

How to Cite:

Karama, R. S. ., Simon, N. H., Chatterjee, A., Aswasthi, S., Akinola, A., Acharya, S., Praveen, U., Lachyan, A., Khan, S., & Gangurde, P. (2022). Effectiveness of video-based teaching program to assess the knowledge of young mothers in identifying developmental milestones in Delhi NCR, India. *International Journal of Health Sciences*, 6(S1), 12194–12204.
<https://doi.org/10.53730/ijhs.v6nS1.8281>

Effectiveness of video-based teaching program to assess the knowledge of young mothers in identifying developmental milestones in Delhi NCR, India

Rahama Sanusi Karama

Department of Physiotherapy, School of Allied Health Sciences, Noida International University, Greater Noida, India

NH Simon

School of Nursing Science, Noida International University, Greater Noida, India

Apurva Chatterjee

Department of Physiotherapy, School of Allied Health Sciences, Noida International University, Greater Noida, India

Supriya Aswasthi

Department of Physiotherapy, School of Allied Health Sciences, Noida International University, Greater Noida, India

Ajoke Akinola

Department of Public Health, School of Allied Health Sciences, Noida International University, Greater Noida, India

Smita Acharya

School of Nursing Science, Noida International University, Greater Noida, India

Uppu Praveen

School of Nursing Science and Research, Sharda University, Greater Noida, India

Abhishek Lachyan

Department of Social and Preventive Medicine, Faculty of Medicine, University Malaya, Kuala Lumpur, Malaysia

Salman Khan

Department of Public Health, School of Allied Health Sciences, Noida International University, Greater Noida, India

Corresponding author email: salmantomar7860@gmail.com

Prachi Gangurde

Dr. Vasantrao Pawar Medical College Hospital and Research Center in Nashik, Maharashtra, India.

Abstract--In this study, a video-based teaching program was used to assess the knowledge of young mothers in identifying developmental milestones. The purpose of this study was (1) to assess the effectiveness of video-based program, (2) to assess the knowledge of young mothers in identifying developmental milestones. Methods. Self-structured tool on knowledge regarding developmental milestones was used in this study. Each mother participated in the questionnaire. In the final position, the questionnaire score was obtained and the results was evaluated using inferential and descriptive statistics. Results. A mean value of 4.94 pre-test and a mean value of 11.17 post-test were obtained for all the subjects. There was a strong correlation between the pre-test and post-test measurements ($df=$ 6.23). There was a difference between the pre/posttest *St. Deviation* of 2.37 and 1.45, with *t value* of 22.70. The results from the analysis shows that after the administration of the VBTP which was conducted online, there was a significant increase in the knowledge regarding DM among young mothers. Conclusion. The study showed that prior to the VBTP most young mothers had inadequately and moderately adequate knowledge regarding DM, and after the VBTP there was a statistically significant ($p>0.05$) increase in knowledge of the young mothers on DM, while very few of the young mothers still had inadequate knowledge regarding DM and the case may have been due to lack of knowledge or other cases which were not easily identified since the VBTP was administered online.

Keywords--Video-based teaching program, developmental milestones, knowledge, young mothers.

Introduction

Being a mother is a greatest thing that may happen to a woman, many children are born with different kind of developmental delays, which varies from the Symptoms they present with. Developmental delay is referring to a state of when a child failed to reach the expected milestones achieved by each child at every stage of life in normal children. The delay in developmental milestones may occur in all aspect and area of child development such as, fine motor, gross motor language and social development. Identification of developmental delay is indeed essential for introducing early intervention programs, with the aim of decreasing childhood disability. ⁽¹⁾

In the recent pandemic such as Coronavirus, the disease produces a prospective health risk to child overall development, which is due to accompanying illnesses, social solitude, as well as rampant rise in parents and caregivers stress level respectfully. These therefore, account the adverse childhood experience (ACEs)

and might create virulent stress, with subsequent possible losses for brain development. Including long-term cognitive impairment, physical and mental health, and future adult working capacity. ⁽²⁾

Studies that will surpass the understanding of pandemic like coronavirus impact on children's physical/ mental health and development may support to guide strategies and prevent possible damage to children's overall thrive and advance positive child development. ^(2,3) One among the vital reason for observing each child's milestone is detect whether or not a child's milestone is on track. Keeping a watch on children's developmental milestones is crucial in understanding their behavior and development. The aim of the study is to find out the effectiveness of video-based teaching program to assess the knowledge of young mothers in identifying developmental milestones in Delhi NCR, India.

Materials and Method

Subjects:

A total of 100 young mothers within Delhi NCR, participated in the study between the months of March to May 2021.

Study setting:

The subjects were mothers from different region within Delhi NCR, with the mean age between 20-45 years. Ethical clearance was obtained from the ethical committee of Noida International University, Delhi NCR. A sample of 100 young mothers who met the inclusion criteria was chosen using convenient sampling technique. All subjects were explained the detailed about the procedure of the study and informed consent was obtained before initiation of any intervention.

Inclusion criteria:

Young mothers belonging to the age group of 20-45 years living in Delhi NCR, who are willing to participate in the study, and can read/understand English and have access to the Internet all were considered during data collection, after being given the consent of the study. Also mothers who had at least two children were included.

Exclusion criteria:

- Young mothers who do not read or understand English
- Young mothers from remote Areas/those with no internet connection
- Young mothers who are not willing to participate in the study were excluded
- Young mothers who are mentally ill

Instrumentation:

Assessment form

Consent form

Questionnaire

DM video

Outcome questionnaire

The structured questionnaire used in the study was the tool, which included some set of data such as, the demographic data and some certain questions on knowledge regarding developmental milestones among young mothers. The tool was developed specifically for the purpose of obtaining data for the study. It was structured by the researcher on reviewing the relevant literature in consultation with different experts including developmental behavioral paediatrics, one in child development, two in child development psychology, one in internal medicine and expert from early intervention decided the age ranges for each accurate answer would be some variety of age for which the mothers would not require further counseling if they accurately attempted within the variety. The instrument used consists of 12 questions total, some questions were about the child, like when do children begin to look/follow a moving person or toy with their eyes. While other questions are about the mothers, 'when should mothers begin to let children sit with support?' All questions were pilot tested on a sample of 30 mothers with similar sociodemographic characteristics as the study sample. The mothers understood all items, as they were simple and direct. Following the development of the variety of ages, the researcher developed a scoring system. Responses that fell within the correct range were given 1 point. All other responses that were considered incorrect received 0 point. This scoring system was the one used all over the instrument for questions interconnected to all age groups.

Table 4 shows the final structured instrument used in the study. The instrument hereby referred to as the questionnaire consists of total 12 questions related to child developmental milestones. The pre/post test effectiveness was shown in the last row of the tool.

Data collection procedure:

Data used in the study were collected during the study period via online mode interviews with young mothers on arbitrarily chosen working days. The researcher shared the questionnaire to the readily available mothers and those mothers who consented to take part in the study were all assessed until the desired total sample was reached. The interviews were carried out online using questionnaire. In addition, 10 minutes was the average time for the interview completion. Carrying the interview online was safe and confidential for most of the participants. This was particularly done to maximize the chances and confident of the participants feeling comfortable and able to respond the questionnaire. Before the interview begins, the researcher explained the study in details and the organization of the structured questionnaire to the consented participants, the anonymity of the participants was assured by the researcher, and the collected data would be saved confidentially. However, the researcher clearly explained in the consent to the young mothers that they are free to withdraw from the interview at any time without sanction, in addition, all participation was voluntarily, and that no payment would be given.

Table 1
Pre/Post Test Data collection

Pre-test 01	Intervention Z	Post-test 02
----------------	-------------------	-----------------

- 01- Pre-test knowledge regarding DM
 Z- Video-based teaching program on DM
 02- Post-test knowledge regarding DM

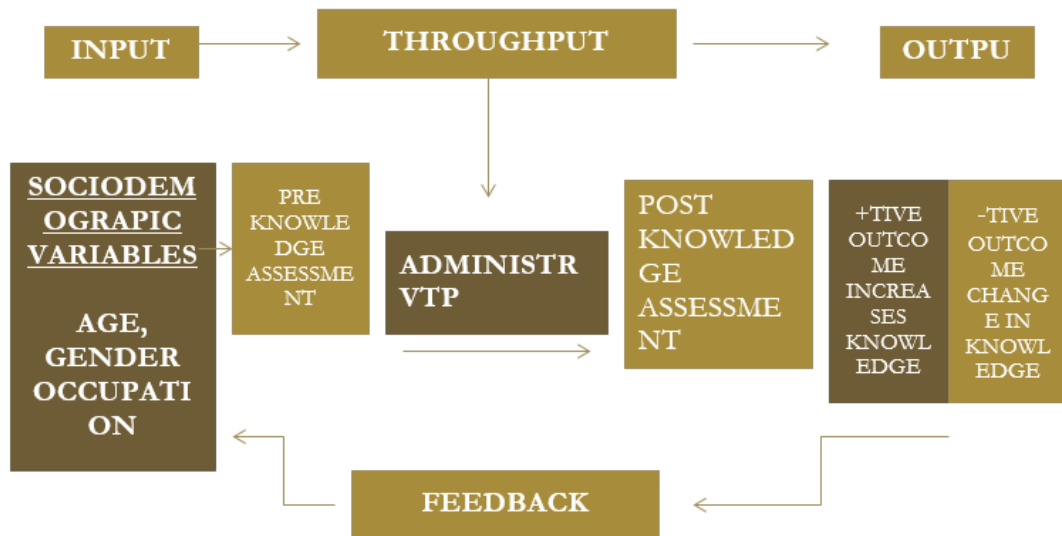


Figure 1. Conceptual framework

The study was conducted on young mothers who were readily available and met the inclusion and exclusion criteria, online pre-test questionnaire was sent to the mothers, followed by a video on DM. After 30min post-test questionnaire was sent to the young mothers again to assess their post knowledge after watching the video. The study shows that there was a significant increase of knowledge regarding DM after the intervention of VBTP with a P-value of 0.05 and the difference in knowledge of pretest and post was 19. The young mothers participated in pilot study were all excluded from the main study. The structured tool was then modified in Hindi subtitled, as some of the young mothers did not understand the meaning of some words.

Scoring system of responses for knowledge regarding DM was carried out as follows. Each question consisted of multiple answer choice option. Each correct response was graded with a score of 1, and incorrect response graded a score of 0. The total maximum possible score was 12 point and minimum score was 0 point.

Results

The knowledge score of the young mothers were classified into three (3) groups:

Adequately knowledge mothers 80% - 100%

Moderately adequate knowledge mothers 60% - 80%

Inadequately knowledge mothers 49% and less than 49%

Table 2
Distribution of sample in proportion to knowledge score

DM KNOWLEDGE QUESTIONNAIRE SCORES			
	ADEQUATELY KNOWLEDGE MOTHERS (15-20)	MODERATELY KNOWLEDGE MOTHERS (10-14)	INADEQUATELY KNOWLEDGE MOTHERS (0-9)
PRE-TEST	6%	49%	45%
POST-TEST	41%	52%	7%
n =	100		

Table 3
Pretest-Posttest knowledge of young mother Data Analysis

CATEGORIES	Mean	St Deviation	Mean Difference	t-test value	P value
PRE-TEST	4.94	2.37	6.23	22.70	0.001*
POST TEST	11.17	1.45			

The table presents the mean and standard deviations for the DM pre-test and post-test of the young mothers. It illustrate that the mean of DM post-test knowledge score of (11.17) was notably higher than that of DM pre-test mean score of (4.94). In order to find out the notable difference between the mean of the DM pre-test and the DM post-test level of knowledge scores of the samples, paired 't' test was used. The calculated value was 22.70 significant at 0.001% level.

Since the calculated t-value is significantly higher than the mean value, the researcher concluded that the video-based teaching program would definitely improve mother's knowledge.

Table 4
Step-wise comparison of DM pretest-posttest scores for correct responses regarding DM in children

Area wise comparison of pre-test and post-test scores for correct response regarding DM in children					
	PRE RT-WRN		POST RT-WRN		EFFECTIVENESS
When do children begin to look/follow a moving person or toy with their eyes	41	59	96	4	-55
When do children begin to look upwards slightly	35	65	91	9	-56
When do children begin to change their position in bed on their own	34	66	93	7	-59
When do children begin to play with toys while lying on their stomach	33	67	96	4	-63
When should mothers begin to let children sits with support	29	71	96	4	-67
When do children begin to sits alone	41	59	95	5	-54
When do children begin to reach to a toy on their stomach	48	52	93	7	-45
When do children begin to reach to a toy on their knees	49	51	94	6	-45
When should mothers begin to teach children to stand with support	41	59	91	9	-50
When do children begin to play imaginary play like driving a toy car	44	56	87	13	-43
When should mothers begin to hold a child hand for a walk within the house	54	46	90	10	-36

When do children begin to walk alone with good balance	41	59	98	2	-57
n=	100				

The analysis shows that the highest score of (54%) in pretest of DM correct responses perceived in 'When should mothers begin to hold a child hand for a walk within the house and lowest score (29%) of correct response observed in 'When should mothers begin to let children sits with support' and posttest highest score (98%) 'When do children begin to walk alone with good balance' and lowest score (87%) of correct responses observed in 'when do children begin to play imaginary play like driving a toy car'? This indicates that the young mothers did not know when do children begin to play imaginary play like driving a toy car, which shows that developmental delay awareness during prenatal/postnatal period is important in the hospitals as it will cover all aspects including developmental milestones.

Discussion

According to our best knowledge, this study was the first to be done that to investigate the effectiveness of video based teaching program to assess the knowledge of young mothers in identifying developmental milestones among mothers living within Delhi NCR and it can help as the baseline towards the identification of delayed developmental milestones. Mothers with adequate knowledge regarding the developmental milestones had a higher prevalence of identifying the DM delay at the earliest compare to their counterpart mothers with moderately adequate to inadequate knowledge. The overall aim was to assess the knowledge of young mothers in identifying DM on their children. The authors in the study were delighted to discover that the knowledge of the mothers regarding DM in pre-test assessment in Delhi-NCR was low 6% with adequate knowledge, 49% mothers with moderately adequate knowledge and 45% with inadequate knowledge. However, this finding is also in a row with one study conducted in Turkey that interventions on child development target supporting mothers' and relationships with their children, that little is known about maternal knowledge of child development in developing countries³². Furthermore, a similar study was done in Georgia, United State of America, that the study indicates the coordination of developmental milestones and appropriate activities in the SafeCare curriculum is significant in increasing identification of developmental milestones by the parent. Moreover, the study findings shows that mothers at high-risk can be educate to be known to use the tDevelop tool which was used in the study as DM assessment tool in a brief manner. Implementing such practice will help the mothers in both short term and long term instances in preventing children mistreatment, and aiding the mothers to make early resolution to seek intervention for their children who they determine may have a milestone delay³³.

A cross-cultural studies and research was conducted in the western countries and has indicated that pattern of knowledge and culture differences of mothers plays a vital role in children development (Sistler & Gottfried 1990; Pachter & Dworkin 1997; Bornstein *et al.* 1998; Bornstein & Cote 2004; Kolobe 2004; Huang *et al.* 2005). However, reports has shown that, mother's knowledge about

their children developmental milestones has evidently decreased in developing countries and when the mothers consented to begin to provide opportunities for developmental stimulation of younger children. Another study was conducted in the year 1970s in Israel and found that mothers of lower class from Asia or Africa perceived that their children achieve developmental skills at later phase and they provided late phase of child ages to begin caregiving activities, which might support the child development. In accordance to these mothers, the findings were less likely than those of European decent and higher socioeconomic status to believe that it was possible to influence child development (Nino 1979). In northeastern Thailand villages, it was relatively found that only 2% of mothers having children aged 2 years are aware that infants could see after their birth (Kotchabhakdi 1993). In a study done on literate and thriving women from the urban regions, found that small percent of mothers, 25% only are informed that newborns could see ³³. Another study done in rural China indicate that 52% of infants were put down in swaddling clothes and were given small chance for movement or stimulation (Li *et al.* 2000).

Conclusion

The study showed that prior to the VBTP most young mothers had inadequate and moderately adequate knowledge regarding DM, and after the VBTP there was a statistically notable increase of ($p>0.05$) in knowledge of the young mothers on DM, while very few of the young mothers still had inadequate knowledge regarding DM and the case may have been due to lack of knowledge or other cases which were not easily identified since the VBTP was administered online. The study proved that video-based teaching program had an effect in improving the knowledge of young mothers on DM

Declarations

Data availability and materials:

All generated data or analyzed data during the conduction of this study are included in this published article

Participation consent and ethical approval:

The research ethics committee of Noida International University approved the concluded study protocol.

All the participants in the study were given informed written consent after detailed explanation of the research method, procedure and the purpose of carrying out the research. Advantages and disadvantages of participation were explained to the mothers. Anonymity of each participant was assured by keeping them coded with numbers.

Publication consent:

Not required

Competing interests:

No competing interest from the authors

Funding:

No funding source

References

1. Araújo, L. A. D., Veloso, C. F., Souza, M. D. C., Azevedo, J. M. C. D., & Tarro, G. (2021). The potential impact of the COVID-19 pandemic on child growth and development: a systematic review. *Journal de Pediatria*, 97, 369-377.
2. Furstenberg, 2000-International Journal of review Adolescence and youth volume 17,2012.3. Darroch, J. E., Woog, V., Bankole, A., & Ashford, L. S. (2016). Adding it up: costs and benefits of meeting the contraceptive needs of adolescents.
3. Darroch, J. E., Woog, V., Bankole, A., & Ashford, L. S. (2016). Adding it up: costs and benefits of meeting the contraceptive needs of adolescents.
4. Kiani, M. A., Ghazanfarpour, M., & Saeidi, M. (2019). Adolescent pregnancy: a health challenge. *International Journal of Pediatrics*, 7(7), 9749-9752.
5. Sedgh, G., Finer, L. B., Bankole, A., Eilers, M. A., & Singh, S. (2015). Adolescent pregnancy, birth, and abortion rates across countries: levels and recent trends. *Journal of adolescent health*, 56(2), 223-230.
6. Nair, A., & Devi, S. (2015). Obstetric outcome of teenage pregnancy in comparison with pregnant women of 20-29 years: a retrospective study. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 4(5), 1319-1324.
7. Babbar, K., & Dev, P. (2021). *Modelling the impact of Ovulatory Cycle Knowledge on the number of children and age of women at first birth* (No. WP 2021-11-04). Indian Institute of Management Ahmedabad, Research and Publication Department.
8. Mukhopadhyay, P., Chaudhuri, R. N., & Paul, B. (2010). Hospital-based perinatal outcomes and complications in teenage pregnancy in India. *Journal of health, population, and nutrition*, 28(5), 494.
9. Khanna, R. (2013). MDG 5 in India: Whither reproductive and sexual rights. *CommonHealth, SAHAJ and RUWSEC*.
10. Pritchard, A. B., Izumi, K., Payan-Walters, I., Yudkoff, M., Rand, E. B., & Bhoj, E. Inborn error of metabolism patients after liver transplantation: Outcomes of 35 patients over 27 years in one pediatric quaternary hospital. *American Journal of Medical Genetics Part A*.
11. Rolfe, A. (2008). 'You've got to grow up when you've got a kid': Marginalized young women's accounts of motherhood. *Journal of community & applied social psychology*, 18(4), 299-314.
12. Lloyd-Puryear, M. A., Tonniges, T., van Dyck, P. C., Mann, M. Y., Brin, A., Johnson, K., & McPherson, M. (2006). American Academy of Pediatrics Newborn Screening Task Force recommendations: how far have we come?. *Pediatrics*, 117(Supplement_3), S194-S211.
13. Guastafarro, K. M. (2011). Teaching Young Mothers to Identify Developmental Milestones.
14. UNESCO, U. (2020). COVID-19 educational disruption and response. *UNESCO*.
15. Hampton, C. (2002). Teaching practical skills. *Perspectives on distance education: Skills development through distance education*, 83-91.

16. Donkor, F. (2010). The comparative instructional effectiveness of print-based and video-based instructional materials for teaching practical skills at a distance. *International Review of Research in Open and Distributed Learning*, 11(1), 96-116.
17. Donkor, F. (2011). Assessment of learner acceptance and satisfaction with video-based instructional materials for teaching practical skills at a distance. *International Review of Research in Open and Distributed Learning*, 12(5), 74-92.
18. Bertalanffy, L. V. (1969). General system theory: Foundations, development, applications.
19. Edmonds, K. (Ed.). (1999). *Dewhurst's textbook of obstetrics and gynaecology for postgraduates*. Wiley-Blackwell.
20. Dade, P. (2011). Encyclopedia of child behavior and development. *Reference Reviews*.
21. Gerber, R. J., Wilks, T., & Erdie-Lalena, C. (2010). Developmental milestones: motor development. *Pediatrics in review*, 31(7), 267-277.
23. Sturner, R. A., & Howard, B. J. (1997). Preschool development 1: communicative and motor aspects. *Pediatrics in Review*, 18(9), 291-301.
24. Case-Smith, J., Allen, A. S., & Pratt, P. N. (1996). *Occupational Therapy for Children*. St. Louis, MO: Mosby-Year Book.
25. Simeonsson, R. J. (1992). Developmental delays. *Primary pediatric care*, 867-870.
26. American Academy of Pediatrics. (2001). Committee on children with disabilities. Developmental surveillance and screening of infants and young children. *Pediatrics*, 108, 192-196.
27. Rydz, D., Shevell, M. I., Majnemer, A., & Oskoui, M. (2005). Topical review: developmental screening. *Journal of child neurology*, 20(1), 4-21.
28. Levy, S. E., & Hyman, S. L. (1993). Pediatric assessment of the child with developmental delay. *Pediatric Clinics of North America*, 40(3), 465-477.
29. Webster, R. I., & Shevell, M. I. (2004). Topical review: Neurobiology of specific language impairment. *Journal of Child Neurology*, 19(7), 471-481.
30. Maria, B. L. (2009). *Current management in child neurology*. PMPH-USA.
31. Schrurs, F., & Lison, D. (2012). Focusing the research efforts. *Nature nanotechnology*, 7(9), 546-548.
32. IO Ertem, G Atay, DG Dogan, A Bayhan, BE Bingoler, CG Gok, S Ozbas, D Haznedaroglu, S Isikli. Mothers' knowledge of young child development in a developing country. *Child: care, health and development* 33 (6), 728-737, 2007.
33. Katelyn M Guastaferrro, John R Lutzker, Julie J Jabaley, Jenelle R Shanley, Daniel B Crimmins. Teaching young mothers to identify developmental milestones. *International Journal of Child Health and Human Development* 6 (2), 223, 2013.