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The Level of Parental Awareness of Children's Developmental Milestones

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ABSTRACT

Background: Milestones pertain to the customary progression of a child's development within a specific age range. The development of children exhibits significant diversity across different countries, resulting in a lack of fixed milestones tied to certain ages and instead displaying a normal range of variability. The objective of this study was to assess the level of parental awareness regarding children's developmental milestones in the region of Al-Ahsa, located in Saudi Arabia. The study employed a cross-sectional design and took place from January to March 2022. A pre-designed and validated questionnaire was utilized to collect data from parents residing in Al-Ahsa who were over 18 years of age and had at least one kid between the ages of birth and 14 years. A total of 372 parents participated in the study, with data collection facilitated using local virtual and social media platforms.

Result: Among the surveyed parents, a majority of 71% accurately indicated the average age at which children generally commence crawling, while 62.9% provided an accurate response regarding the average age at which children typically begin walking. In the study, it was shown that a higher proportion of moms (9.7%) exhibited an excellent degree of understanding of milestones, as opposed to fathers (3.2%) (P = 0.048). The primary sources of information utilized in this study consisted of internet sites, parents/relatives, and pediatricians or general practitioners, with percentages of 81.4%, 81.4%, and 68.3% respectively.

Conclusion: The parental understanding of children's growth milestones was limited. It is imperative for healthcare providers to prioritize the dissemination of precise information regarding child development to parents through educational interventions conducted during routine visits.

KEYWORDS: Development, milestone, developmental delay, motor, cognitive,language.

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INTRODUCTION

During the initial years of life, there is a notable phase of accelerated growth and development characterized by a gain in physical size, maturation of body organs, advancement of cerebral ability, and acquisition of fundamental physical skills such as manipulation, speech, and ambulation. Nevertheless, variations in individual milestones throughout different regions of the world have been documented (Onis, 2006). Milestones pertain to the standard patterns of infant growth observed at specific chronological stages. Developmental milestones encompass the various domains of a child's development, including their play, learning abilities, language acquisition, behavioral patterns, and motor skills. Due to inter-individual and cross-cultural differences in children's development, the establishment of set age milestones is not feasible, as there exists a normal range of variation. As an example, it has been shown that newborns that are six months old possess the ability to recognize familiar faces, exhibit responsive behavior to auditory stimuli through vocalization, demonstrate visual attention towards adjacent objects, and display the capability to roll over in multiple directions (Onis, 2006).

The understanding that parents possess regarding the development of their children significantly influences various aspects of their children's well-being, including social, physical, cognitive, and mental health. The findings of several studies indicate that a strong understanding of child development and effective parenting strategies among

parents has a notable impact on reducing instances of reported child maltreatment in the subsequent three to five years. Additionally, it has been observed that such knowledge and practices contribute to the improvement of behavioral issues in children, as well as a decrease in maternal anxiety and depression (Coren and Barlow, 2001; Barlow et al., 2003; Britner and Reppucci, 1997). According to Benasich and Brooks-Gunn (1996), parents who possess a high level of knowledge are better equipped to establish a suitable setting that fosters their child's developmental capabilities and facilitates their overall well-being.

On the other hand, parents who possess inadequate understanding of the average trajectory of child development frequently overestimate the pace at which their children progress, resulting in heightened impatience and intolerance towards their child's conduct (Cowen, 2001). Furthermore, parents who possess a high level of knowledge may exhibit enhanced proficiency in identifying mental delays or abnormalities, hence facilitating early interventions. These interventions are crucial in promoting optimal child health and preventing the onset of disorders (Al-Maadadi & Ikhlef, 2014; Reich, 2005).

Limited research has been conducted on the evaluation of parental awareness regarding developmental milestones in the Middle Eastern region, namely in Saudi Arabia (Alkhazrajy and Aldeen, 2017; Habibi et al., 2017; Safadi et al., 2016). Given the limited understanding of this particular domain among the community, there is a compelling need to enhance its knowledge base (Al-Ayed, 2010; Aldayel et al., 2020). The objective of this study was to ascertain the extent of parental awareness regarding children's developmental milestones in the eastern region of Saudi Arabia.

MATERIALS AND METHODS

The present study employed a descriptive cross-sectional design and was carried out in Al-Ahsa, Saudi Arabia. A pre-designed validated questionnaire, as previously established by Alkhazrajy and Aldeen (2017) and Safadi et al. (2016), was utilized for data collection. This survey assessed parental understanding of developmental stages among parents who satisfied the specified inclusion criteria: Individuals who are at least 18 years old, residing in Al-Ahsa, and have at least one kid between the ages of birth and 14 years.

The investigation was conducted throughout the period of January to March 2022. An inclusive invitation was extended to all parents who satisfied the specified requirements, disseminated through local virtual and social media platforms within the designated territory. A total of 372 participants were received. Al-Ahsa, situated in the eastern region of Saudi Arabia, holds the distinction of being the most extensive governorate in the area. It encompasses a total of 10 cities and 60 villages, accommodating an estimated population of around 1.3 million individuals. The survey consisted of questions pertaining to socio-demographic information, including knowledge, perception of milestones related to physical, cognitive, social, and emotional development, as well as linked factors such as income, level of education, and age at the birth of their initial offspring.

Subsequently, the gathered data underwent a process of revision and coding. The data were subjected to analysis using SPSS software version 22 (SPSS, Inc., Chicago, IL). All statistical data analysis employed two-tailed testing. The threshold for statistical significance was established at a level of $p < 0.05$. The scoring parameters were determined by summing the points assigned to each right answer, with the assumption that each item was valued at one point. Parents who did not attain a score of 60% out of the total score of 100% were deemed to possess inadequate knowledge.

A descriptive analysis was conducted on all factors, encompassing participants' data, education level, family size, and age at first childbirth. Furthermore, the data pertaining to children encompassed variables such as their age, gender, presence of a kid with special needs, and the source from which the information was obtained. Furthermore, the participants' understanding of child developmental milestones was quantified and their total level of awareness was visually represented through the use of graphs. Cross tabulation 1 was employed to evaluate the distribution of participants' knowledge level pertaining to developmental stages based on their collected data and primary source of information.

A survey was conducted and a total of 372 parents participated by completing the questionnaires. The ages of the parents in the study varied between 18 and 65 years, with an average age of 43.9 ± 13.1 years. Out of the overall sample size, 279 parents, accounting for 75% of the participants, identified as female. Additionally, 368 parents, representing 98.9% of the total, identified as Saudi. Furthermore, a total of 226 parents, comprising 60.8% of the sample, identified as Saudi. The study received ethical approval from the Ethics and Research Committee of King Fahad Hospital in Al-Ahsa. At the onset of the questionnaire, informed consent was acquired from every participant.

RESULTS

A total of 372 respondents, who identified themselves as parents, completed the questionnaires. The ages of the parents in the study varied between 18 and 65 years, with an average age of 43.9 ± 13.1 years. Out of the entire sample size, it was observed that 279 parents, constituting 75% of the participants, were identified as female. Additionally, a significant majority of 368 parents, accounting for 98.9% of the total, were found to be of Saudi nationality. A majority of parents, specifically 226 individuals or 60.8% of the sample, reported having their first kid between the ages of 18 and 25. Additionally, 95 parents, accounting for 25.5% of the sample, reported having their first child between the ages of 25 and 30. Out of the entire sample, it was found that 359 parents,

accounting for 96.5% of the participants, were married. Conversely, a smaller proportion of parents, namely 13 individuals or 3.5% of the total, reported being divorced or widowed.

Among the parents surveyed, a majority of 55.6% reported a family size ranging from 2 to 5 persons, while 41.9% reported a family size ranging from 6 to 10 persons. Out of the overall sample size, 227 parents, constituting 61% of the participants, possessed a university education or above. Among the respondents, 169 individuals, accounting for 45.4% of the sample, were employed, while 149 individuals, representing 40.1% of the sample, were unemployed. A total of 121 parents (32.5%) reported a monthly income below 5000 SR, while 128 parents (34.4%) reported a monthly income beyond 10000 SR. According to Table 1, a proportion of 32.5% or 121 parents relocated their residences once throughout the past five years, while a majority of 56.5% or 210 parents did not undergo any changes in their residential status.

Table 1. Socio-demographic data of study participants

Socio-demographic data	No	%
Age (years)		
18–35	147	39.5%
36–55	192	51.6%
55+	33	8.9%
Gender		
Male	93	25.0%
Female	279	75.0%
Nationality		
Saudi	368	98.9%
Non-Saudi	4	1.1%
Age when had first child		
< 18	15	4.0%
18–25	226	60.8%
25–30	95	25.5%
30–35	27	7.3%
35–40	9	2.4%
Marital status		
Married	359	96.5%
Divorced / widow	13	3.5%
Family size		
2–5	207	55.6%
6–10	156	41.9%
> 10	9	2.4%
Qualification		
Secondary / below	145	39.0%
University / above	227	61.0%
Work		
Not working	149	40.1%
Student	20	5.4%
Working	169	45.4%
Retired	34	9.1%
Monthly income		
< 5000 SR	121	32.5%
5000–10000 SR	123	33.1%
> 10000 SR	128	34.4%
Frequency of changing home in the last 5 years		
Never	210	56.5%
One time	121	32.5%
Two times	28	7.5%
Three or more times	13	3.5%

The first child's age was less than 3 years among 55 (14.8%) parents, 4–6 years among 37 (9.9%) and 7–12 among 62 (16.7%), while 158 (42.5%) parents had children aged over 16 years (Table 2). A total of 198 (53.2%) children were male. In addition, 340 (91.4%) parents reported that their children were with them all the time, while 8 parents' children were not. Moreover, 43 parents(11.6 %) had children with special needs.

Table 2. Personal data of participants' children

Child's personal characteristics	No	%
First child's age (years)		
< 3	55	14.8%
4–6	37	9.9%
7–12	62	16.7%
12–16	60	16.1%
> 16	158	42.5%
First child's gender		
Male	198	53.2%
Female	174	46.8%
Child's residency		
With me all the time	340	91.4%
With me part-time	24	6.5%
Not with me	8	2.2%
Has special needs		
Yes	43	11.6%
No	329	88.4%

Regarding knowledge of children's developmental milestones, 71%, 62.9% and 57% of parents correctly reported the age when most children started to crawl; walk; and hold objects and extend their arms to be picked up, respectively. Furthermore, 32.3%, 28.2% and 4.8% knew the age when most children started counting numbers, reading people's faces and recognizing strangers' faces and began to make some of their own decisions, such as choosing clothes and toys. No parents

knew the age at which most children had a best friend (Table 3).

Table 3. Parental knowledge of children's developmental milestones

Developmental milestone items The age at which most children begin to	Incorrect answer		Correct answer	
	No	%	No	%
Interact with their imagination and play imaginary roles	336	90.3%	36	9.7%
Walk	138	37.1%	234	62.9%
Play with their peers	297	79.8%	75	20.2%
Share their toys with other children	301	80.9%	71	19.1%
Play on their own quietly for an hour	296	79.6%	76	20.4%
Make some of their own decisions, such as choosing clothes and toys	354	95.2%	18	4.8%
Crawl	108	29.0%	264	71.0%
Read people's faces and recognizing strangers' faces	267	71.8%	105	28.2%
Make different crying sounds to ask for certain things	267	71.8%	105	28.2%
Bond with their parents	278	74.7%	94	25.3%
Hold objects and extend their arms to be picked up	160	43.0%	212	57.0%
Dress and undress on their own	287	77.2%	85	22.8%
Perceive and discuss justice, injustice and theft	287	77.2%	85	22.8%
Have a best friend	372	100.0%	0	0.0%
Take an interest in and cooperate with those around them	310	83.3%	62	16.7%
Respond to simple instructions	291	78.2%	81	21.8%
Count	252	67.7%	120	32.3%

As in Figure 1, 342 (91.9%) parents had poor knowledge regarding their children's developmental milestones, while only 30 (8.1%) had good knowledge. Moreover, the most reported sources for information were internet sites (81.4%), parents/relatives (81.4%), books and specialized scientific journals (76.3%), TV programs (69.3%), pediatrician or general practitioner (68.3%), social media (62.6%) and educational training courses (39.6%) (Table 4)

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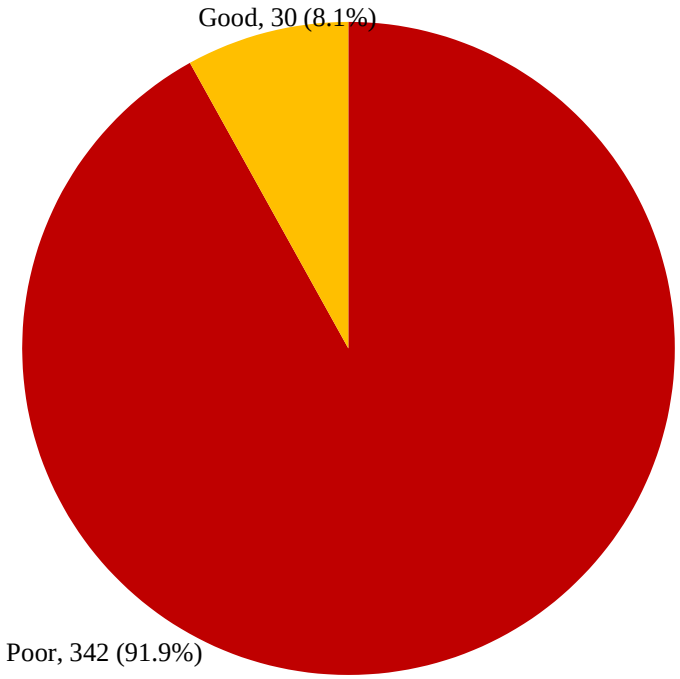

Figure 1. Overall Parental Knowledge of Children's Developmental Milestones in the Eastern Region, Saudi Arabia

Table 4. Source of information regarding children's growth milestones and providing assistance among participants

Source of information	Never		Rarely		Sometimes		Usually	
	No	%	No	%	No	%	No	%
Pediatrician or general practitioner	118	31.7%	71	19.1%	149	40.1%	34	9.1%
Parents/relatives	69	18.6%	44	11.9%	175	47.2%	83	22.4%
Books and specialized scientific journals	88	23.7%	73	19.7%	169	45.6%	41	11.1%
Internet sites	69	18.6%	58	15.7%	176	47.6%	67	18.1%
Social media	139	37.4%	90	24.2%	121	32.5%	22	5.9%
Educational training courses	224	60.4%	60	16.2%	76	20.5%	11	3.0%
TV programs	114	30.7%	94	25.3%	142	38.3%	21	5.7%

Furthermore, it was observed that 9.7% of mothers exhibited a high degree of knowledge pertaining to the developmental milestones, in contrast to 3.2% of fathers. This discrepancy was found to be statistically significant (P = 0.048). Furthermore, the study revealed that 10.6% of individuals who had obtained a university degree shown a high level of knowledge, whereas only 4.1% of those without a university degree exhibited the same level of knowledge (P = 0.026). A significant difference was observed in the level of information pertaining to developmental milestones between parents with their first kid aged 4-6 years (16.2%) and those with a first child under 3 years (5.5%) (P = 0.049). There were no significant associations found between parents' milestone knowledge level and any of the other characteristics, as indicated in Table 5.

Table 5. Relation between parents' bio-demographic data, family data and source of information and their knowledge level regarding children's developmental milestones

Factors		Knowledge level				p-value
		Poor		Good		
		No	%	No	%	
Age in years	18–35	137	93.2%	10	6.8%	.625$
	36–55	174	90.6%	18	9.4%	
	55+	31	93.9%	2	6.1%	
Gender	Male	90	96.8%	3	3.2%	.048*$
	Female	252	90.3%	27	9.7%	
Age when had firstchild	< 18	14	93.3%	1	6.7%	.174$
	18–25	205	90.7%	21	9.3%	
	25–30	92	96.8%	3	3.2%	
	30–35	24	88.9%	3	11.1%	
	35–40	7	77.8%	2	22.2%	
Family size	2–5	190	91.8%	17	8.2%	.929$
	6–10	144	92.3%	12	7.7%	
	> 10	8	88.9%	1	11.1%	
Qualification	Secondary / below	139	95.9%	6	4.1%	.026*
	University / above	203	89.4%	24	10.6%	
Work	Not working	134	89.9%	15	10.1%	.642
	Student	18	90.0%	2	10.0%	
	Working	158	93.5%	11	6.5%	
	Retired	32	94.1%	2	5.9%	
Monthly income	< 5000 SR	109	90.1%	12	9.9%	.463
	5000–10000 SR	116	94.3%	7	5.7%	
	> 10000 SR	117	91.4%	11	8.6%	
First child's age inyears	< 3	52	94.5%	3	5.5%	.049*$
	4–6	31	83.8%	6	16.2%	
	7–12	59	95.2%	3	4.8%	
	12–16	57	95.0%	3	5.0%	

	> 16	143	90.5%	15	9.5%	
First child gender	Male	185	93.4%	13	6.6%	.257
	Female	157	90.2%	17	9.8%	
Source of information	Pediatrician or general practitioner	232	91.3%	22	8.7%	.819
	Parents/relatives	277	91.4%	26	8.6%	
	Books and specialized scientific journals	257	90.5%	27	9.5%	
	Internet sites	275	90.8%	28	9.2%	
	Social media	210	90.1%	23	9.9%	
	Educational training courses	135	91.2%	13	8.8%	
	TV programs	233	90.3%	25	9.7%	

P: Pearson X^2 test; $: Exact probability test
** P < 0.05 (significant)*

DISCUSSION

The level of parental knowledge and awareness regarding developmental stages has a significant impact on parental expectations and interactions with their children. The existing body of data demonstrates a beneficial association between the recognition of child development and parenting efficacy, leading to improved results. Moreover, the process of child development significantly influences parents' expectations and relationships with their offspring.

This facilitates the prompt recognition of indicators and the proactive pursuit of medical consultation. On the other hand, a lack of knowledge indicates an excessive preoccupation with the well-being of children and the ability to parent effectively (Conrad et al., 2006; Reich, 2005).

In the conducted study, it was observed that all participants exhibited substandard performance in the assessment, as indicated in Table 3. Nevertheless, their understanding of motor development was deemed satisfactory. The parents accurately documented the typical age at which a majority of youngsters initiate crawling, walking, grasping things, and reaching out to be lifted (71%, 62%, and 57.0%, respectively). The participants exhibited a substantial lack of information regarding many categories, such as emotional, cognitive, and social. This conclusion aligns with the results reported by Aldayel et al. (2020) and Rikhy et al. (2010). In the domain of social development, it was observed that none of the participants possessed accurate knowledge regarding the typical age at which children typically establish a best friend. Conversely, a minority of 16.7% accurately identified the age at which children generally begin displaying an interest in and engaging in cooperative behaviors with their peers.

The findings of our study indicate that a significant proportion of parents in the Eastern region, specifically 91.9%, exhibited a lack of adequate information regarding developmental milestones (see Figure 1). In contrast to a prior investigation conducted in Riyadh, it was found that a significant majority of parents, amounting to 80%, provided a negative evaluation of the entire situation (Aldayel et al., 2020). According to a study conducted by Al-Maadadi and Ikhlef (2014), there is a relatively low level of mother understanding of developmental milestones in Qatar. According to a study conducted by Alkhazrajy and Aldeen (2017), it was shown that mothers in Iraq possess a reasonable level of understanding regarding developmental milestones. Nevertheless, the level of knowledge among the Arab population exhibited a higher magnitude in contrast to the findings of our study. Moreover, a research investigation carried out in the state of Gujarat revealed that 10.8% of maternal participants exhibited substandard scores, while 75.9% demonstrated average scores (Nayan et al., 2019). In the conducted survey, the primary sources of information utilized were online sites, which accounted for 81.4% of the respondents, followed closely by parents and relatives, also accounting for 81.4% of the participants. The sources of information may provide an explanation for the observed lack of understanding, as seen in Table 4. The prior research have indicated parents' experience, the Internet, and relatives as sources of information, which aligns with our study. Additionally, the participants in these studies exhibited low levels of knowledge (Aldayel et al., 2020; Alkhazrajy and Aldeen, 2017).

The primary focus of the majority of studies examining typical infant development mostly centers around mothers (Alkhazrajy & Aldeen, 2017; Ertem et al., 2007). The data presented in Table 5 indicates that moms had a higher degree of knowledge compared to fathers. This phenomenon may be attributed to the greater amount of time that mothers typically allocate to their infants, potentially elucidating the observed augmentation in knowledge acquisition. Previous research has documented comparable results pertaining to gender (Aldayel et al., 2020; Bornstein and Putnick, 2016; Ertem et al., 2007). Our study indicated that parents with higher education levels better comprehended developmental milestones, corresponding with other Middle Eastern studies (Alkhazrajy and Aldeen, 2017; Al-Maadadi and Ikhlef, 2014). Previous research has indicated that there is no substantial association between parental education and the level of child development awareness, as demonstrated by studies conducted by Aldayel et al. (2020) and Rikhy et al. (2010). The observed variations can be ascribed to disparities in the sizes of the samples, the populations under investigation, and the strategies employed in the studies. Moreover, it can be argued that maternal education has an

indirect impact on the acquisition of knowledge regarding infant development, as opposed to directly imparting information. Ertem et al. (2007) proposed in their study that women in developing nations who possess higher levels of education may hold the belief that they have the capacity to effect change within their respective contexts. Furthermore, these women may exhibit heightened levels of vigilance and perceptiveness, as well as a greater inclination towards embracing modernisation, hence reducing their reliance on traditional values. This study highlights the importance of implementing structured parenting programs and providing culturally relevant sources of knowledge in order to develop parenting abilities within the context of Saudi Arabia.

The study's shortcomings encompassed the utilization of an online questionnaire, which may have introduced potential inaccuracies in the responses and could have been influenced by participants' varying levels of comprehension. Additionally, the study employed an open invitation approach without specifically targeting particular populations. Furthermore, the research was carried out just in a single governorate within Saudi Arabia, hence posing challenges in extrapolating the findings to other regions owing to potential variations in the population.

CONCLUSIONS

The parents residing in the Al-Ahsa Region of Saudi Arabia exhibited limited awareness regarding the developmental milestones pertaining to their children, with a particular emphasis on the emotional, cognitive, and social domains. It is imperative for healthcare providers to ensure the provision of appropriate information regarding child development to parents, which can be achieved through the dissemination of such information during routine visits.

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