A cross sectional study to assess the knowledge of adults about developmental milestones of children in Pedhawaltair, Andhra Pradesh

Srinivas Subudhi, Shridevi K, Manoj P, A Goparaju and Anusha DVB

DOI: https://doi.org/10.33545/26643685.2020.v3.i2c.112

Abstract

Introduction: Developmental delay occurs when a child exhibits a significant delay in the acquisition of milestones or skills, in one or more domains of development (i.e., gross motor, fine motor, speech/language, cognitive, personal/social or activities of daily living).

Objectives: To Assess the Knowledge of Adults about Motor, Language and Socio Adaptive milestones of children (1-5 years) and its association with Demographic Variables.

Materials and Methods: Type of study – Cross sectional study, Study population and area- Urban health center field practice area is 16 kms away from the college at Pedhawaltair. It has a population of 21418 with Adult population were 7200 persons. Sample size – 384, Study tool: Pretested Prevalidated semi structured questionnaire was developed which was divided in to 4 section, Demographic variables.9 questions on Motor, 6 questions on Fine motor, 10 questions on language and 9 questions on Social adaptive milestones.

Results: In 34 questions regarding milestones, 20.17 ± 4.38 questions were answered correctly in that 9,6,10 and 9 questions were from gross motor, fine motor, Language and Social Adaptive development respectively, out of which on an average 5.89, 3.70, 6.34, 5.02 questions were answered correctly. Knowledge was significantly associated with Age, Females, Married, Homemakers/Skilled workers/unskilled workers, Joint family members.

Conclusion: 66.15% of the adults were having average knowledge score and 29.95% respondents having good knowledge score (>65%) and 3.91% of the adults have poor knowledge.

Keywords: Milestones, gross motor, fine motor, language

Introduction

“Milestone” is considered as any important significant event in life. “Developmental Milestone” is a descriptive term used to denote a set of functional skills or specific tasks that most children can do at a certain age range [1]. Developmental delay occurs when a child exhibits a significant delay in the acquisition of milestones or skills, in one or more domains of development [2].

Globally, 52-9 million children younger than 5 years had developmental disabilities in 2016. India contributes to 11.56 million (21.85%) of the total burden [3]. Main Developmental delays reported are sensory impairments (hearing and vision loss), epilepsy or seizures, cerebral palsy, attention deficit hyperactivity disorder (ADHD), autism spectrum disorder (ASD), intellectual disability, other learning disorders [4].

Children with developmental delays and disabilities are at greater risk of suboptimal health, educational attainment, and wellbeing than children without such disabilities [5]. In India, Main causes of developmental delays and disabilities were found to be under-nutrition, iodine deficiency, iron deficiency and inadequate cognitive stimulation [6].

First five-years in a child growth is a crucial period particularly for the development of the brain [7]. And the brain is much more vulnerable to environmental influences than suspected including nutrition, quality of interaction, care and stimulation [8]. Developmental milestones, for instance neck control sitting without support, crawling, standing, walking is generally understood to be vital stages of neurological development [9].

The value of early identification of children with developmental delays has been well documented [10]. Research also says that Parents’ knowledge and awareness of child development influence their expectations, interactions with their children and the construction of the learning environment of the child [11].
On the other hand, evidence suggests that parents with poor knowledge of child development overestimate the development rate, potentially leading to inappropriate expectations, intolerance, impatience, stress [12]. Additionally, lack of adult supervision, can increase the risk of social or behavioural problems in children [13]. Furthermore, paediatricians often rely on parents for developmental milestone history; when parents are aware of such developmental steps, interaction with a paediatrician becomes more effective [14]. Assessing a child’s development is a team effort, in which family plays an important role. In the family Adults who can be parents, caretakers, observers will be either taking care or will be observing the child during development. And Care implies not only providing children with proper food and shelter but also their growth, psychological, emotional and social development. This sort of upbringing helps in developing a physically, psychologically, emotionally and socially fit personality [10]. Hence, they must have adequate knowledge regarding the correct age of development of each milestone of the child for early Identification of development disorders and to seek early intervention

Hence the study was conducted with the objectives

1. To Assess the Knowledge of Adults about Motor, Language and Socio Adaptive milestones of children (1-5 years)
2. To find the association between Demographic variables (Age, Sex, Income, Education, Occupation, Religion, Parity) with Knowledge score.

Materials and Methods

Type of study- Cross Sectional study
Study period -November 25th 2020 to January 10th 2021.
Study area - The study was conducted among Adults of Urban health center field practice area of community medicine department of Gayathri Vidyar parishad Medical college, Visakhapatnam, Andhra Pradesh. Urban health center field practice area is 16 kms away from the college at Pedhawaltair. Study population- Pedhawaltair has a population of 21418 with Adult population of 7200 persons.

Sample size

Z α is the standard normal deviate, which is equal to 1.96 at 95% confidence interval.
p is the Good knowledge score taken as 50.68% from previous study [15].
e = Absolute precision taken as 5%
l-p = (1-50.68)
N = Total number of Adults in the area were 7200

\[
\text{Sample size}(n) = \frac{z^2 \times p(1-p)}{e^2} + \frac{1}{N}
\]


\[
\text{Sample size}(n) = \frac{(1.96)^2 \times 50.68}{50.68} \left(\frac{50}{50} - \frac{50}{50}ight)
\]

Study tool: Pretested Prevalidated semi structured questionnaire was developed which was divided in to 4 section,

Section 1: Demographic variables like Age, Gender, Religion, Parity, employment, educational level, Number of family members, Percapita income.

Section 2: Consisted of 15 questions, these 15 questions were based on knowledge on Motor milestones of the child from birth to 5 years, which included both Gross motor and fine motor milestones.

Section 3: Consisted of 10 questions which included language milestones of the child from birth to 5 years.

Section 4: Consisted of 9 questions which included social adaptive development Mile stones from birth to 5 years.

All the questions regarding milestones were open ended questions and in all the questions it was specified to provide the answer in months of the child.

Correct Answers: Correct Answers for each question regarding month of development of each milestone were determined by referring standard books (Red Flag Sign) and also by consulting 3 other experts in the field. Correct answers were in the form of range of minimum to maximum age in months and maximum age (months) was considered in such a way that if babies fail to develop a particular milestone even at the maximum age for that particular milestone then it should be considered developmental delay of the child(Red flag sign), for example “When does baby lying on stomach, will try to lift head and shoulders with good control ” answer was 3 – 6 months, because if baby doesn’t develop Neck reflex even at 6 months then there is definitely a developmental delay.

Knowledge score- There were totally 34 questions in 3 sections regarding milestones and each question has maximum and minimum range and if the answer is within the range then it carries 1 mark and incorrect carries 0 mark. Good Knowledge (>65%) – more than equal to 22 Average (36%-65%)- 12-21 score Poor- Below average (<35%) – less than or equal to 11

Research Variables

Independent Variable: The independent variables of the present study were age, religion, caste, education, occupation, Parity, Per capita income etc.

Dependent Variable: The dependent variables of the present study is knowledge regarding Motor, Language and Socio adaptive milestones of children less than 5 years.

Inclusion criteria

1. Adults who have access to Smart phone and Internet.
2. Adults above 18 years of age.
3. Adults who were permanent residents of the area
4. Adults who have given informed consent to participate in the study

Exclusion criteria

▪ Adults above 60 years, due to age related memory loss etc.

Validity and Reliability of the study tool: The study tool was assessed and modified by 2 expert paediatricians and 2 community medicine faculty for Content, Appearance, Clarity and construct validity. Reliability was computed by
Cronbach's Alpha (r) that is 0.802 by doing a pilot study on 20 adult participants from the same village and these were excluded from the data which was analysed.

**Ethical issue:** The study participants were included only after obtaining written informed consent from them and the study was conducted after obtaining ethical clearance from Institutional ethical committee of Gayathri Vidya parishad Medical college.

**Data Collection:** Due to Lockdown and as we have to obey the Government norms of social distancing, Instead of interviewing by face to face interview method, data was collected by using Google form by online survey method. The prepared questionnaire was entered in Google Form Format and the link was sent either by e-mail or through personal Whats app to the selected participants and while sending the google form, we have requested them to fill the complete form and to send by January 5th. The Google Form automatically verified that all questions had to be filled completely before submission and could not be submitted more than once. Reminder messages and mails were also given to them every 2 days. I have sent them the correct range of age for each developmental milestone through mail on January 5th to all the submitted Participants. Some of the participant’s doubts were also clarified by WhatsApp and email.

**Data analysis:** All data from the Google Form was converted in to Excel Sheet, From the Excel sheet the Data was analysed, using Microsoft Excel Version 2019 Software for calculating knowledge score of each individual and T test was used to know the association between knowledge score and Demographic variables and P<0.05 was considered as statistically significant. Data was presented using Tables.

**Observations and Results**

**Table 1: Demographic characteristics of respondents**

| Demographic Variables | Number | Percentage |
|------------------------|--------|------------|
| **Age**                |        |            |
| <20                    | 16     | 4.17       |
| 20-29                  | 94     | 24.48      |
| 30-39                  | 167    | 43.49      |
| 40-49                  | 93     | 24.22      |
| 50-59                  | 14     | 3.65       |
| **Gender**             |        |            |
| Male                   | 210    | 54.69      |
| Female                 | 174    | 45.31      |
| **Religion**           |        |            |
| Hindu                  | 311    | 80.99      |
| Muslim                 | 28     | 7.3        |
| Christian              | 45     | 11.72      |
| **Marital status**     |        |            |
| Un Married             | 60     | 15.63      |
| Married                | 283    | 73.70      |
| Divorced               | 25     | 6.51       |
| Widow                  | 16     | 4.17       |
| **Number of children** |        |            |
| No children            | 118    | 30.73      |
| 1                      | 130    | 33.85      |
| 2                      | 114    | 29.7       |
| >2                     | 22     | 5.72       |
| **Socio Economic status** |    |            |
| Class I                | 98     | 25.52      |
| Class II               | 65     | 16.93      |
| Class III              | 102    | 26.56      |
| Class IV               | 119    | 30.99      |
| **Education of Participants** | | |
| High School            | 115    | 29.95      |
| Graduate               | 204    | 53.13      |
| Post Graduate          | 65     | 16.93      |
| **Occupation of Participants** | | |
| Home Maker             | 142    | 36.98      |
| Skilled                | 14     | 3.65       |
| Semiprofessional       | 93     | 24.22      |
| Professional           | 135    | 35.16      |
| **Type of Family**     |        |            |
| Nuclear                | 210    | 54.69      |
| Joint                  | 40     | 10.42      |
| Extended Nuclear       | 134    | 34.90      |
| **Children with Special Needs** | | |
| Yes                    | 16     | 4.17       |
| No                     | 368    | 95.83      |
| Total                  | 384    | 100        |
As shown in Table 1, a total of 384 Adults participated in the study, and in whom Majority that is 167 (43.49%) adults were in the age group of 30-39 years followed by 20-29 yrs. 54.69% of participants were Males. Majority that is 73.7% were Married. 33.85%, 29.7%, 5.72% of the adults were having one, two and more than two children respectively. Majority of the respondents belong to socio economic status scale of class IV (30.99%) and class III (26.56%). All the participants were educated above high school and majority (53.13%) were graduates. Majority were Home makers (36.98%) and Professionals (35.16%). 4.17% (16) of the participants were having the burden of taking care of children with special needs.

| Level of Knowledge | Score | No. (Percentage) |
|--------------------|-------|------------------|
| Good               | More than or equal to 21 (>65%) | 115(29.95%) |
| Average            | 12-21 (36-65%) | 254(66.15%) |
| Poor/Below Average | 11 or less than 11 (<35%) | 15(3.91%) |

As shown in Table 2, Majority that is 254(66.15%) of the adults were having average knowledge score followed by 115 (29.95%) respondents who were having good knowledge score (>65%) and only few that is 15(3.91%) of the adolescents have poor knowledge.

| Level of Knowledge according to estimate of age | Correct (Mean±SD) | Over estimate (Mean±SD) | Under Estimate (Mean±SD) |
|-----------------------------------------------|-------------------|-------------------------|--------------------------|
| Gross Motor (9 questions)                     | 5.89±0.43         | 1.72±0.38               | 1.06±0.19                |
| Fine Motor (6 questions)                      | 3.70±1.53         | 0.92±0.94               | 1.41±0.96                |
| Language (10 questions)                       | 6.34±1.08         | 1.69±0.76               | 1.97±0.61                |
| Social Adaptive (9 questions)                 | 5.02±1.34         | 0.9±0.93                | 3.08±0.85                |
| Total                                          | 20.17±4.38        | 4.86±3.01               | 7.32±2.61                |

Out of the total 34 questions regarding milestones, on an average 20.17 questions were answered correctly with a standard deviation of 4.38 and in that 9,6,10 and 9 questions were from gross motor, fine motor, Language and social adaptive development respectively, out of which on an average 5.89, 3.70, 6.34, 5.02 questions were answered correct respectively.

| Knowledge regarding Milestones | Maximum | Minimum | Mean | Standard Deviation |
|--------------------------------|---------|---------|------|--------------------|
| Gross Motor Milestones (9)     | 9       | 1       | 5.89 | 0.43               |
| Fine Motor (6)                 | 6       | 1       | 3.70 | 1.53               |
| Language Milestones (10)       | 10      | 3       | 6.34 | 1.08               |
| Social Adaptive Milestones (9) | 8       | 1       | 5.02 | 1.34               |
| Total (34)                     | 33      | 6       | 20.17| 4.38               |

Out of 34 questions regarding milestones, Maximum score was 33 and minimum score was 6, with mean of 20.17 questions answered correctly. In Gross motor, fine motor and Language, the Maximum score was 9 out of 9.6 out of 6,10 out of 10 respectively. In Socio Adaptive Milestones, the Maximum score was 8 out of 9.

| Variable                     | N    | Mean ±SD | T test | Df | Mean Difference | 95% CI | p-value |
|------------------------------|------|----------|--------|----|----------------|--------|---------|
| Age                          | <30(86) | 86      | 18.75±4.92 | 3.86 | 382 | -2 | -3.01–-0.98 | 0.001 |
|                             | >30(298) | 298    | 20.75±4.01 | 2.58 | 382 | -2 | -2.07–-1.94 | 0.001 |
| Gender                       | Male | 210 | 15.14±4.35 | 22.55 | 382 | -10.07 | -10.94–-9.19 | 0.001 |
|                             | Female | 174 | 25.21±4.36 | 23.85 | 382 | -10.07 | -10.94–-9.19 | 0.001 |
| Religion (ANOVA test)        | Hindu | 311 | 20.17±4.38 | 23.85 | 382 | -10.07 | -10.94–-9.19 | 0.001 |
|                             | Muslim | 28  | 19.83±4.36 | 23.85 | 382 | -10.07 | -10.94–-9.19 | 0.001 |
|                             | Christian | 45 | 20.11±4.29 | 23.85 | 382 | -10.07 | -10.94–-9.19 | 0.001 |
| Marital status               | Married/Divorced/Widow | 324 | 26.17±4.38 | 19.56 | 382 | 12.02 | 10.81–13.22 | 0.0001 |
|                             | Unmarried | 60  | 14.15±4.32 | 19.56 | 382 | 12.02 | 10.81–13.22 | 0.0001 |
| Number of children           | 1 | 130 | 23.10±4.32 | 11.00 | 264 | 5.86 | 4.81–6.9 | 0.0001 |
|                             | ≥2 | 136 | 27.24±4.36 | 11.00 | 264 | 5.86 | 4.81–6.9 | 0.0001 |
| Education                    | High School | 115 | 20.14±4.36 | 0.1235 | 382 | -0.06 | -1.02–0.89 | 0.9018 |
|                             | Graduate/post Graduate | 269 | 20.20±4.36 | 0.1235 | 382 | -0.06 | -1.02–0.89 | 0.9018 |
| Socio Economic Status        | Upper (Class I) | 265 | 20.18±4.34 | 0.1406 | 382 | 0.05 | -0.89–0.99 | 0.92  |
|                             | Middle (Class II, III, IV) | 269 | 20.20±4.36 | 0.1235 | 382 | -0.06 | -1.02–0.89 | 0.9018 |
|                             | Lower (Class IV) | 119 | 20.13±4.32 | 0.1406 | 382 | 0.05 | -0.89–0.99 | 0.92  |
As shown in Table V, with respect to Age, Participants with age more than 30 years were significantly having better knowledge compared to younger participants (<30). Females, Married, Parents with single child were having significantly better knowledge. Homemakers/Skilled workers/ unskilled workers were having significantly better knowledge than Professionals and semiprofessionals. Joint and extended nuclear family members were also having significantly better knowledge compared to nuclear family members. Demographic variables in relation to Religion, Education, Socio-economic status and adults having children with special needs did not show significant difference in respect to knowledge score of milestones.

| Occupation                  | Unskilled/Skilled/ Home Maker | Professional/Semi professional |
|-----------------------------|-------------------------------|--------------------------------|
| Doctor                      | 156                           | 228                             |
| Friends and Family          | 61                            | 16.14±3.35                     |
| Books and Parenting Magazines| 70                            | 269.70±0.05                    |
| Internet Websites/Social media Broad cast | 144                            | 208.54±17                     |
| Television shows            | 364                            | 18.69±4.69                    |
| Parenting Course            | 363                            | 21.54±7.37                    |
| Total No (%)                | 384(100)                      | 384(100)                       |

As shown in table 6, 8.85%, 11.2%, 11.72%, 8.33% and 0.52% of the respondents were always getting information regarding milestones from Doctors, Friends/Family, Books/Magazines, Internet/Social Media and Television shows respectively and 55.21%, 72.40%, 70.05%, 54.17%, 4.69%, 5.47% were some-times getting information regarding milestones from Doctors, Friends/Family, Books/Magazines, Internet/Social Media and Television shows respectively.

### Discussion

The present study was conducted to know the knowledge of adults regarding milestones of children from one to five years, as they act either as Parents or caregivers during the development of children. Hence knowledge of them about all the developmental domains of milestones is important, as it enhances effective care and early identification of developmental delay and hence can seek Professional/Paediatrician help early.

Out of the 384 adults who participated in the study, Majority were from 20-39 (67.97%) years of age, lesser compared to study conducted by Joshi et al. (100%) [6], A. Karuppamman et.al study (94.8%) [15], A. Alshehri et al. study [11] (86.8%) and in Abdulrahman S. Aldayel et al. [16] study only 32.8% were from 19-35 years.

In the Present study, 54.69% of participants were males, More Male Participants, in the present compared to Abdulrahman S. Aldayel et al. [16] study (34.6%).

Majority of the respondents belong to socio economic status scale of class IV (30.99%) and class III (26.56%) similar to Joshi et al. study [6] (37.9% & 24.6%), Abdulrahman S. Aldayel et al. study (70.4%) [16].

All the participants were educated above high school, quiet high compared to Abdulrahman S. Aldayel et al. [16] study (74.1%), 60.3% in A. Karuppamman et.al study [15] and 26.2% in Joshi et al. study [6].

4.17% (16) of the participants were having the burden of taking care of children with special needs similar to Abdulrahman S. Aldayel study (5.3%) [16].

In the present study, 29.95% respondents were having good knowledge score (>65%), good number compared to 13.3% in Joshi et al. study [6] and Abdulrahman S. Aldayel et al. [16] study (2.4%), Ricky et al. study (1.6%) [17] and lesser compared to A. Kar uppamman et al. study (50.68%) [15], Deepika David et al. study (62%) [2].

Majority (66.15%) of the adults were having average knowledge score and the adults with average score were lesser compared to Joshi et al. study (75.9%) [6], Meshram et al. (71.67%) [18] and higher compared to Deepika David et al. study (26%) [2] and Abdulrahman S. Aldayel et al. study (14.2%) [16].

Only few that is 3.91% of the adults have poor knowledge less compared to Joshi et al. study (10.8%) [6], Deepika David et al. study (12%) [2], Abdulrahman S. Aldayel et al. study (80%) [16], Albertan Adults (98.4%) [17].

The average questions answered correctly were 20.17 questions in the present study similar to Joshi et al. study (19.21 questions) [6].

In the Present study, out of 34 questions regarding milestones, Maximum score was 33 and minimum score was 6, with mean of 20.17 questions answered correctly, In Joshi et al. study [6], Maximum score was 36 and Minimum score was zero and 19.21 questions were answered correctly. In Deepika David et al. [2] study, Maximum score was 40 and mean score was 19.89.

In the Present study, Participants with age more than 30 years were significantly having better knowledge compared to participants with less than 30 years similar to Joshi et al. study [6], Abdulrahman A Alshehri et al. [11], Anwar Alkhazrajy [19] and Ertem et al. [20] study and in Abdulrahman S. Aldayel [16] et al., Rehman et al. [21], Safadi et al. [22] and Puhan [23] et al. study there was no significant association with Age.

In the Present study Females were having significantly
better knowledge similar Abdulrahman S. Aldayel et al. study [16]. Married Participants were having significantly better knowledge similar to Abdulrahman A Alshehri et al. study [11].

Homemakers/Skilled workers/unskilled workers were having significantly better knowledge than Professionals and semiprofessionals similar to Joshi et al. [6] study and Abdulrahman A Alshehri et al. [11] study.

Joint and extended nuclear family members were also having significantly better knowledge compared to nuclear family members unlike Joshi et al. [6] study where a smaller number of family members were having more knowledge and in Abdulrahman S. Aldayel [16] et al. study no significant association was found.

In the present study, Education did not show any impact on knowledge score, similar to Rehman et al. [21] and Pahan et al. [23] study but in Joshi et al. [6], Abdulrahman A Alshehri [11] et al., Dabar et al. [24], Kumar et al. [28], Chaudhri et al. [26], Ertem et al. [29] studies education was significantly associated with knowledge score.

In the present study, in relation to Religion, Education and Socio economic status there was no significant difference found unlike Joshi et al. [6] study where Hindus, Literates and Low income individuals were having significantly better knowledge. In Kolobe [23] and Dabar et al. [24] study socio economic status was having impact on knowledge score and in Abdulrahman S. Aldayel [16] et al. study no association was found.

In the Present study there was no significant difference in knowledge among adults having children with special needs similar to Abdulrahman S. Aldaye et al. [16] study.

In the Present study, Parents with single child were having significantly better knowledge similar to Ertem [29] et al. and Safadi [11] et al. study but unlike Joshi et al. [6] study. Single child parents were having better knowledge, as they may be spending more time with the children.

In the Present study, Doctors, Friends/Family, Books/Magazines, Internet/Social Media were the resources of knowledge similar to Deepika David et al. [2], Ricky et al. [17] study where Doctors/Paediatricians, books and nurses were resources but in Iraqi study [19], Main source of knowledge was from Mothers Experience.

Results of the study clearly indicate that there is need to conduct educational sessions about Developmental Milestones to all the adults who have the role in child care, so that early assessment and seeking help in case of developmental delay will lead to better child outcome.

Conclusion

66.15% of the adults were having average knowledge score and 29.95% respondents having good knowledge score (>65%) and 3.91% of the adults have poor knowledge. In 34 questions regarding milestones, 20.17 ± 4.38 questions were answered correctly in that 9.6,10 and 9 questions were from gross motor, fine motor, Language and social Adaptive development respectively, out of which on an average 5.89, 3.70, 6.34, 5.02 questions were answered correctly. Knowledge was significantly associated with Age, Females, Married, Homemakers/Skilled workers/unskilled workers, Joint family members.

References

1. ICUDCY. International corner UNICEF and Disabled children and youths. Disability World 2003.
2. Deepika David, Khushlata J Toppo, Kamla Saini. A study to assess Knowledge of mothers regarding Developmental Milestones of Infants. International journal of current research 2014;6(7):7524-7528.
3. Bolajoko O Olusanya. Developmental disabilities among children younger than 5 years in 195 countries and territories, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. Lancet Glob Health 2018;6:e1100-21. Published Online August 29, 2018 http://dx.doi.org/10.1016/ S2214-109X(18)30309-7.
4. Institute of Medicine. Neurological, psychiatric, and developmental disorders: meeting the challenge in the developing world. Washington, DC: The National Academies Press 2001.
5. WHO. Developmental difficulties in early childhood: prevention, early identification, assessment and intervention in low- and middle-income countries. A review. Geneva: World Health Organization 2012. http://www.who.int/maternal_child_adolescent/documents/development_difficulties_early_childhood/en (accessed May 13, 2018).
6. Joshi Nayan H, Trivedi Atul V, Rupani Mihir. Cross-sectional study on Assessment of the Knowledge of Mothers Regarding Identification of Developmental Milestones of Young Children at an Urban Area of Bhavnagar, Gujarat. Healthline Journal 2019;10(1):19-26.
7. Isaranurug S, Thongnop W, Nanthamongkolchai S, Singhaniyom S. Capacity building of mothers on promoting infant development 2005;3:37-44.
8. Tinajero AR, Loizillon A. The review of care, education and child development indicators in early childhood. United Nations Educational, Scientific Cultural Organization, Paris 2010.
9. Adolph KE, Berger SE. Motor development. Handbook Child Psychol 2006;6:161-213.
10. Jennifer K Poon, Angela C LaRosa, Shashidhar Pai G. Developmental Delay: Timely Identification and Assessment. Indian Pediatric 2010;47:415-422.
11. Abdulrahman A Alshehri, Abdulaziz A AlSadoun. Saudi mothers’ knowledge and awareness of infant developmental milestones. Curr Pediatr Res 2020;24(1):163-171.
12. Twentymen CT, Plotkin RC. Unrealistic expectations of parents who maltreat their children: An educational deficit that pertains to child development. J Clin Psychol 1982;38:497-503.
13. Hunt JM, Paraskevopoulos J. Children ‘s psychological development as a function of the inaccuracy of their mothers’ knowledge of their abilities. J Genet Psychol 1980;136:285-298.
14. Reich S. What do mothers know? Maternal knowledge of child development. Infant Ment Health. J 2005;26:143-156.
15. Karuppapan N, Ramamooorthy T, Ramamooorthi A, et al. Mother’s knowledge on child’s developmental milestones and parenting skills in Kanchipuram district, Tamilnadu - a descriptive cross-sectional study. Int J Health Sci Res 2020;10(2):242-247.
16. Abdulrahman S Aldayel, Abdulazia A Aldayel, Ahmed M Almutairi, Hamad A Alhusain, Sultan A Alwehaibi, Talal A Almutairi, et al. Parental Knowledge of
17. Rikhy S, Tough S, Trute B, Benzies K, Kehler H, Johnston DW. Gauging knowledge of developmental milestones among Albertan adults: a cross-sectional survey,” BMC Public Health 2010;10(1):183.

18. Meshram K, Maurya A, Kumari D. Effectiveness of Planned Teaching on Knowledge Regarding Developmental Milestones among the Mothers of infant in selected Rural area of Wardha District. Int J Nurs Educ Res 2017;5(2):160-4.

19. Anwar Alkhazrajy L, Rifaat Salah Aldeen E. Assessment of Mothers Knowledge Regarding the Developmental Milestone among Children Under Two Years in Iraq. Am J Appl Sci 2017;14:869-77.

20. Ertem IO, Atay G, Dogan DG, Bayhan A, Bingoler BE, Gok CG, et al. Mothers’ knowledge of young child development in a developing country. Child Care Health Dev 2007;33(6):728-37.

21. Rehman A, Kazmi S, Munir F. Mothers’ Knowledge about Child Development. Pak Pediatr J 2016;40:176-81.

22. Safadi RR, Ahmad M, Nassar OS, Alashhab SA, AbdelKader R, Amre HM, et al. Jordanian mothers’ knowledge of infants’ childrearing and developmental milestones. Int Nurs Rev 2016;63(1):50-9.

23. Puhan M, Panda A, Devi S. A Study to assess the Effectiveness of Planned Teaching Programme on Knowledge Regarding Developmental Milestones of Children between 0-2 Years among Mothers at Chirvaltola Basti, BBSR, Odisha. Int J Nurs Educ Res 2017;5(1):87-90.

24. Dabar D, Das R, Nagesh S, Yadav V, Mangal A. A Community-based Study on Growth and Development of Under-Five Children in an Urbanized Village of South Delhi. J Trop Pediatr 2016, 026.

25. Kumar R, Aggarwal AK, Kaur M, Iyengar SD. Factors influencing psychosocial development of preschool children in a rural area of Haryana, India. J Trop Pediatr 1997;43(6):324-9.

26. Chaudhari VP, Srivastava RK, Desai VK. Domestic environment and morbidity of under five children. Indian J Pediatr 2008;75(5):514-5.

27. Kolobe TH. Childrearing Practices and Developmental Expectations for Mexican-American Mothers and the Developmental Status of Their Infants. Phys Ther 2004;84(5):439-53.