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The impact of the COVID-19 quarantine on the estimated quality of parent-child interactions in Saudi Arabia: Parental perspectives

The purpose of the current study was to explore parental beliefs about the effect of the COVID-19 quarantine on the subjectively estimated quality of parent-child interactions as well as their beliefs about its impact on early childhood language development within the Kingdom of Saudi Arabia (KSA). A cross-sectional observational study was conducted via an electronic survey. The study surveyed 439 parents of typical children aged between 24 and 60 months. The survey was distributed online to cover a wide range of participants across the KSA. Based on the parental subjective measure used in the current study, parent-child interactions and children's language skills had significantly increased during the quarantine ($p < .001$). In conclusion, the study highlighted the important role of parents during the critical period of language development in promoting their children's speech and language skills.

Key words: parent-child interaction, communication, language development, survey, Saudi Arabia

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From birth, children depend on their parents for their basic needs. Parents are the primary caregivers who interact with the child continuously (Safwat & Sheikhan, 2014). This interaction is essential for the development of various skills in children, such as language (Hirsh-Pasek et al., 2015), literacy (Bojczyk et al., 2016), and social (Paulus et al., 2019) and cognitive (Zauche et al., 2016) skills, especially during their early years.

Language development is an important factor that determines children's adequate development, as well as other related skills (Hoff, 2013). Research shows that children's early language skills predict later school achievement (Weisleder & Fernald, 2013). Although earlier literature has linked parental language quantity to children's language outcomes (Hart et al., 1997), more recent studies indicated that the absolute number of adult words is insufficient to account for the variability in children's language development (Hirsh-Pasek et al., 2015). Other factors relating to parental speech and language, such as mean length of utterance, diversity of vocabulary, or use of decontextualized language (Jones & Rowland, 2017), in addition to social aspects such as responsiveness, joint attention, and contingent back-and-forth exchanges (Hirsh-Pasek et al., 2015; Tamis-LeMonda et al., 2014), have also been shown to be associated with children's language development.

Most children learn communication skills (pointing, gesturing) and language skills (saying words, following directions) from high-quality interactions with their parents and caregivers (Roberts et al., 2019), which is why appropriate parent-child interaction is deemed crucial. Strategies that are effective in improving communication skills among parents and children in the home environment include following the child's lead, commenting and labeling, imitating and expanding, asking questions, "filling in the blanks," using positive feedback, praise, and attention, and providing choices (Cabell et al., 2015). Recent studies recommend language interventions that target parental language quality and the social aspects of parent-child language interaction (Golinkoff et al., 2019; Hirsh-Pasek et al., 2015; Ramírez et al., 2020).

Parents' knowledge of language development in children as well as their awareness of how their interactions with their children may affect language development are important. Several parental factors have been found to affect parent-child interactions. Such factors include stress, socioeconomic status, and education (Bingham et al., 2013; Madya et al., 2019). Parental education is linked to income, thus, parents with low socioeconomic status may struggle with poverty, which consequently results in stress. These issues may influence the home environment, making it less stimulating for the child (Ronfani et al., 2015), thereby affecting language development.

Several studies have investigated different types of interactions between parents and their children. Safwat and Shiekhany (2014) included 100 parents aged between 21 and 43 years and their children. The age range of children was 27-49 months. The parents expressed their concern regarding their children's delay-

ed language development. The parents completed a questionnaire that described their communicative behaviors and their beliefs related to the causes and management of delayed language development. The results showed that parents had adequate knowledge about language development but they did not use effective methods to nurture their children's language acquisition. Moreover, parental interaction was found to influence the children's language development, but it was unclear whether the quality or the quantity of these interactions were the predictor. Socioeconomic status was also found to significantly impact children's language.

Liebeskind et al. (2014), explored how certain factors in the home environment impacted language skills, one of which was parent-child interactions. Five hundred parents of children between 8 and 36 months were included in the study. The parents were asked to answer a series of questions about their children's media use and language ability, family media environment, parenting practices, and parent-child interactions. The findings revealed that parent-child interactions were positively correlated with the children's language skills. The authors suggested that it is essential to train parents on how to engage in language enriching interactions with their children in order to improve their language skills.

At present, family interaction is negatively affected by several factors. Such factors include full-time working parents (Bingham et al., 2013), engagement with electronic devices (Kildare & Middlemiss, 2017), socioeconomic status (Safwat & Sheikhany, 2014), and a lack of understanding of the significance of parent-child interactions.

With the spread of COVID-, the Kingdom of Saudi Arabia (KSA) imposed a quarantine on all cities within the country that lasted for approximately three months. During this crisis, with a few exceptions, almost everyone within the KSA was forced to stay at home. In other words, parents, either working or non-working, had to stay at home and, consequently, spent more time together with their families. Therefore, the purpose of the current study was to investigate whether parent-child interactions have changed during the quarantine and whether this affected children's language development from a parental perspective, as objective measures could not be applied due to the quarantine. We hypothesized that parent-child interactions and children's language skills would improve during the lockdown due to the parents being compelled to stay at home.

Study Objectives

- 1) To investigate whether parent-child interactions increased during the Covid-19 quarantine based on the parents' reports.
- 2) To explore, via self-report measures, parental knowledge of language development and whether it affects parent-child interactions.
- 3) To discover whether parent-child interactions affect language development based on the parents' reports.

Method

Sample

The current study was cross-sectional and observational in nature. It used an online survey to examine the impact of the Covid-19 lockdown on the quality of parent-child interactions. The survey was conducted across the KSA. The eligibility criteria included: parents living in the KSA, who were 18 years of age or older, had at least one child between 2 and 5 years of age, and the child did not have any language delay or physical or mental disabilities. Parents of children in this age group were considered eligible because such children would be within the developmental window in which language development expands significantly. A total of 877 parents started the survey (e.g., completed at least one item), with 526 complete survey responses. Of these, 87 were excluded as they did not meet the eligibility criteria, resulting in a final sample size of 439.

Instrument

A survey was prepared in Arabic language and presented to all participants via the online survey tool SurveyMonkey™. The survey comprised four parts: (a) personal information (e.g., age, gender, region of residence, etc.), (b) the parents' self-reported beliefs and knowledge about language development and how it affects early development in children, (c) the parents' self-reported estimations of the quality and frequency of parent-child interactions before and after the quarantine, and (d) the parents' self-reported estimations of their children's communication skills. The questions in parts (b) and (c) were adapted from a previously published study, with permission from the authors (Safwat & Sheikhan, 2014). The survey was self-administered and included closed-ended questions. The full survey took approximately 6 minutes to complete.

Procedure

The survey was distributed from June 15, 2020, to September 15, 2020, targeting parents of children aged 2 to 5 years of age. Parents were primarily recruited through social media platforms, including Facebook, Twitter, and LinkedIn. Additional participants were recruited using a snowball technique by circulating the survey link via WhatsApp and email to colleagues across several sectors (e.g., academics, healthcare workers, family members, and friends) to cover a diverse range of the population within different regions of Saudi Arabia. The recruitment text encouraged individuals to share the link countrywide. All the questionnaires, both parent and child-related, were completed by the parents. There was no monetary compensation for participating. Parents who clicked on the link were directed to a secure website to complete the survey using SurveyMonkey. The

survey began with a cover page explaining the aim of the study, followed by a consent form. Upon agreeing to participate, the questionnaire began on the following page. All responses were kept confidential on a secure data base that was password protected and provided via SurveyMonkey. The study was approved by the Institutional Review Board of the College of Medicine, King Saud University (Ref. No. 20/0512/IRB).

Statistical Analysis

Analyses were carried out using SPSS version 21 (SPSS Inc., Chicago, Illinois, USA) for Windows. For analysis, composite scores were constructed for parental knowledge regarding language development, estimated change in parent-child interactions, and estimated change in the child's language abilities. Summaries of responses to the individual items in these scales can be found in Tables 2-4. A composite score for knowledge about language development was created by the Author. Composite scores for estimated change in parent-child interactions and estimated change in the child's language skill were created by calculating a mean of responses to the pertinent items. Summary statistics for these composite variables can be found in Table 5. Single sample *t* tests were used to measure the estimations of change in parent-child interactions and child language development. Correlational analysis was conducted to determine the association between parental knowledge, estimated changes parent-child interactions, and estimated child language development, as well as demographic variables (i.e. Area, education, employment, and income

Results

In total, 439 participants yielded usable data for the study. The sample was primarily female (87.24%), aged 25-44 (77.28%), from Riyadh (69.25%), with at least a bachelor's degree (83.14%), and mostly had families of three or fewer children (60.14%). Table 1 presents the sample descriptive statistics, while Table 2 shows the parent knowledge questionnaire items and frequency of responses ($M = .74$, $SD = .11$).

To determine changes in the parents' estimations of parent-child interactions during the COVID-19 quarantine, a single sample *t*-test was performed. The mean of the composite scores was tested against a value of 2, as in the original scales; this value indicated no changes in the estimations of parent-child interactions during the quarantine. Results showed that the mean ($M = 2.48$, $SD = .32$) was statistically significantly different from 2, $t(438) = 31.66$, $p < .001$ (see Table 3). An additional single sample *t* test was performed to investigate parents' estimations of changes in child language skills using the same method. Results revealed that the mean ($M = 2.64$, $SD = .41$) was statistically significantly different from 2, $t(438) = 32.72$, $p < .001$ (see Table 4).

Table 1. *Sample Demographics (N = 439)*

Variable	N%	Variable	N%
Age		Education	
18–24	5.69%	Uneducated	0.23%
25–34	40.09%	Elementary	0.46%
35–44	37.13%	Intermediate	0.91%
45–54	11.85%	Secondary	6.15%
55–64	3.87%	Diploma	9.11%
65+	1.37%	Bachelor's degree	58.54%
Gender		Master's degree	17.54%
Female	87.24%	Ph.D.	7.06%
Male	12.76%	Employment	
Area		Working	50.34%
Albaha	0.23%	Not working	49.66%
Aljouf	0.00%	Income	
Aseer	0.91%	< 5000 SR	24.15%
Eastern province	7.29%	5000–9999 SR	24.83%
Hail	0.23%	10,000–14,999 SR	21.18%
Jaizan	0.46%	15,000–20,000 SR	14.35%
Madinah	1.37%	> 20,000 SR	15.49%
Makkah	18.22%	Child's age	
Najran	0.00%	2–2y 11 m.	28.47%
Northern Borders	0.00%	3–3y11 m.	25.06%
Qassim	1.82%	4–5 yrs	46.47%
Riyadh	69.25%		
Tabuk	0.23%		

Parents' estimations of changes in parent-child interaction and their effect on language development were also examined. Correlational analysis showed a weak-to-moderate, statistically significant, positive correlation between estimated parent-child interaction changes and estimated language skill changes, $r(438) = .30, p < .001$.

To discover if parental knowledge affected parental estimations of parent-child interaction, a correlational analysis was performed. The analysis showed a nonsignificant correlation between the two variables, $r(438) = .6, p = .25$. An additional correlational analysis was performed to determine if parental knowledge of language development affected parental estimations of language development. The analysis showed a weak but significant correlation between the two variables, $r(438) = .10, p = .03$. This suggests the relationship between the two variables is negligible, and statistical significance was probably only reached due to the high sample size.

Finally, the relationship between estimated parent-child interaction change and demographic variables was examined. Specifically, an analysis of variance (ANOVA) was performed on estimated interaction changes across living areas,

Table 2. *Parental Language Knowledge*

Item	N%
When do you seek professional advice?	
I feel my child has a problem	89.52%
I compare him with a relative or his/her peers	4.78%
School/nursery informs me	5.69%
If you suspect your child has a language problem:	
I would ask a friend/relative	12.30%
I have experience with other siblings	52.16%
Ask a clinician	9.11%
Handle on my own (internet search/reading)	26.42%
Is language delay related to ?*	
Brain	26.42%
Intelligence	14.12%
Hearing	51.71%
Environment	71.75%
Hereditary	41.69%
I don't know	1.82%
Which specialist treats language disorder?	
Pediatrician	4.33%
Neurologist	1.82%
Psychiatrist	2.05%
Psychologist	2.51%
Speech therapist	87.02%
Audiologist	1.37%
Ear, nose, and throat specialist	0.68%
I don't know	0.23%
Which type of treatment is necessary for language delay?*	
Medications only	1.82%
Counseling and follow-up	54.44%
Language stimulation sessions	84.51%
Behavior modification therapy	30.07%
Going to nursery	4.56%
I don't know	1.59%
Do you think your interaction with your child affects his/her speech and language?	
Yes	98.41%
No	1.59%
Do you think interaction with a child is:	
Mainly the mother's job	4.10%
Should be shared with siblings	0.68%
Mothers and fathers should share equal responsibility	13.90%
All family members should be involved	81.32%
Do you think watching TV a lot is:	
Beneficial in language acquisition	20.96%
Parents should watch TV programs with their child	59.68%
Children should not watch TV	19.36%

Table 2. *Parental Language Knowledge (Cont.)*

Item	N%
Do you think watching/using an iPad/mobile phone is:	
Beneficial in language acquisition	6.83%
Parents should watch/use iPads/mobile phones with their child	43.51%
Children should not watch/use iPads/mobile phones	49.66%

Note. $N = 439$, * = multiple selections allowed.

education levels, employment, and income levels. All analyses indicated nonsignificant differences between groups. These results are summarized in Table 5.

Discussion

The purpose of the current study was to explore the effect of the COVID-19 quarantine in Saudi Arabia on the parents' estimations of changes in parent-child interactions, given that parents and children were spending a large amount of time together during the pandemic lockdown, as well as whether this interaction was related to language skill development in children between 2 and 5 years of age. Results showed that the parents estimated both the parent-child interactions and the children's language skills to have increased significantly during the quarantine, especially the time spent talking with the child face-to-face, suggesting that when parents were able to spend more time at home with their children, communication between parents and children improved. This confirms the findings of earlier studies demonstrating that communication between parents and children requires time and availability (Runcan et al., 2012). However, because of the daily errands required of parents, many may not have enough time to communicate with their children. Hence, parents must be counseled as to the importance of their interactions with their children and that this interaction has consequences for their social and emotional development. Since not all parents will need to visit a speech-language pathologist, whose main specialty involves providing information and support to parents regarding how to interact with their children, such information should also be available to parents via other channels and other specialists, who work with children and who are prone to be visited more often by parents and children, such as general practitioners, pediatricians, or even family medicine physicians. Healthcare professionals in general should acquire this knowledge to foster interactions between parents and children that support healthy social and emotional growth.

The effect of the parents' estimations of changes in the parent-child interaction on the parents' estimations of their children's language development was also investigated. There was a significant positive relationship between the two variables. This finding is in agreement with other studies (Safwat & Sheikhan, 2014 and Liebeskind et al., 2014) that also found a relationship between parent-child inte-

Table 3. *Parents' Estimations of Changes in Parent-Child Interaction During COVID-19 Quarantine*

Behavior	Decreased	Same	Increased
Time spent talking to your child	3.42%	22.32%	72.89%
Facing your child while talking to them	3.64%	35.08%	61.05%
Immediately responding to your child	7.29%	39.18%	52.39%
Physical involvement while playing with your child	5.47%	24.83%	69.25%
Varying your tone while speaking with your child	5.01%	53.30%	41.00%
Letting your child lead the conversation	2.51%	39.41%	57.86%
Waiting for your child to communicate during conversations	2.73%	48.29%	48.52%
Using praise and reinforcement while talking to your child	2.28%	35.31%	61.73%
Correcting your child's sentences	5.24%	45.56%	48.75%
Using gestures and pointing while talking to your child	7.74%	61.28%	30.75%
Labeling surroundings	3.19%	39.18%	56.72%
Using short sentences that the child can understand	1.59%	44.42%	53.99%
Asking the child what they want	2.51%	30.30%	66.29%
Emphasizing facial expressions while talking to your child	2.51%	55.13%	42.37%
Expanding the child's speech	1.82%	52.39%	45.56%
Getting your child's attention	2.96%	36.22%	60.36%
Commenting on what your child is doing	2.73%	37.81%	59.00%
Reading books with your child	11.85%	46.01%	41.91%
Using a slow rate while talking to your child	5.24%	73.35%	20.96%
Talking to your child during daily routines	3.87%	45.56%	50.34%
Giving choices to your child	4.33%	35.54%	59.91%

Note. $N = 439$. Valid percent only.

Table 4. *Parents' Estimations of Changes in Child's Language During COVID-19 Quarantine*

Behavior	Decreased	Same	Increased
Child's gestures	8.88%	45.33%	44.42%
Child's speech	4.56%	19.13%	73.80%
Number of words produced by the child	3.87%	18.00%	77.90%
Number of words comprehended by the child	4.56%	16.63%	78.36%
Length of sentences produced by the child	4.56%	26.88%	68.56%
Length of sentences comprehended by the child	5.24%	25.51%	69.02%
Requesting ability	4.56%	25.74%	69.48%
Commenting ability	3.19%	23.01%	73.58%

Note. $N = 439$. Valid percent only.

reaction and language development. Nevertheless, this finding should be interpreted with caution as the current study did not administer a formal language test to the children due to the quarantine. Therefore, the improvement in children's language observed in the current study is solely based on the parents' subjective point of view. Moreover, it is not quite apparent whether this improvement is a result of increased parental interaction or natural development during these three months.

Table 5. *Estimated Parent-Child Interaction Changes Across Demographic Variables*

Predictor	dfNum	dfDen	SSNum	SSDen	F	p
Area	9	429	0.80	44.37	0.86	.56
Education	7	431	0.65	44.52	0.88	.51
Employment	1	437	0.18	44.98	1.80	.18
Income	7	431	0.48	44.69	1.16	.33

Note. *N* = 439.

Close inspection of the type of interactions shows that although the majority of parents were able to spend more time with their children and got physically involved with them during playing, praised them, and made sure to ask them what they wanted, less than 50% of parents were using skills that enhanced language development, such as expanding their child's sentences, waiting for their child to talk during conversations, and reading books with their children. Such observations indicate that parents have increased the quantity rather than the quality of their interactions with children. One of the parent-child interactions that is a significant predictor of language development is shared book reading (Chaparro-Moreno et al., 2017). Compared to other activities, it permits books to be reread multiple times, allowing frequent exposure to the same information over and over again (Wasik et al., 2016). With their unique features that include simple drawings and repetitiveness to facilitate the grasping of concepts, books can be reviewed by children at their own pace (Murray et al., 2016). Hence, it is essential to increase parents' awareness within Saudi Arabia regarding the importance of book reading with their children and the positive impact of book-reading activities on both expressive and receptive language development.

Parents' scores on the measure of knowledge of language development ranged from 33-100%, with an average of 75%, which is comparable to that found in Safwat and Sheikhan (2014). Surprisingly enough, there was an insignificant correlation between the parents' knowledge of language development and the parents' estimations of changes in parent-child interactions, as well as the parents' estimations of the children's language development, as opposed to Safwat and Sheikhan (2014). The lack of a positive relationship between parental knowledge and language development could be due to the differences in which children were assessed as well as the difference in the children's language abilities. In Safwat and Sheikhan (2014), the children had delayed language development and, as a result, received formal testing by a specialized clinician, whereas in the current study, the children had typical language development and were assessed subjectively by parents. The absence of a positive correlation between the parents' estimations of changes in the parent-child interactions and the parents' knowledge about language development may suggest that parents are not utilizing the knowledge they have about language development to guide their interactions with their children. This further confirms the importance of providing parents with essential infor-

mation on how to properly interact with their children and offer adequate speech and language stimulation during the developmental period to avoid various communication disorders.

Finally, many studies have found that socioeconomic status affects language development in children (Madya et al., 2019). However, in the current study, parents' estimations of changes in the parent-child interactions did not have a significant relationship with socioeconomic status (based on education, income, and job status), nor did it have a significant relationship with different geographical areas across Saudi Arabia, indicating that estimated changes in parent-child interactions were consistent across these demographic variables. A possible explanation for this result could be the close distribution of participants across these variables. Many other studies found a relationship between maternal input and education in mediating language skills in children (Ronfani et al., 2015, Vernon-Feagans et al., 2020). However, this was not the case in the current study. One reason for not finding such a relationship might be the low variance in education level in the sample, as most parents (83%) were highly educated and holding at least a bachelor's degree.

Study Limitations

There was a large difference between genders in the sample, where females constituted more than 87% of the sample. Results from more gender-balanced samples would be worthwhile. Furthermore, due to the lockdown in Saudi Arabia during COVID-19, it was not possible to administer formal language testing for the children. Therefore, language skills were subjectively evaluated by parents, which may not be accurate.

Conclusion

The current study aimed at investigating the effect of the COVID-19 quarantine in Saudi Arabia on subjective estimations of changes in parent-child interactions with children ranging from 2 to 5 years of age. The results showed that parents rated parent-child interactions, as well as their children's language skills, as having significantly improved during the lockdown. Moreover, the interaction between these two factors was significant. Nevertheless, parents need to be given guidance on how to interact with their children to maximize the children's benefits from these interactions.

Conflict of Interest Disclosure

The Author has no conflicts of interest to disclose.

Funding

No funding was provided for this study.

Research Ethics Statement

The study was conducted according to scientific research ethics and was approved by the institutional review board of College of Medicine at King Saud University.

Data Availability Statement

Data will be shared upon reasonable request made to the corresponding author.

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