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Effect of Screen Exposure on Vocabulary Development in children: A Comparative study on Malayalam-Speaking Working and Non-Working Parents in Kuwait

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Abstract: Screen exposure has become an integral part of early childhood; however, excessive screen use may negatively influence language development, particularly vocabulary acquisition. The present study aimed to examine the effect of screen exposure on vocabulary development in Malayalam-speaking children and to compare outcomes between children of working and non-working parents in Kuwait. Participants were categorized into two groups based on parental employment status, and a questionnaire-based survey method was used for data collection. The study was conducted in two phases: Phase I involved the development of a 25-item questionnaire validated by five licensed speech-language pathologists in Kuwait, and Phase II involved administering the questionnaire to parents of children aged 3–4 years. The questionnaire assessed screen exposure patterns, parental interaction, and vocabulary-related outcomes. The findings revealed variability in screen exposure and vocabulary development, with children of non-working parents demonstrating better vocabulary outcomes, greater parental interaction, and more controlled screen exposure compared to children of working parents, who showed relatively higher screen exposure and lower vocabulary-related responses. Overall, the results suggested that increased screen exposure may be associated with reduced vocabulary development, while active parental involvement and controlled screen use contribute positively to language outcomes.

Keywords: Screen exposure, vocabulary development, Malayalam-speaking children, parental employment status, Kuwait

INTRODUCTION

In the contemporary early childhood setting, digital media is an integral part of the children's daily life, and its influence is considerable on the contexts in which children develop and learn. The idea of screen exposure is now an important topic in the domain of developmental sciences, especially in the domain of children's language development. Screen time, when focused on children, typically includes the amount of time spent residing and being active in front of a screen on television, social media, smartphones, or video games. According to the American Academy of Pediatrics,(AAP,2016) screen exposure has been defined as "the total time spent with digital media, and both the amount and quality of exposure are critical in determining developmental effects." Earlier, Christakis (2009) similarly characterized screen time as a sensory experience for young children, and one that can either facilitate or interfere with development when children engage with such exposures. On this basis, Madigan et al. (2019) introduced a new conceptualization to screen exposure with that of direct versus indirect exposure (eg, background television, which distracts from caregiver-child communication whether or not a child is a "frontline" user of screen technology). Also, as stated by Domingues-Montanari (2017), screen time, compared to exposure to television, has turned out to be more immersive and frequent with the introduction of personalized and easy to carry around devices (digital media) and has been more static by nature. Amid this fluctuating digital climate, the early years of language acquisition and more specifically, the building of the child's lexicon is observed to be greatly influenced by the environment. Vocabulary acquisition is a relatively new area of enquiry and it can be defined as "children's learning to understand and use words". The vocabulary growth in children is affected by the linguistic input quantity and quality from their caregivers (Hoff, 2013).

Similarly, Fenson et al. (2007) explained the acquisition of early vocabulary as an extremely rapid and dynamic process in the toddler stage, also called the "vocabulary spurt," and is found to be highly dependent on social interaction. Rowe (2012) further explained that not only is the quantity of input important, but the

quality of caregiver speech, especially the use of varied and responsive speech, is also significant in the development of the child's vocabulary. Moreover, Weisleder and Fernald (2013) have shown that the efficiency of the toddler's real-time language processing is directly related to the amount of child-directed speech they are exposed to, thus reinforcing the importance of interaction in the child's communication world. Considering this high level of dependency on interaction, the increasing screen time has also been a point of concern with regard to its impact on the natural language learning environment of young children.

Among the earliest explanations of how screen time might impact the development of vocabulary is the notion that it replaces time interacting with caregivers. Madigan et al. (2020) reported higher screen use was associated with lower expressive vocabulary scores, with parent-child verbal engagement as a mediator. Too much screen time in infancy and toddlerhood has also been shown to result in less language input from caregivers, thereby affecting vocabulary development negatively, according to Zimmerman et al. (2007).

Anderson and Subrahmanyam (2017) also found that passive screen time does not provide the contingent responsiveness necessary for language learning, as screen time does not respond to the child's communication attempts in the same manner as interaction with another human being. This is also aligned with the displacement hypothesis, with screen time displacing time that could have been spent contributing to caregivers dish social interaction and linguistically rich endeavors, Kirkorian et al. (2009).

According to Linebarger and Vaala (2010) in addition to this, exposure type and context to screens are determinants of vocabulary outcomes as well. Although educational programming may be advantageous for language learning, success is contingent on a number of factors including adult involvement. Furthermore, Barr (2019) explained the "video deficit effect," which accounts for young children's struggles to transfer learning from a two-dimensional screen to a three-dimensional environment, most particularly without adult mediation. Radesky et al. (2014) that frequent use of mobile technologies by parents may compromise interaction and therefore, vocabulary results.

To that end, a good number of speech language pathologists (SLPs) contributed to helping to reduce the risk that could be posed to young children as a result of screentime exposure. They can provide a unique evaluation of the earliest communication abilities and development of babies and young toddlers, determine whether the young child is experiencing any delays, and guide parents on the best way to communicate. American Speech Language Hearing Association (ASHA, 2020) also stresses the significance of early intervention / parent education regarding language acquisition, especially when risk factors, such as increased screen time, are present.

They also promote and support parents in using responsive communication, book sharing, and play that is interactive, all of which contribute to vocabulary development. Moreover, SLPs also help parents use digital media appropriately, such as through co-viewing and engagement, rather than just consumption. In multilingual communities, the role of SLPs is even more important, as they need to take into consideration the complexity of language and cultural influences while planning intervention programs for parents.

A substantial body of research from Western countries has consistently documented the relationship between screen exposure and language development. Madigan et al. (2020) conducted a meta-analysis study demonstrating that increased screen time at age two was associated with poorer language outcomes at age three. Zimmerman et al. (2007) found that each additional hour of daily television exposure in infants was linked to a measurable decline in vocabulary scores. Linebarger and Vaala (2010) further highlighted that the benefits of educational media are limited without active parental involvement. More recently, McArthur et al. (2022) reported that excessive screen exposure in early childhood is associated with delays in expressive language and reduced social communication skills. These studies collectively suggest that while digital media is pervasive, its unregulated use may have detrimental effects on early language development.

Parallel findings have emerged from Asian and Indian contexts, where rapid technological adoption has transformed early childhood experiences.

Chonchaiya and Pruksananonda (2008) found that Thai children exposed to more than two hours of television per day were significantly more likely to exhibit language delays. In India, Sharma et al. (2021) reported that increased smartphone usage among toddlers was associated with reduced parent-child interaction and delayed expressive vocabulary.

Kumari et al. (2021) observed that children with higher screen exposure demonstrated poorer performance on language assessment measures compared to those with limited exposure. These studies indicate that the impact of screen exposure on language development is a global phenomenon, though cultural and familial factors may influence its extent and manifestation.

Research in Middle Eastern contexts, though comparatively limited, has begun to address this emerging concern. Alroqi et al. (2023) reported that excessive screen exposure among young children in Saudi Arabia was associated with delayed language development and reduced communicative behaviors. Al-Hosani et al. (2023) conducted a study in the United Arab Emirates (UAE) found that children in expatriate families were particularly vulnerable to language delays due to inconsistent language input and increased reliance on digital media.

NEED OF THE STUDY

The impact of screen exposure on early language development has been widely studied in Western and Asian countries, where research has consistently shown that excessive screen time is associated with reduced caregiver–child interaction and poorer vocabulary outcomes. Increased screen use may limit opportunities for meaningful communication, thereby affecting children's language development. Although these findings provide important global insights, cultural practices, family environments, and media usage patterns vary across regions, limiting the generalizability of existing research.

Despite the increasing use of digital media and the multicultural population in Kuwait, there is limited research examining the effect of screen exposure on vocabulary development among Malayalam-speaking toddlers. Kuwait represents a unique sociolinguistic context where children are exposed to multiple languages, and factors such as parental employment status may influence both screen exposure and language learning experiences.

Therefore, investigating the effect of screen exposure in this population is essential to generate culturally relevant evidence, support parent-focused intervention strategies, and promote optimal language development.The present study seeks to examine the effect of screen exposure on vocabulary development among Malayalam-speaking children in Kuwait, with a specific focus on comparing children of working and non-working parents.

METHOD

AIM OF THE STUDY

The aim of the present study is to examine the effect of screen exposure on vocabulary development in Malayalam-speaking children aged 3 to 4 years and to compare outcomes between children of working and non-working parents in Kuwait using a structured closed-ended questionnaire.

PARTICIPANTS

The study included a total of 60 parents of children aged 3–4 years from Malayalam-speaking families. The participants were divided into two groups 30 working parents and 30 non-working parents in Kuwait.

Inclusion Criteria

Parents of children aged 3–4 years who were native Malayalam speakers and had no reported history of hearing, speech, language, cognitive, or neurological disorders were included in the study.

Exclusion Criteria

Parents of children with any diagnosed developmental delays, neurological conditions, or significant medical issues affecting development were excluded.

PROCEDURE

The study was conducted in two phases:

Phase1:A structured questionnaire comprising a total of 25 closed-ended questions was administered to parents to obtain information regarding screen exposure patterns and vocabulary development, which were validated by five licensed SLP's in Kuwait.

Phase 2: The questionnaire was administered to 60 parents of Malayalam-speaking children aged 3–4 years. The participants were categorized into two groups 30 working and 30 non-working parents.

STASTISTICAL ANALYSIS

The collected data were summarized using descriptive statistics, including frequency and percentage. The Chi-square test was employed to compare screen exposure on vocabulary development in children between Malayalam-speaking children of working and non-working parents in Kuwait. A p value of less than .05 was considered statistically significant. Data were analyzed using the Statistical Package for the Social Sciences (SPSS; IBM Corp., Armonk, NY), version 29.0.10.

RESULTS AND DISCUSSION

Table 1: Assessment of screen exposure on vocabulary development in children

	Correct response		Incorrect response	
	n	%	n	%
Q1.Do you spend more than 5 hours with your child at home?	33	55	27	45
Q2.Did your child start using or watching screens between 2-3yrs?	33	55	27	45
Q3.Is your child's average daily screen time less than 30 minutes?	30	50	30	50
Q4.Does your child avoid watching screens during meals?	34	56.7	26	43.3
Q5.Does your child mostly watch educational videos instead of cartoons or YouTube?	37	61.7	23	38.3
Q6.Is the screen content mostly in Malayalam?	40	66.7	20	33.3
Q7.Do you always watch screens together with your child?	29	48.3	31	51.7
Q8.Do you control screen time by engaging your child in other activities?	37	61.7	23	38.3
Q9.Does your child rarely imitate or repeat words heard from screens?	34	56.7	26	43.3
Q10.Do you always talk to your child about what they see on the screen (characters, actions, colors)?	37	61.7	23	38.3
Q11.Do you always speak to your child in Malayalam at home?	50	83.3	10	16.7
Q12.Do you always correct or repeat words when your child says them incorrectly?	43	71.7	17	28.3
Q13.Does your child interact with other children daily?	38	63.3	22	36.7
Q14.Did your child say their first word before 1 year of age?	41	68.3	19	31.7
Q15.Does your child use more than 600 words regularly?	26	43.3	34	56.7
Q16.Do you feel your child's Malayalam vocabulary is excellent?	31	51.7	29	48.3
Q17.Do you believe screen exposure is not important for your child's learning?	27	45	33	55
Q18.Do you think the appropriate screen time limit is less than 30 minutes per day?	34	56.7	26	43.3
Q19.Do you agree that reducing screen exposure improves speech and language development?	36	60	24	40
Q20.Does your child avoid using screens (TV, mobile, tablet, etc.)?	36	60	24	40
Q21.Do you control or limit your child's screen time?	50	83.3	10	16.7
Q22.Do you believe screen time does not help your child learn new words?	31	51.7	29	48.3

Q23.Does your child not show behavioural changes after long screen time?	35	58.3	25	41.7
Q24.Does your child not throw temper tantrums when screen time is ended?	44	73.3	16	26.7
Q25.Does your child obey when asked to turn off the screen?	46	76.7	14	23.3

FIGURE 1

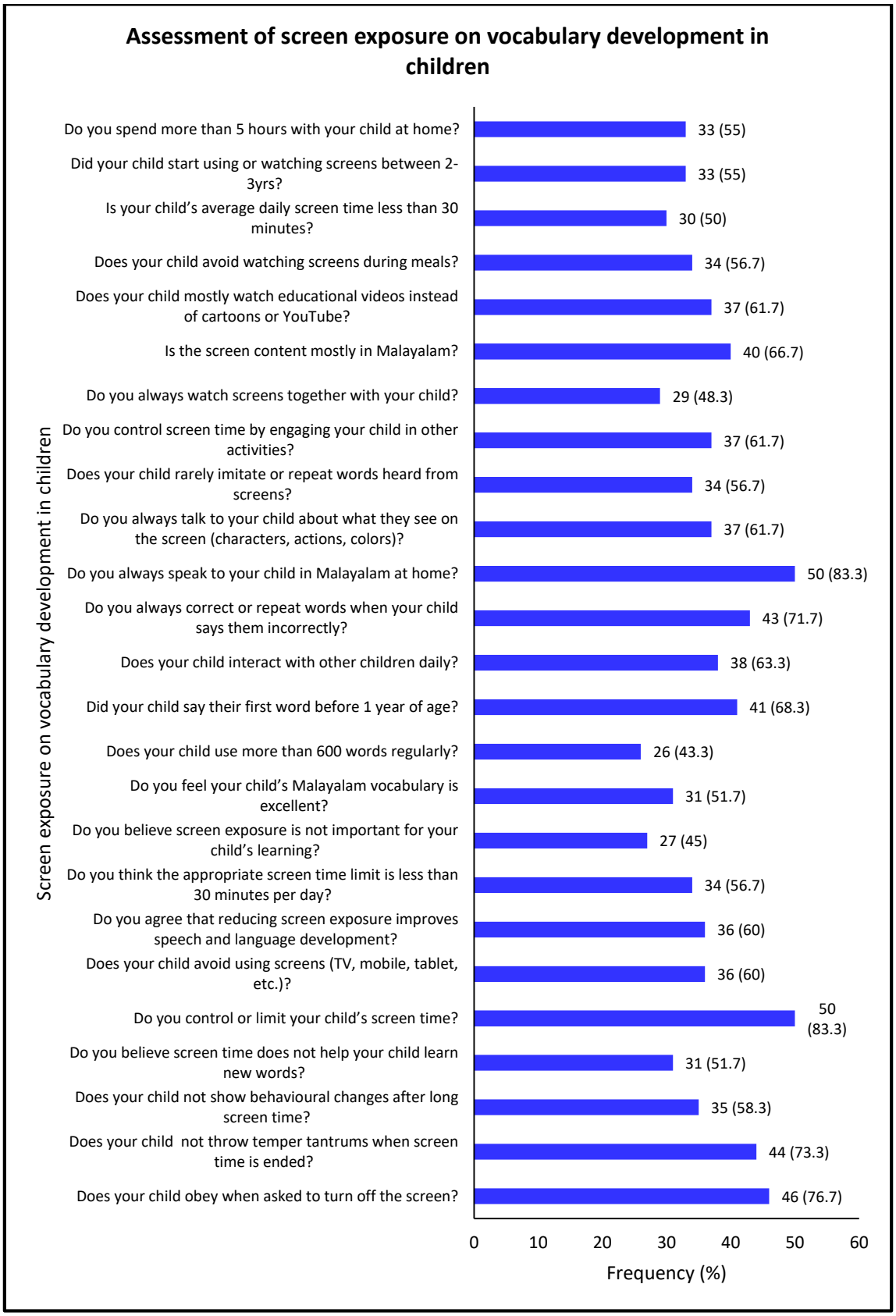

Table 1 and Figure 1 indicate the assessment of screen exposure and vocabulary development among Malayalam-speaking children aged 3–4 years.

A high proportion of parents reported positive language-supportive practices. Specifically, 83.3% of parents reported always speaking to their child in Malayalam (Q11) and controlling screen time (Q21). Additionally, 76.7% of children obeyed instructions to turn off screens (Q25), 73.3% did not exhibit tantrums (Q24), and 71.7% of parents actively corrected children's speech (Q12).

Moderate responses were observed across several variables. About 68.3% of children produced their first word before one year (Q14), 66.7% of screen content was in Malayalam (Q6), and 63.3% of children interacted with peers daily (Q13). Around 61.7% of parents engaged in screen-related activities such as monitoring and discussion (Q5, Q8, Q10), while 60% acknowledged the benefits of reducing screen exposure (Q19) and reported some level of screen avoidance (Q20).

Lower percentages were noted in vocabulary outcomes. Only 43.3% of children used more than 600 words (Q15), 51.7% of parents rated vocabulary as excellent (Q16), 48.3% reported consistent co-viewing (Q7), and 50% reported screen time below 30 minutes per day (Q3).

However, a considerable number of children demonstrated lower vocabulary usage and higher exposure to screens.

Table 2: Comparison of screen exposure on vocabulary development in children between Malayalam-speaking working and non-working parents in Kuwait

		Working parent		Non-Working parent		Chi square	p value	Significance
		n	%	n	%			
Q1.Do you spend more than 5 hours with your child at home?	Correct response	10	33.3	23	76.7	11.38	0.001	S
	Incorrect response	20	66.7	7	23.3			
Q2.Did your child start using or watching screens between 2-3yrs?	Correct response	9	30.0	24	80.0	15.15	< 0.001	S
	Incorrect response	21	70.0	6	20.0			
Q3.Is your child's average daily screen time less than 30 minutes?	Correct response	13	43.3	17	56.7	1.07	0.302	NS
	Incorrect response	17	56.7	13	43.3			
Q4.Does your child avoid watching screens during meals?	Correct response	14	46.7	20	66.7	2.44	0.118	NS
	Incorrect response	16	53.3	10	33.3			
Q5.Does your child mostly watch educational videos instead of cartoons or YouTube?	Correct response	19	63.3	18	60.0	0.07	0.791	NS
	Incorrect response	11	36.7	12	40.0			
Q6.Is the screen content mostly in Malayalam?	Correct response	20	66.7	20	66.7	0	1	NS
	Incorrect response	10	33.3	10	33.3			
Q7.Do you always watch screens together with your child?	Correct response	10	33.3	19	63.3	5.41	0.020	S
	Incorrect response	20	66.7	11	36.7			

Q8.Do you control screen time by engaging your child in other activities?	Correct response	15	50.0	22	73.3	3.46	0.063	NS
	Incorrect response	15	50.0	8	26.7			
Q9.Does your child rarely imitate or repeat words heard from screens?	Correct response	13	43.3	21	70.0	4.34	0.037	S
	Incorrect response	17	56.7	9	30.0			
Q10.Do you always talk to your child about what they see on the screen (characters, actions, colors)?	Correct response	19	63.3	18	60.0	0.07	0.791	NS
	Incorrect response	11	36.7	12	40.0			
Q11.Do you always speak to your child in Malayalam at home?	Correct response	25	83.3	25	83.3	0	1	NS
	Incorrect response	5	16.7	5	16.7			
Q12.Do you always correct or repeat words when your child says them incorrectly?	Correct response	16	53.3	27	90.0	9.93	0.002	S
	Incorrect response	14	46.7	3	10.0			
Q13.Does your child interact with other children daily?	Correct response	19	63.3	19	63.3	0	1	NS
	Incorrect response	11	36.7	11	36.7			
Q14.Did your child say their first word before 1 year of age?	Correct response	20	66.7	21	70.0	0.08	0.781	NS
	Incorrect response	10	33.3	9	30.0			
Q15.Does your child use more than 600 words regularly?	Correct response	5	16.7	21	70.0	17.38	< 0.001	S
	Incorrect response	25	83.3	9	30.0			
Q16.Do you feel your child's Malayalam vocabulary is excellent?	Correct response	8	26.7	23	76.7	15.02	< 0.001	S
	Incorrect response	22	73.3	7	23.3			
Q17.Do you believe screen exposure is not important for your child's learning?	Correct response	7	23.3	20	66.7	11.38	0.001	S
	Incorrect response	23	76.7	10	33.3			
Q18.Do you think the appropriate screen time limit is less than 30 minutes per day?	Correct response	12	40.0	22	73.3	6.79	0.009	S
	Incorrect response	18	60.0	8	26.7			
Q19.Do you agree that reducing screen	Correct response	18	60.0	18	60.0	0	1	NS

exposure improves speech and language development?	Incorrect response	12	40.0	12	40.0			
Q20.Does your child avoid using screens (TV, mobile, tablet, etc.)?	Correct response	18	60.0	18	60.0	0	1	NS
	Incorrect response	12	40.0	12	40.0			
Q21.Do you control or limit your child's screen time?	Correct response	21	70.0	29	96.7	7.68	0.006	S
	Incorrect response	9	30.0	1	3.3			
Q22.Do you believe screen time does not help your child learn new words?	Correct response	9	30.0	22	73.3	11.28	0.001	S
	Incorrect response	21	70.0	8	26.7			
Q23.Does your child not show behavioural changes after long screen time?	Correct response	17	56.7	18	60.0	0.07	0.793	NS
	Incorrect response	13	43.3	12	40.0			
Q24.Does your child not throw temper tantrums when screen time is ended?	Correct response	18	60.0	26	86.7	5.46	0.020	S
	Incorrect response	12	40.0	4	13.3			
Q25.Does your child obey when asked to turn off the screen?	Correct response	23	76.7	23	76.7	0	1	NS
	Incorrect response	7	23.3	7	23.3			

FIGURE 2

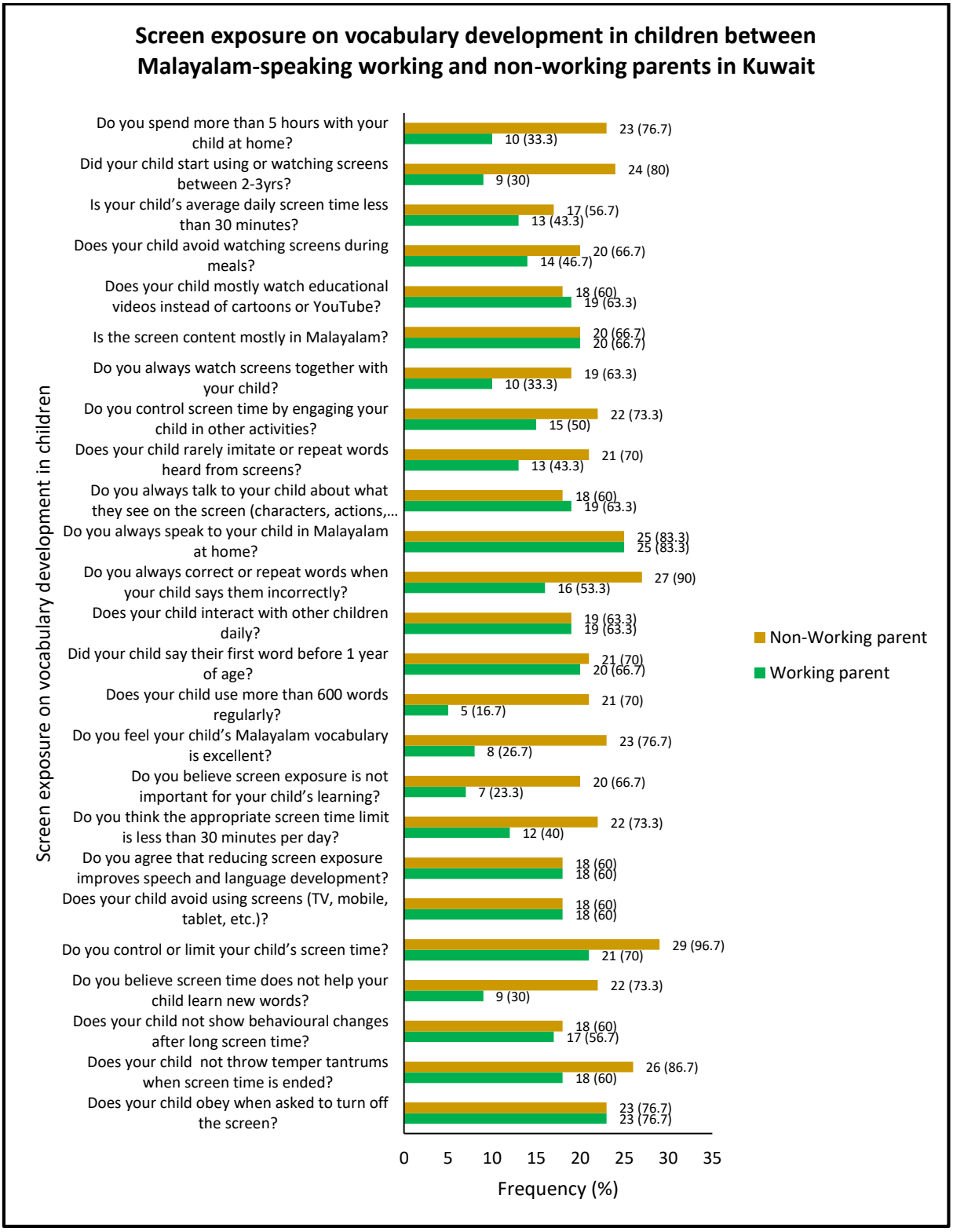

Table 2 and Figure 2 present the comparison of screen exposure on vocabulary development in children between Malayalam-speaking children of working and non-working parents in Kuwait. The results indicated differences between the two groups in terms of screen exposure patterns and vocabulary-related outcomes. Children of non-working parents generally demonstrated better responses in several items related to vocabulary development and parental interaction, whereas children of working parents showed comparatively higher screen exposure in certain areas.

The results further revealed that some items demonstrated statistically significant differences between the two groups ($p < .05$). Significant differences were observed for Q1, Q2, Q7, Q9, Q12, Q15, Q16, Q17, Q18, Q21, Q22, and Q24, whereas no significant differences were found for Q3, Q4, Q5, Q6, Q8, Q10, Q11, Q13, Q14, Q19, Q20, Q23, and Q25.

DISCUSSION

The present study examined the effect of screen exposure on vocabulary development in Malayalam-speaking children in Kuwait, comparing children of working and non-working parents. The findings indicated that children of working parents had relatively higher screen exposure and poorer vocabulary outcomes, whereas children of non-working parents demonstrated better vocabulary development, greater parental interaction, and more regulated screen use. These results highlight the important role of parental involvement in early language development. The results of the current study are consistent with previous studies (Madigan et al., 2020; Zimmerman et al., 2007; Anderson & Subrahmanyam, 2017), which reported that excessive screen exposure reduces caregiver–child interaction and negatively impacts vocabulary acquisition. Overall, the results of the current study suggest that increased screen exposure may hinder vocabulary development, while active parental engagement and controlled screen use support better language outcomes in children.

CONCLUSION

The present study examined the effect of screen exposure on vocabulary development in Malayalam-speaking children in Kuwait, comparing children of working and non-working parents. The findings indicated that while screen exposure is a common part of early childhood, its impact on language development varies based on parental involvement and exposure patterns. Children of working parents demonstrated higher levels of screen exposure, reduced parental interaction, and comparatively poorer vocabulary outcomes, whereas children of non-working parents showed better vocabulary development, more consistent parental engagement, and more regulated screen use. These findings suggested that parental availability and interaction play a crucial role in early language acquisition. Overall, the study concludes that although digital media is widely accessible, excessive and unregulated screen exposure may hinder vocabulary development, while controlled screen use and active caregiver involvement support positive language outcomes. These results highlight the importance of parent awareness, guidance, and early intervention strategies to promote healthy screen habits and optimal language development in children.

The findings of this study also emphasize the important role of SLPs in identifying early language difficulties associated with excessive screen exposure. SLPs can provide parent counselling, create awareness regarding healthy screen habits, and guide families in promoting interactive communication activities that support vocabulary growth. In addition, SLPs can contribute to early intervention programs and collaborate with parents and educators to encourage language-rich environments for children.

LIMITATIONS OF THE STUDY

- The sample size of the study is limited.
- Current study was carried out in Kuwait only

FUTURE DIRECTIONS

- Future studies should include larger and more diverse samples from different regions of the world to improve the generalizability of the findings.
- Further research should explore the effectiveness of parent-based intervention programs and strategies to regulate screen exposure and enhance caregiver–child interaction.
- Future studies may investigate the impact of different types of screen content and the role of parental mediation on vocabulary development in children across various age groups.

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