

Parental knowledge, attitude and practice towards children's developmental milestone in Western region, Saudi Arabia.

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Abstract. Background and Objectives- Parents' ability to engage and raise their children in a safe and appropriate manner is largely influenced by their knowledge of child development and childrearing. The objective of this study was to evaluate the parenting and developmental milestone knowledge of western region Saudi parents and to identify the related elements that influence their knowledge. Methods- This cross-sectional study was conducted for a period of 6 months. Ethical approval was obtained from the Institutional Review Board (IRB) and informed written consent was taken from all participants. Participants' personal data were de-identified to ensure privacy, and all methods were conducted in accordance with relevant guidelines and regulations. Participants were Saudi parents of the western Province of Saudi Arabia with children up to the age of 6 years who were willing to participate and gave their informed consent. There were no restrictions on parent's age or ethnic origin. Results- parental awareness and knowledge about children's developmental milestones, we examined a diverse sample of 873 participants, predominantly comprising females (77.00%). The age distribution revealed that a substantial portion of the respondents were aged below 30 (37.00%). The majority (62.40%) of respondents sought information from medical physicians and paediatricians. Gender had a significant effect, with males showing a lower awareness level compared to females (Beta = -0.582, 95% CI [-0.890, -0.274], P value < 0.001). Marital status demonstrated significance, where divorced individuals had a lower awareness level compared to widowed participants (Beta = -1.641, 95% CI [-2.993, -0.288], P value = 0.017), while no significant differences were found for singles or married individuals. Conclusion- Saudi parents lacked understanding of other parenting skills, such as a baby's personality and temperament, but they were well educated about some areas of childrearing, primarily physical safety precautions. It is advised that nurses and doctors give parenting advice to families at every step of their children's growth in order to educate and support them.

Keywords: knowledge, practices, developmental milestones, cognitive, awareness

Introduction

Parents' expectations of and interactions with their children are influenced by their understanding of and awareness of child development [1]. The literature has shown that a child's early life experiences play a significant role in shaping their future social skills, with the first five years of life being particularly critical for brain development [2]. Research conducted in industrialized nations revealed a significant correlation between a mother's capacity to improve her child's growth and her understanding of child development [3]. However, research indicates that parents who are ignorant about child development may overestimate their child's rate of

development, which could result in unreasonable expectations, intolerance, and impatience [4].

A child's degree of achievement at a certain stage is indicated by the word "Milestone" (MS). Because children develop at different rates, developmental milestones are not set in stone and have a typical range of variation. The developmental milestones provide a rough sense of when to expect specific changes as a kid grows older, even though it may be challenging to estimate with precision when a child will acquire a particular skill [5]. Understanding early life milestones, continuous developmental processes, and being familiar with parenting techniques are all ways to gain knowledge about child development. Research from several industrialized nations revealed a significant correlation between mothers'

increased capacity to support their children's development and their understanding of child development.*[6]

The ongoing process of developing and using the information and abilities necessary for organizing, conceiving, giving birth, raising, and taking care of children is referred to as "parenting." [6] Proficient in their child's development, parents exhibit high levels of efficacy and competence in parenting. Conversely, even though they were effective parents, parents with insufficient information had insufficient parenting skills. [7, 8] In the 1980s and 1990s of the previous century, child psychologists were concerned with developmental expectations and mothers' awareness of developmental milestones. This is why it is a common topic in Western literature [9]. Studies from the Arab world, Saudi Arabia included, are, on the other hand, rare. Thus, the purpose of this study was to evaluate the knowledge, attitude and practices of western region of Saudi parents about developmental milestones for infants, as well as the socio-demographic factors that are relevant to knowledge and the sources of information regarding these milestones.

Materials and Methods

This cross-sectional study and an online survey was sent to participants through short message service (SMS) and included an explanation of the study and its purpose, with informed consent required prior to participation and completion of the questionnaire. This study's protocol was approved by the Institutional Review Board (IRB) of Umm Al-Qura University. Participants' personal data were de-identified to ensure privacy, and all methods were conducted in accordance with relevant guidelines and regulations. Participants were Saudi parents of the western Province of Saudi Arabia with children up to the age of 6 years who were willing to participate and gave their informed consent. There were no restrictions on parent's age or ethnic origin. Parents of infants with confirmed developmental abnormalities, complicated perinatal and postnatal history, and/or neurologically deficient infants were excluded as these factors could contribute to false conclusions on developmental norms. Participants were recruited through field visits to a list of Governmental Primary Healthcare Centers in the Western Province,

Saudi Arabia. Total sample size was found to be 873 using purposive sampling technique during the study period.

Methodology

Data was collected by a questionnaire composed of three sections. The first section was for the sociodemographic data, and the second was for a knowledge instrument tool known as 'Knowledge of Infant Development Inventory (KIDI), that had been developed by David McPhee [10]. The KIDI consisted of two parts: childrearing practices and developmental milestones. The third section was a modified version of the parental Sources of Information Questionnaire that have been used in a previous similar study conducted in Jordan [11]. The questionnaire was used after taking the approval of the authors.

Approval to use the KIDI tool was obtained from the original author before its application in this study. KIDI, formulated using a Univariate scale of 58 items, was generated to assess a person's knowledge of parenting practices, child developmental processes. The first 39 items of the original KIDI, which deals with knowledge about normative child behaviours, ask respondents to indicate whether they agree, disagree or are unsure of the statements. In the second part (items 40–58) which dealt with child's developmental milestones, if the respondents did not agree, they were to indicate whether a younger or older child would be able to achieve a particular milestone. [10]

Statistical Analysis

The statistical analysis was done by SPSS (IBM version 26). The categorical sociodemographic data were presented as frequencies and percentages. Mann-Whitney and Kruskal-Wallis tests were used to show the association between the outcome numerical variable and the sociodemographic data to present medians, inter-quartile ranges and P values. Generalized linear regression models were constructed to predict the high scores of parental awareness and knowledge about children's developmental milestone based on the statistically significant sociodemographic data for the primary outcome. Results of the regression were presented as beta coefficients and their respective 95% confidence intervals. A p value of < 0.05 is an indication statistical significance.

Results

Table 1. Sociodemographic data (n=873)

	Category	N	%
Gender	Male	201	23.00%
	Female	672	77.00%
Age	< 30	323	37.00%
	31-39	235	26.90%
	40-49	226	25.90%
	50-59	77	8.80%
	60 or more	12	1.40%
Marital Status	Single	198	22.70%
	Married	635	72.70%
	Divorced	29	3.30%
	Widowed	11	1.30%
Nationality	Saudi	772	88.40%
	Non-Saudi	101	11.60%
Geographical Region	Northern	0	0.00%
	Southern	97	11.10%
	Central	39	4.50%
	Eastern	51	5.80%
	Western	686	78.60%
Residency	Urban Area	700	80.20%
	Rural Area	173	19.80%
Educational level	Uneducated	6	0.70%
	Elementary	12	1.40%
	Middle	29	3.30%
	High school	196	22.50%
	University	582	66.70%
	Post-graduate	48	5.50%
Employment	Student	138	15.80%
	Unemployed	287	32.90%
	Employed	397	45.50%
	Entrepreneur	12	1.40%
	Retired	39	4.50%
Monthly income	Less than 5000	398	45.60%
	5000-10000	275	31.50%
	More than 10000	200	22.90%

Saudi

As per table 1 in our study on parental awareness and knowledge about children's developmental milestones, we examined a diverse sample of 873 participants, predominantly comprising females (77.00%). The age distribution revealed that a substantial portion of the respondents were aged below 30 (37.00%). Regarding marital status, the majority were married (72.70%). A significant proportion of the participants identified as

nationals (88.40%). Geographically, the majority resided in the Western region (78.60%). In terms of residency, (80.20%) lived in urban areas. Educational levels varied, with a significant proportion holding university degrees (66.70%). Employment status showed diversity, with (45.50%) being employed. The monthly income distribution varies with the highest proportion (45.60%) earned less than 5000

Original investigations / commentaries

Table 2. Descriptive analysis of parental awareness and knowledge about children's developmental milestone (gross and fine motors) (n=873)

Parameter	Category	N	%
When does the infant start move in his head?	1 week	295	33.80%
	3 weeks	263	30.10%
	6 weeks	156	17.90%
	1 month	159	18.20%
When does the infant begin to turn over?	1 month	120	13.70%
	6 months	669	76.60%
	10 months	65	7.40%
	1 year	19	2.20%
When does it start to standing?	8 months	233	26.70%
	10 months	474	54.30%
	1 year and half	150	17.20%
	2 years	16	1.80%
When does the child walk alone steadily?	10 months	65	7.40%
	12 months	337	38.60%
	15 months	295	33.80%
	20 months	176	20.20%
When does the child climbing stairs?	12 months	91	10.40%
	14 months	121	13.90%
	18 months	274	31.40%
	24 months	387	44.30%
When can a child follow things with his eyes?	At birth	41	4.70%
	1 week	214	24.50%
	6 weeks	519	59.50%
	1 year	99	11.30%
When can a child approach to object?	1 week	14	1.60%
	1 month	47	5.40%
	6 months	434	49.70%
	1 year	378	43.30%
When can a child do manual skills like drawing?	1 month	18	2.10%
	6 months	32	3.70%
	1 year	150	17.20%
	At 3 years and above	673	77.10%

Based on (Table 2), the results of our study on parental awareness of children's developmental milestones revealed significant variation in participants' perceptions of when infants typically reach various developmental stages. For the question regarding when an infant starts to move their head, the majority (33.80%) believed it occurs at 1 week. When it comes to infants turning over, (76.60%) of respondents believed this occurs at 6 months. In the case of standing, the most common perception was that it

begins at 10 months (54.30%). Concerning walking alone steadily, (38.60%) believed it happens at 12 months. Climbing stairs was thought to start at 24 months by (44.30%) of respondents. The ability to follow things with the eyes was perceived by (59.50%) to start at 6 weeks. Most of the participants believe that a child approaches to objects at 6 months (49.70%). For manual skills like drawing, a substantial (77.10%) believed this begins at 3 years and above.

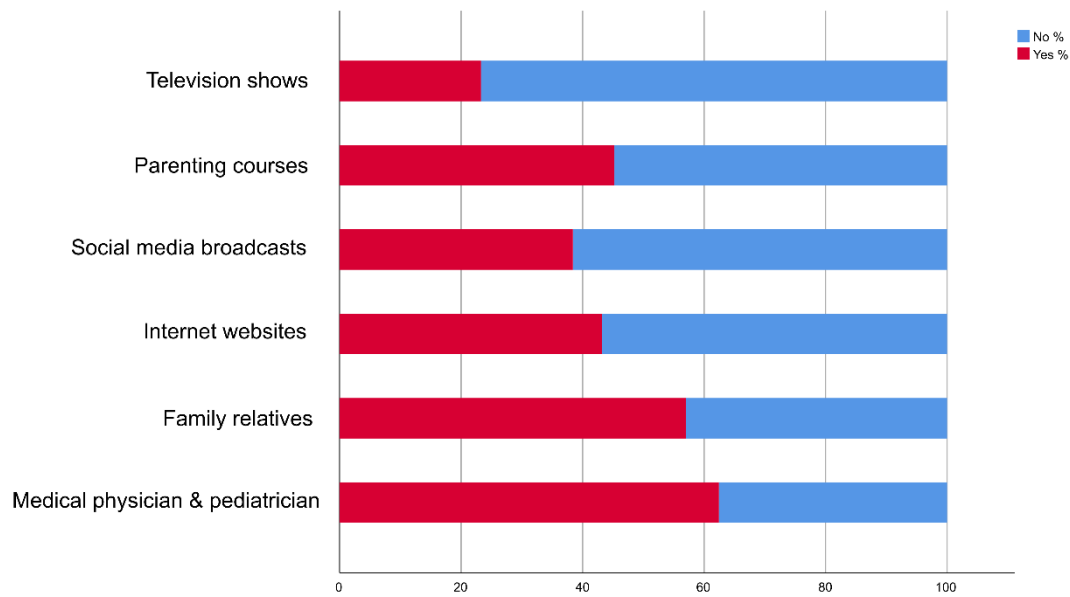
Table 3. Descriptive analysis of parental awareness and knowledge about children's developmental milestone (speech and language, social and emotional) (n=873)

Parameter	Category	N	%
At what age does the child begin to respond to the mother's voice?	1 week	199	22.80%
	3 weeks	266	30.50%
	6 weeks	231	26.50%
	1 month	177	20.30%
At what age does a child start saying "Mama and Papa"?	4 months	73	8.40%
	6 months	188	21.50%
	8 months	298	34.10%
	10 months	314	36.00%
At what age does a child start smiling?	6 weeks	476	54.50%
	8 weeks	212	24.30%
	12 weeks	98	11.20%
	14 weeks	66	7.60%
	1 month	8	0.90%
	2 months	13	1.50%
At what age does a child begin to know his age and his name?	1 year	244	27.90%
	2 years	271	31.00%
	3 years	240	27.50%
	4 years	118	13.50%
At what age does a child start saying bye bye?	6 months	111	12.70%
	10 months	242	27.70%
	1 year	361	41.40%
	2 years	159	18.20%
At what age can a child drink from a cup?	12 months	282	32.30%
	18 months	290	33.20%
	2 years	234	26.80%
	3 years	67	7.70%
At what age does a child begin to control urination?	1 year	46	5.30%
	2 years	175	20.00%
	3 years	421	48.20%
	4 years	231	26.50%

Respondents reported diverse beliefs about when a child begins to respond to the mother's voice, with (30.50%) perceiving this to occur at 3 weeks. The initiation of saying "Mama and Papa" was thought to commence predominantly at 10 months (36.00%). The milestone of smiling was believed to start at 6 weeks by (54.50%) of participants while the recognition of age and

name was perceived as beginning mostly at 2 years (31.00%). Saying "bye-bye" was thought to start at 1 year by (41.40%) and drinking from a cup was perceived as achievable at 18 months by (33.20%). Finally, regarding the control of urination, a significant (48.20%) believed it begins at 3 years (Table 3).

Figure 1. Source of information regarding parental awareness and knowledge about children's developmental milestone



The majority (62.40%) of respondents sought information from medical physicians and pediatricians (Figure 1).

Table 4. Association between sociodemographic data and parental awareness and knowledge about children's developmental milestone

Parameter	Category	Median (IQR)	P value
Gender	Male	5.0 (4.0-7.0)	< 0.001
	Female	6.0 (5.0-7.0)	
Age	< 30	6.0 (4.0-7.0)	< 0.001
	31-39	6.0 (5.0-7.0)	
	40-49	6.0 (5.0-7.0)	
	50-59	6.0 (4.5-7.0)	
	60 or more	5.5 (3.25-7.0)	
Marital Status	Single	6.0 (4.0-7.0)	0.007
	Married	6.0 (5.0-7.0)	
	Divorced	5.0 (4.0-6.5)	
	Widowed	6.0 (6.0-8.0)	
Nationality	Saudi	6.0 (5.0-7.0)	0.768
	Non-Saudi	6.0 (4.0-7.0)	
Geographical Region	Southern	5.0 (3.0-7.0)	0.044
	Central	6.0 (5.0-7.0)	
	Eastern	6.0 (5.0-7.0)	
	Western	6.0 (5.0-7.0)	
Residency	Urban Area	6.0 (5.0-7.0)	0.599
	Rural Area	6.0 (4.0-7.0)	
Educational level	Uneducated	2.5 (0.75-6.75)	0.109
	Elementary	5.0 (4.0-6.75)	
	Middle	6.0 (3.0-7.0)	
	High school	6.0 (5.0-7.0)	
	University	6.0 (5.0-7.0)	

	Post-graduate	6.0 (5.0-8.0)	
Employment	Student	6.0 (4.0-7.0)	0.079
	Unemployed	6.0 (5.0-7.0)	
	Employed	6.0 (5.0-7.0)	
	Entrepreneur	5.5 (4.25-7.0)	
	Retired	6.0 (4.0-7.0)	
Monthly income	Less than 5000	6.0 (5.0-7.0)	0.153
	5000-10000	6.0 (4.0-7.0)	
	More than 10000	6.0 (5.0-7.0)	

The overall median and IQR of knowledge score is 6.0 (5.0-7.0). Regarding (Table 4), a statistically significant difference (P value < 0.001) was observed between gender, with females reporting a slightly higher median awareness score (6.0, IQR 5.0-7.0) compared to males (5.0, IQR 4.0-7.0). Age also showed significant differences (P value < 0.001), where participants aged below 30, between 31-39, and 40-49 had a median awareness score of 6.0, whereas those aged 50-59 had a median of 6.0 (IQR 4.5-7.0), and those aged 60 or more had a slightly lower median of 5.5 (IQR 3.25-7.0). Marital

status had a significant impact (P value = 0.007) on awareness, with divorced individuals reporting a median of 5.0 (IQR 4.0-6.5), while singles, married, and widowed participants had a median score of 6.0. Geographical region demonstrated a significant difference (P value = 0.044), with the Southern region showing a median awareness score of 5.0 (IQR 3.0-7.0), while other regions had a median of 6.0. However, no significant differences were found based on nationality, residency, educational level, employment status, or monthly income.

Table 5. Linear regression showing predictors of parental awareness and knowledge about children's developmental milestone based on the statistically significant sociodemographic data

Parameter	Category	Beta	95% CI		P value
			LB	UB	
Gender	Male	-0.582	-0.890	-0.274	< 0.001
	Female	Ref.	Ref.	Ref.	Ref.
Age	< 30	0.230	-0.916	1.377	0.693
	31-39	0.968	-0.168	2.103	0.095
	40-49	0.878	-0.255	2.011	0.129
	50-59	0.352	-0.821	1.525	0.556
	60 or more	Ref.	Ref.	Ref.	Ref.
Marital Status	Single	-0.863	-2.080	0.355	0.165
	Married	-0.762	-1.935	0.412	0.203
	Divorced	-1.641	-2.993	-0.288	0.017
	Widowed	Ref.	Ref.	Ref.	Ref.
Geographical Region	Southern	-0.234	-0.653	0.186	0.275
	Central	0.001	-0.613	0.616	0.996
	Eastern	-0.393	-0.932	0.147	0.153
	Western	Ref.	Ref.	Ref.	Ref.

In (Table 5), the results of our regression analysis examining the impact of various demographic factors on parental awareness of children's developmental milestones revealed several notable findings. Gender had a significant effect, with males showing a lower awareness level

compared to females (Beta = -0.582, 95% CI [-0.890, -0.274], P value < 0.001). Marital status demonstrated significance, where divorced individuals had a lower awareness level compared to widowed participants (Beta = -1.641, 95% CI [-2.993, -0.288], P value = 0.017), while

no significant differences were found for singles or married individuals.

Discussion

The current study outlines the parents of western Saudi Arabia understanding of new-born development stages and childrearing. The wellbeing of children, parents, and society as a whole depends on parenting expertise and a grasp of childrearing and development processes. As far as we are aware, Saudi Arabia lacks such information in western region. Typically, parents get virtually exclusively physical information from healthcare practitioners, with little to no emphasis placed on cognitive, emotional, and parent-infant interaction skills [12]. Furthermore, it is evident that the primary focus of physical healthcare services is on vaccines, physical examinations, and evaluations of the growth and development of infants. According to earlier research in the literature, pediatricians have a crucial role in parenting practices by focusing on basic treatment and health maintenance while ignoring discussions with them regarding parts of childrearing education [13]. The current investigation revealed a high degree of physical aspect understanding.

The majority of services provided by Primary Healthcare Centers (PHCs) concentrate on immunizations, growth parameter checks, and general health-related concerns like constipation, feeding difficulties, and nutritional challenges. This highlights our population's general lack of maternal information. Because PHC practitioners handle such general health-related themes, the health and safety subscale, which had the greatest level of knowledge (63.4%) among mothers, is an excellent example of such a shortage in the PHC function. Another study conducted by Arabs has likewise made same observation. Furthermore, fundamental security and physical health subjects like immunization and diet are periodically covered in-depth on a variety of media channels. While most pediatricians address fundamental health maintenance issues, certain worldwide studies have revealed that other areas of childrearing and development instruction are often disregarded. [14, 15]

In contrast the Saudi women demonstrated greater understanding of the parent-child relationship [11]. As opposed to 25% in the previous study, 42.4% of our study participants reject the notion that carrying a crying infant will spoil him or her [11]. In a similar vein, our study revealed a more positive interpretation of the causes of a baby's crying than the Jordanian one [11], with 51.7% of the moms in our sample disagreeing that babies cry merely to cause problems, compared to 29.5% of the mothers in the Jordanian study.

The primary sources of information regarding developmental milestones in the current study were medical education websites, mothers' families, healthcare providers, and the presence of an older kid. The current way that information is accessed is expected to change as the internet becomes more widely available [16]. Parents also depend on information from their own families, and studies have shown that mothers' understanding of infant development is closely correlated with that of their own mothers [16]. Contrary to our findings [17], a similar Iraqi study found that mothers learned the majority of knowledge about their children's developmental milestones from their own experiences (71.5%), with very small percentages learning it from doctors (16.5%) and primary health care institutions (5.5%).

According to other research of a similar nature, moms who are employed and educated—especially those with a higher degree of education—have good developmental understanding [16]. The results of the current study indicated a substantial correlation between the mother's work and understanding of the overall development milestones. This went against the findings [17], which showed a strong correlation between homemaker moms' understanding of motor development and their level of education. In terms of parity, the number of delivered kids and the mother's awareness of a child's developmental milestones did not significantly correlate, which is consistent with a 2015 study that also revealed no significant correlation [18].

Conclusion

A child's early years have a significant impact on their future social, physical, mental, and cognitive development. Furthermore, as parents are typically in charge of providing childcare at this crucial time in most cultures and groups, their understanding of developmental milestones affects the type and standard of care the kid receives. Parents do, however, have gaps in their understanding of children's development, even though women were better at identifying milestones than men. The majority of parents lacked appropriate levels of knowledge and were unable to accurately respond to questions about the developmental milestones of their children.

In general, it is believed that western region Saudi parents only have a limited understanding of certain areas of childrearing—primarily physical safety precautions. It was noted that there was a lack of expertise in other parenting abilities. The lack of emphasis on interactions between mothers and healthcare professionals may be the primary cause of this inadequate knowledge, particularly given that mothers mostly acquired their knowledge of

childrearing from nurses and physicians. It is advised that nurses and doctors educate and assist families by providing parenting education across all developmental stages of children as a workable solution to such an issue.

Conflict of Interest: None declared

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