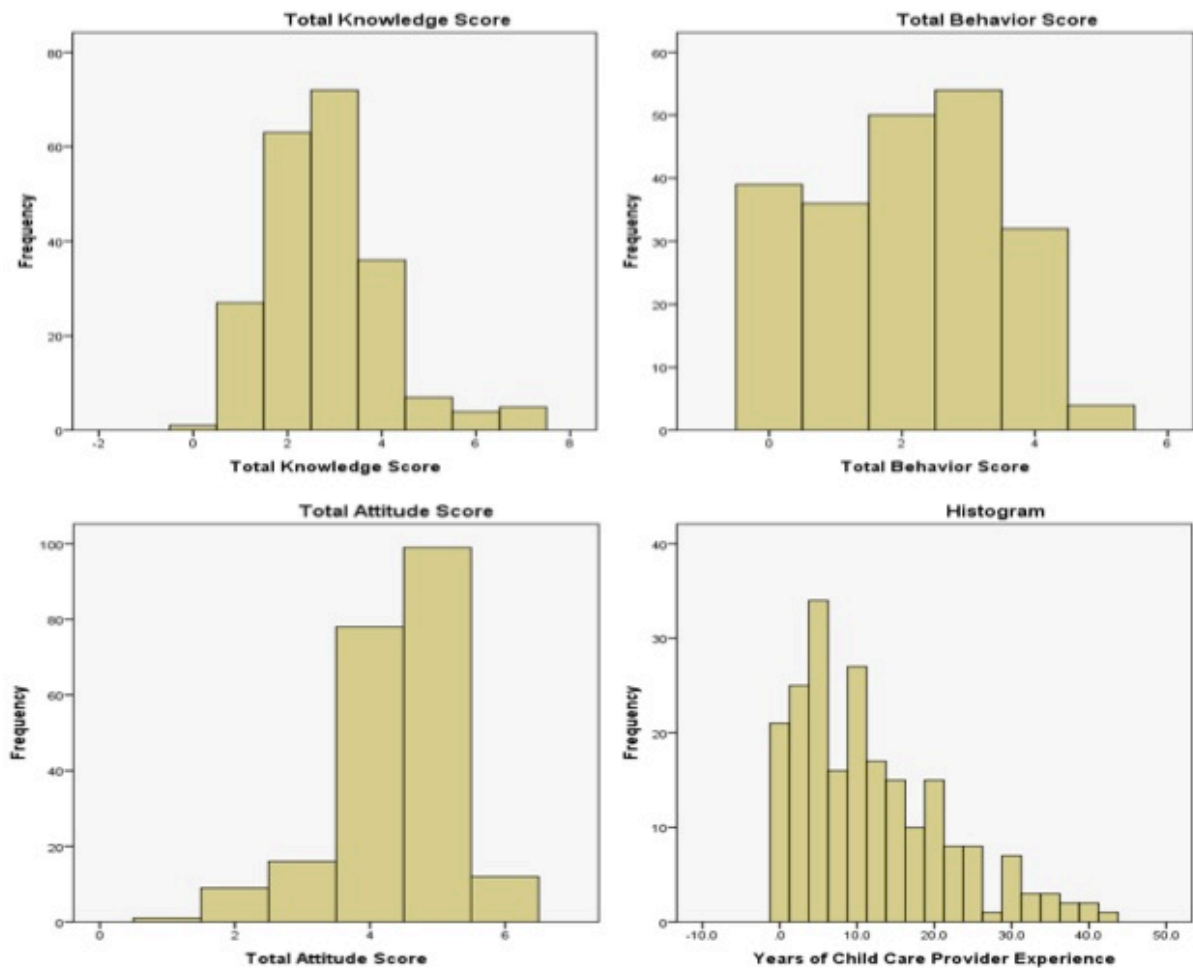


Figure 4

Histogram plots that illustrates sample 2's (n=215) normal distribution of average survey scores and left-skewed years of child care provider's experience.



Free-text Response	Re-categorization of Free-text Response
Question 8 "TVs are not stored in the classroom/buildings/rooms" "We rarely/barely use TVs in our child care facility"	We already do this in our child care facility Answer does not address the question
Question 9 "We do not use TVs as a transition time activity" <i>Examples of screen-free transition activities done in place of using screen time</i> "We rarely/barely use TVs at our facility"	We already do other screen-free transition activities in our child care facility Answer does not address the question
Question 10 <i>Quantity of TV watched</i>	Answer does not address the question
Question 11 "We do not use the TV often"	Answer does not address the question
Question 12 <i>Examples of how TV/DVD time is scheduled</i> "We only watch TV very seldom"	We already schedule our TV/DVD programs ahead of time at our child care facility Answer does not address the question
Question 13 "We do not watch enough TV to need posters" "Yes" <i>Examples of amount screen time is limited</i>	I am not sure how posters would reduce screen time Answer does not address the question
Question 14 <i>Off-topic answers</i>	Answer does not address the question
Question 15 "I would ask parents to try music to soothe their child and inform them about our facility's screen time policy" "We do not have a TV" "We do not have naptime"	Inform parents of your screen time policy and naptime routine Answer does not address the question
Question 16 "I would mention the commercial to the child's parent" <i>Examples of actions that do not address the issue of screen time and advertisement influence</i>	Mention to the parent that one particular TV commercial has made quite an impression on their child. Maybe make a joke about it but do not say anything else. Answer does not address the question

Table 1

Re-categorization of behavior and attitude free-text responses. Italicized text indicates the topic of free-text answers reported.

Free-text Response	New Answer Category
Question 10 <i>Examples of situations when screen time is used as a reward or punishment</i>	I use TV as a reward or punishment
Question 11 "I am not sure if my child care facility has a screen time policy"	I am not sure if my child care facility has an established screen time policy
Question 13 "We do not watch TV often, but we could send posters home" "Sending posters home is a good idea"	Although we have/use TV, we could have the children make posters and bring them home
Question 14 <i>Examples of screen time topics participants would discuss with parents</i> <i>Examples of how participants would provide information about screen time issues</i>	I would directly talk to parents about screen time issues I would passively provide information about screen time issues

Table 2

Creation of new survey responses using behavior and attitude free-text responses. Italicized text indicates the topic of free-text answers reported.

Table 3

Descriptive characteristics of all participants in sample 1 (n=398), sample 2 (n=215), and survey scores.*

Characteristics and Survey Scores		
<i>N</i>	398	215
Child care facility reported n(%)		
Family child care home	126 (32%)	92 (43%)
Early learning center	126 (32%)	62 (29%)
Preschool	61 (15%)	30 (14%)
Before/after school	32 (8%)	15 (7%)
Head Start	10 (3%)	3 (1%)
YMCA/Boys and Girls Club	5 (1%)	3 (1%)
Other (center)	26 (7%)	10 (5%)
Other (undistinguishable)	8 (2%)	--
Child care facility type n(%)		
Home-based child care facility	126 (32%)	92 (43%)
Center-based child care facility	264 (66%)	123 (57%)
No Response	8 (2%)	--
Years of child care provider experience		
0-10 years	218 (55%)	103 (52%)
11-43 years	177 (44%)	112 (48%)
No Response	3 (1%)	--
Presence of Screen Time Policy		
Yes	138 (35%)	113 (53%)
No	116 (29%)	102 (47%)
I am not sure	2 (1%)	--
Answer does not address the question	6 (2%)	--
We do not have/use TV	136 (34%)	--
Average knowledge score (0-7)	2.78	2.82
Average advocacy score (0-6)	4.40	4.40
Average facility practices score (0-5)	1.46	2.07

*Values are rounded-up to the nearest percentage.

Table 4

Descriptive characteristics of all participants in sample 1 that do not have/use TV and those that have/use TV in the child care facility. *

Characteristics and Survey Scores	do have/use TV	do not have/use TV
<i>N</i>	254	136
Child care facility type n(%)		
Home-based child care facility	113 (44%)	11 (8%)
Center-based child care facility	137 (54%)	121 (89%)
No Response	4 (2%)	4 (3%)
Years of child care provider experience		
0-10 years	134 (53%)	80 (59%)
11-43 years	117 (46%)	56 (41%)
No Response	3 (1%)	0 (0%)
Presence of Screen Time Policy		
Yes	138 (54%)	-
No	116 (46%)	-
We do not have/use TV	-	136 (100%)
Average knowledge score (0-7)	2.79	2.79
Average advocacy score (0-6)	4.36	4.46
Average facility practices score (0-5)	2.09	0.26

*Values are rounded-up to the nearest percentage.

Table 5
 Sample 2's comparison of average screen time knowledge, advocacy and practices scores according to child care facility type, years of child care experience and screen time policy.

	Less Experienced	More Experienced	P	Home-Based	Center-Based	P	Screen Time Policy	No Screen Time Policy	P
N	112	103	NS	92	123	NS	113	102	NS
Knowledge score, mean ± SD	2.88 ± 1.39	2.82 ± 1.14	0.652	3.12 ± 1.44	2.60 ± 1.10	0.003*	2.93 ± 1.28	2.71 ± 1.28	0.204
Advocacy score, mean ± SD	4.33 ± 0.99	4.48 ± 0.79	0.027 [†]	2.02 ± 1.27	2.11 ± 1.46	0.630	4.52 ± 0.82	4.26 ± 0.96	0.036 [†]
Practices score, mean ± SD	1.92 ± 1.37	2.24 ± 1.37	0.175	4.32 ± 0.92	4.46 ± 0.88	0.233	2.47 ± 1.31	1.64 ± 1.32	<0.000*

* P < 0.005 is statistically significant

[†] P < 0.05 is statistically significant without consideration of the Bonferroni correction

NS Not significant

Appendix

Media Aware Child Care's Training Questions

Multiple-choice answers non-italicized are from the original survey. Italicized answer-categories were created from free-text answers. Next to each multiple-choice option in parentheses is the point value given per answer. A score for each domain can be calculated based on how participants answered each question.

Provider Knowledge Questions

- 1. About how many hours do preschool children spend in front of screens each day?**
 1. Less than 1 hour (0 points)
 2. 1-2 hours (0 points)
 3. 2-3 hours (0 points)
 4. 3-4 hours (0 points)
 5. more than 4 hours (1 point)

- 2. About how many preschool children have a TV in their bedroom?**
 1. $\frac{1}{4}$ (0 points)
 2. $\frac{1}{3}$ (1 point)
 3. $\frac{1}{2}$ (0 points)
 4. $\frac{2}{3}$ (0 points)

- 3. About how many young children (ages 0-6) live in a home where the TV is on most or all of the time?**
 1. $\frac{1}{4}$ (0 points)
 2. $\frac{1}{3}$ (1 point)
 3. $\frac{1}{2}$ (0 points)
 4. $\frac{2}{3}$ (0 points)

- 4. Too much screen time in early childhood can affect which aspects of child development later in life?**
 1. Lifestyle habits (0 points)
 2. Health (0 points)
 3. Academic performance (0 points)
 4. Behavioral and social skills (0 points)
 5. All of the above (1 points)

- 5. Children watch about ____ TV commercials each year.**
 1. 10,000 (0 points)
 2. 20,000 (0 points)
 3. 30,000 (0 points)
 4. 40,000 (1 point)

6. According to the American Academy of Pediatrics, what are the screen-time guidelines for children under 2 years of age?

1. No television viewing is recommended (1 point)
2. No more than 30 minutes a day (0 points)
3. No more than 1 hour a day (0 points)
4. No more than 2 hours a day (0 points)

7. According to the American Academy of Pediatrics, what are the screen-time guidelines for children 2 years of age and older?

1. No television viewing is recommended (0 points)
2. No more than 1 hour a day (0 points)
3. No more than 2 hours a day (1 point)
4. Screen time does not have to be limited if the programming is educational (0 points)

Facility Practices Questions

8. Place a cover over the TV, hide it, or completely remove it. How do you think the children would react if, when they arrived at your home/center one day, the TV was off and there was a cover over it?

1. They would not even notice. (0 points)
2. They would notice at first but then forget about it. (0 points)
3. They would notice right away and continue to ask about it until cover is removed/TV brought back out. (0 points)
4. We already do this in our child care facility. (1 point)
5. We do not have/use TVs in our child care facility. (0 points)

9. Limit the use of screens as a transition between activities, for example, when making lunch or caring for other children. Do you use TV as a transition between activities? For example, when making lunch, when getting the children ready for a nap, or when waiting for parents to pick up the children? Would you consider playing music instead? How about playing ocean sounds? Soothing music/sounds after lunch may help relax the children and settle them down to sleep. What about having the children each pick out a book for the day? Then, ask the children to read their books while you are making lunch or while they are waiting to be picked up.

1. I am sure I can find other screen-free activities to keep the children occupied and quiet. (0 points)
2. I would like to do this but I am worried about the children's safety when I am doing other tasks. (0 points)
3. I would like to do this but the TV is the only thing that seems to keep the children occupied and quiet. (0 points)
4. We already do other screen free transition activities in our childcare facility. (1 point)
5. We do not have/use TVs in our child care facility. (0 points)

10. Avoid using screens as a reward or punishment. Do you use TV as a reward or punishment? Do you ever tell the children, “if you behave, we can watch a DVD or a cartoon?” or “if you do not behave, I will turn off the TV”? Are there other activities that the children enjoy just as much that do not involve screens? For example, an extra story, extra time outside, or stickers can be used to reward good behavior.

1. I am sure I can find screen free activities to reward good behavior. (0 points)
2. The children really like watching TV/DVDs, so why not use it as a reward? (0 points)
3. We already avoid the use of screens as reward/punishment in our child care facility. (1 point)
4. We do not have/use TVs in our child care facility. (0 points)
5. *We use TV as a reward or punishment.* (0 points)

11. Have a written set of guidelines (a policy) on limiting screen time in your child care facility. Does everyone (children, staff and parents) know what the rules are for screen time? Would having a written set of guidelines (a policy) on the wall or in your parent handbook help reduce the amount of screen time for children?

1. We do not have a policy but I think it'd be beneficial. (0 points)
2. I am not sure how having policy would reduce screen time. (0 points)
3. I am not sure what to include in an official screen time policy. (0 points)
4. We already have an official screen time policy for our childcare facility. (1 point)
5. We do not have/use TV in our childcare facility so we do not have written screen time policy. (0 points)
6. *I am not sure if we have a screen time policy.* (0 points)

12. Plan ahead with the TV listings or available DVDs, and select only quality programs to watch that day or week. Would planning ahead with the children help reduce screen time? For example, going through the TV listings and picking out quality programs, and only switching the TV on for those programs? Or selecting a really good DVD and having that be the only one you watch for the day?

1. I am sure I can plan out TV programs ahead of time, and keep to the schedule. (0 points)
2. It is very easy to turn on the TV to a children's TV. Playing a DVD is even easier. Why plan ahead? (0 points)
3. We already schedule our programs ahead of time at our child care facility. (1 point)
4. We do not have/use TVs in our child care facility. (0 points)

13. Put up posters about fun activities or turning off screens. Would putting up posters saying “switch off the TV” be useful in helping to reduce screen time?? Would it help remind you not to switch on the TV?

1. I think it would be fun for the children to make posters. (0 points)
2. I am not sure how posters would reduce screen time. (0 points)
3. Is there a premade poster I can use? (0 points)
4. We already have posters like this in our child care facility. (1 point)
5. Since we do not have/use televisions, we could have the children make posters and bring them home. (0 points)
6. *Yes, putting up posters would help reduce screen time levels.* (0 points)
7. *Although we have/use TV, we could have the children make posters and bring them home.* (0 points)

Provider Advocacy Questions

14. One morning, one of the parents is dropping off their child. They excitedly mention that they just bought a new flat screen TV and put the old TV in the child’s bedroom. How would you respond to this parent?

1. Say nothing. Parents do not like to get advice unless they ask for it. (0 points)
2. Say nothing now (drop off is not the right time) but maybe bring it up at the next parent-teacher conference. (1 point)
3. Provide information about the harmful effects of TV in the bedroom in the next parent newsletter. (1 point)
4. Suggest they donate or recycle the TV. (2 points)
5. *I would passively provide information about screen time issues to the parents.* (1 point)
6. *I would directly talk to parents about screen time issues.* (2 points)

15. A new family has enrolled their son in your childcare program. When they drop him off for the first time, they mention that they have had problems getting him to nap during the day. The only way their son will take a nap is if the TV is on. What do you do?

1. Turn on the TV for this child during nap time (you want to avoid any potential problems). (0 points)
2. Explain to the parents that you would prefer to try music or a story instead. (1 point)
3. Inform parents of your screen-time policy and nap-time routine. (2 points)

16. One child refuses the food you offer her and instead demands the newest sugary cereal she saw advertised on TV. She even sings parts of the commercial jingle over and over again. What do you say to the parent when they come to pick up their child?

1. Say nothing. Children ask for things they see on TV all the time. (0 points)
2. Mention to the parent that one particular TV commercial has had made quite an impression on their child. Maybe make a joke about it but do not say anything else. (1 point)
3. Mention to the parent that one particular TV commercial has made quite an impression on their child. Then talk to them about the harmful effects of food advertising. (2 points)
4. Talk about the harmful effects of food advertising at the next parent night or in the next parent newsletter. (2 points)

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