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SECOND EDITION

PEDIATRIC NURSING PROCEDURE MANUAL

As per the Revised INC Syllabus for BSc Nursing (also useful for MSc students)

A Padmaja

Forewords
Saradha Suresh
K Rajalakshmi

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100% Procedures Covered

As per the Revised INC Syllabus for BSc Nursing
(also useful for MSc students)

SECOND EDITION

A Padmaja MA (Psy) MSc (N) PhD
Professor (Retd)
College of Nursing
Sri Venkateswara Institute of Medical Sciences
Tirupati, Andhra Pradesh, India

Officer-Special Duty (OSD), Allied Health Science (AHS)
Sri Padmavathi Medical College for Women
Sri Venkateswara Institute of Medical Sciences
Tirupati, Andhra Pradesh, India

Forewords
Saradha Suresh
K Rajalakshmi

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CHAPTER 6

Developmental Assessment

PRACTICE COMPETENCIES

On completion of the chapter, the students will be able to:

- Assist in early diagnosis of conditions with a genetic basis, such as Duchenne muscular dystrophy and fragile X syndrome, facilitates genetic counseling for families.
- Provide care givers with reliable information before a developmental problem becomes obvious.
- Understand the child's difficulty and make appropriate management plans for their family.
- Counsel care givers if assessment shows that the child is within the normal range by reassuring and relieving anxiety.
- Compare early assessments with the later ones.
- Provide an opportunity to encourage good parenting and developmental stimulation.

ABSTRACT

A careful history is necessary to identify parental concerns. These should always be listened to and taken into consideration, as parental observation has been shown to be as effective as assessment by health professionals in detecting problems in many areas of child health and development. The assessment starts the moment the health professional meets the child and parents. A good overview of developmental skills can be obtained by watching the child play. A few simple toys, such as some bricks, a car, a doll, ball, pencil, and paper are all that are required, as they can be adapted for any age. It is important to talk and listen to the child and the parents, as well as observing eye contact and other social interactions during play. This chapter contains the assessment of development in the areas of gross motor, fine motor, language and personal or social developments and also reflexes of the newborn, important mile stones at a glance. The Denver Developmental Screening Test described.

Keywords: Gross motor, fine motor, language, personal or social, rooting reflex, sucking reflex, Moro reflex, grasp reflex, grossed extension reflex, Glabellar reflex, tonic neck reflex, stepping reflex, plantar reflex, mile stones, Denver Developmental Screening Test (DDST).

DEVELOPMENT

Development is the functional maturation of organs and particularly of the central nervous system. In contrast to measuring physical growth, the measurement of behavioral development is subjective, widely variable and tend to be in exact controversial.

Environment, sociocultural pattern, nature versus nurture and genetic factor also influence the pattern of individual development.

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ASSESSMENT OF DEVELOPMENT

Developmental assessment is a part of clinical examination. It is based on observation related to achievements which are normal expected at given chronological age.

1. Gross motor
2. Fine motor
3. Language
4. Personal or social.

1. *Gross motor*: This includes control of head, trunk and extremities.
2. *Fine motor:* It pertains to control of the fine movement of fingers.
   Motor control indicates neurologic inferiority, acceleration or delay, however, need not necessarily be related to intellectual abilities.
3. *Language:* Language development is related to the perception of sounds and production of words and language is in the form of speech.
4. *Personal and social*: This is widely variable, depends upon social and environmental factors.

However, some personal factors like control of bowel and bladder are related to neurologic integrity and have established value.

DEVELOPMENT OF NEWBORN

Assessment of newborn for appropriate development will primarily depend upon a variety of reflexes.

REFLEXES OF NEWBORN

Rooting Reflex (Fig. 6.1)

When a corner of mouth or lip touches with finger mouth turns towards the stimulated side.



Fig. 6.1: Rooting reflex.

Sucking and Swallowing Reflex (Fig. 6.2)

It is a movement of lips and tongue in the direction of stimulus.

Moro Reflex (Fig. 6.3)

When the examiner bangs the table, there is a sudden abduction at shoulders and extension at elbows of the arms as also complete opening of hands followed by adduction and flexion.

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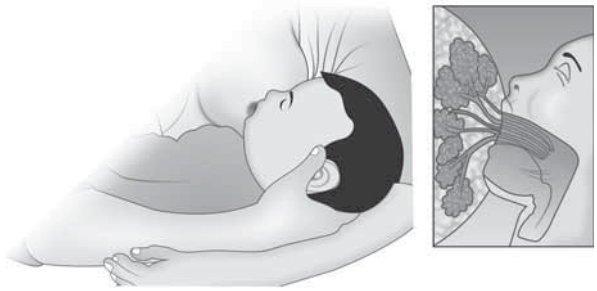

Fig. 6.2: Sucking reflex.



Fig. 6.3: Moro reflex.

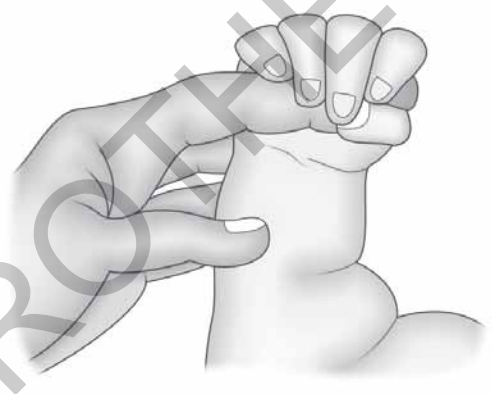

Fig. 6.4: Grasp reflex.

The baby seems to be attempting to embarrass. This reflex normally disappear after four months. If it is persistence, suggest a damaged brain like that in mental retardation or cerebral palsy.

Grasp Reflex (Fig. 6.4)

It consists in placing the examiner index finger on the neonates palm. The infant immediately grasps it. The grasp is so firm that he can be lifted off the cot by means of this only, on strocking dorsum of the hand, he opens the fist, thereby releasing the examiners fingers.

Persistence of grasp reflex beyond twelve weeks of age points to brain damage.

Crossed Extension Reflex (Fig. 6.5)

Stroking the foot as the leg is held extended at knee causes flexion, abduction, extension and adduction together with fanning of the toes of the other leg. The response stimulates wording painful stimuli.

Glabellar Reflex or Tape (Fig. 6.6)

It comprises tapping of the glabellar or nasion (the meeting point of forehead and nose). The neonate reacts by closure of eyes or blinking.

Tonic Neck Reflex (Fig. 6.7)

On suddenly turning a supine neonates head to one side, the arm and the leg of the same side extend and those of the other side get flexed.

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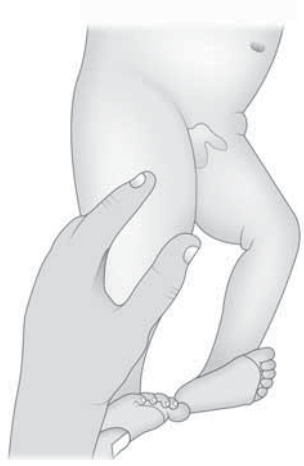

Fig. 6.5: Crossed extension reflex.



Fig. 6.6: Glabellar reflex.

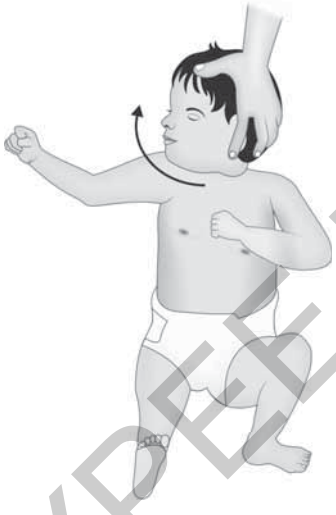

Fig. 6.7: Tonic neck reflex.



Fig. 6.8: Stepping reflex.

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Persistence of the reflex beyond the age of six to nine months or maintenance tonic neck posture constantly even at an early age point to existence of cerebral palsy.

Stepping Reflex (Fig. 6.8)

The neonate shows movements of walking when held upright and inclined forward with soles touching a flat surface.

Plantar (Babinski) Reflex (Fig. 6.9)

It is elicited by stimulating the lateral aspects of sole of the foot, beginning at the heel and extending to the base of the toes with a firm objects such as examiners thumb or a hand key. A positive response is characterized by extension of the great toe and fanning of the other toes.

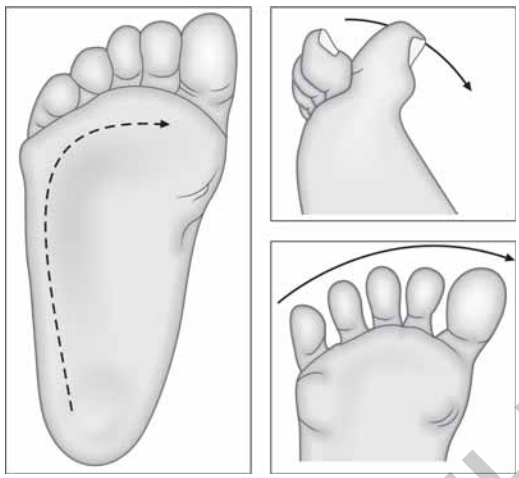

Fig. 6.9: Babinski reflex.

IMPORTANT MILESTONES AT GLANCE

- Social smile—4 to 6 weeks
- Head holding—3 months
- Sit with support—6 months
- Sit without support—7 months
- Reaches out for a bright object and get it—5 to 6 months
- Crawls—8 to 10 months
- Creeps—10 to 11 months
- Stands holding furniture—9 months
- Walks holding furniture—12 months
- Stands without support—10 to 11 months
- Says one word with meaning—12 months
- Says 3 words with meaning—13 months
- Joins 2 or 3 words into sentence—15 to 18 months
- Feeds self with spoon—13 months
- Climbs stairs—15 to 18 months
- Takes shoes and socks off—15 to 18 months
- Put shoes and socks on—24 months
- Takes some cloths off—24 months
- Dresses self fully—3 to 4 years
- Dry by day—2 years
- Dry by night—3 years
- Knows full name and sex—3 years
- Rides tricycle—3 years

LANGUAGE DEVELOPMENT

The development of language is a complex phenomena that involves coordination of the cognitive, psychological and physiological capacity of the child. Several basic physiologic requirements are needed in order to develop speech. They must have normal respiratory function, neurological function of the speech center and cerebral cortex. Skeletal development of the mouth and nasal cavities must be intact for articulation of words.

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Lastly, the child must have sufficient hearing capacity for normal development of language to occur. In terms of cognitive capacities, a child must have the ability to symbolize before the use of language occurs. Basically child must understand what the meaning of the words before using them. The infant does not initially possess this ability. As the child mental capacities develop, words become associated with significant figures and objects in the environment.

Speech Development of the Child

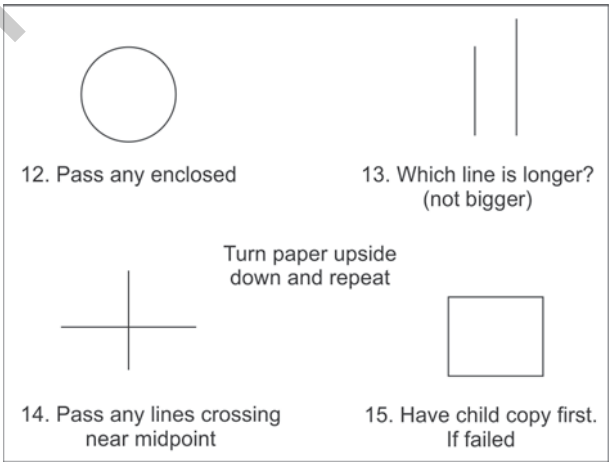
1–12 months	:	Cooing, babying, initiation of sounds, such as: Goo, aha, ba, maa.
1–2 years	:	One word sentence, such as: Out, ball, kite.
2–3 years	:	Multiword sentences, locate, name, demand, indicates, possession, question, such as: Their book, more milk, my shoe.
3–4 years	:	Grammatically correct verbal utterances, such as: I want my shoe, this is my bag.

DEVELOPMENTAL SCREENING TEST

DENVER II TEST: Denver II test has been shown in **Figure 6.10**.

Directions for Administration

1. Try to get child to smile by smiling, talking or waving. Do not touch him/her.
2. Child must stare at head several seconds.
3. Parent may help guide toothbrush and put toothpaste on brush.
4. Child does not have to be able to tie shoes or button/zip in the back.
5. Move yarn slowly in an arc from one side to the other, about 8'above child's face.
6. Pass if child grasps rattle when it is touched to the backs or tips of fingers.
7. Pass if child tries to see where yarn went. Yarn should be dropped quickly from sight from testers hand without arm movement.
8. Child must transfer cube from hand to hand without help of body, mouth or table.
9. Pass if child picks up raisin with any part of thumb and finger.
10. Line can vary only 30° or less from testers line.
11. Make a fist with thumb pointing upward and wiggle only the thumb. Pass if child imitates and does not move any fingers other than the thumb.



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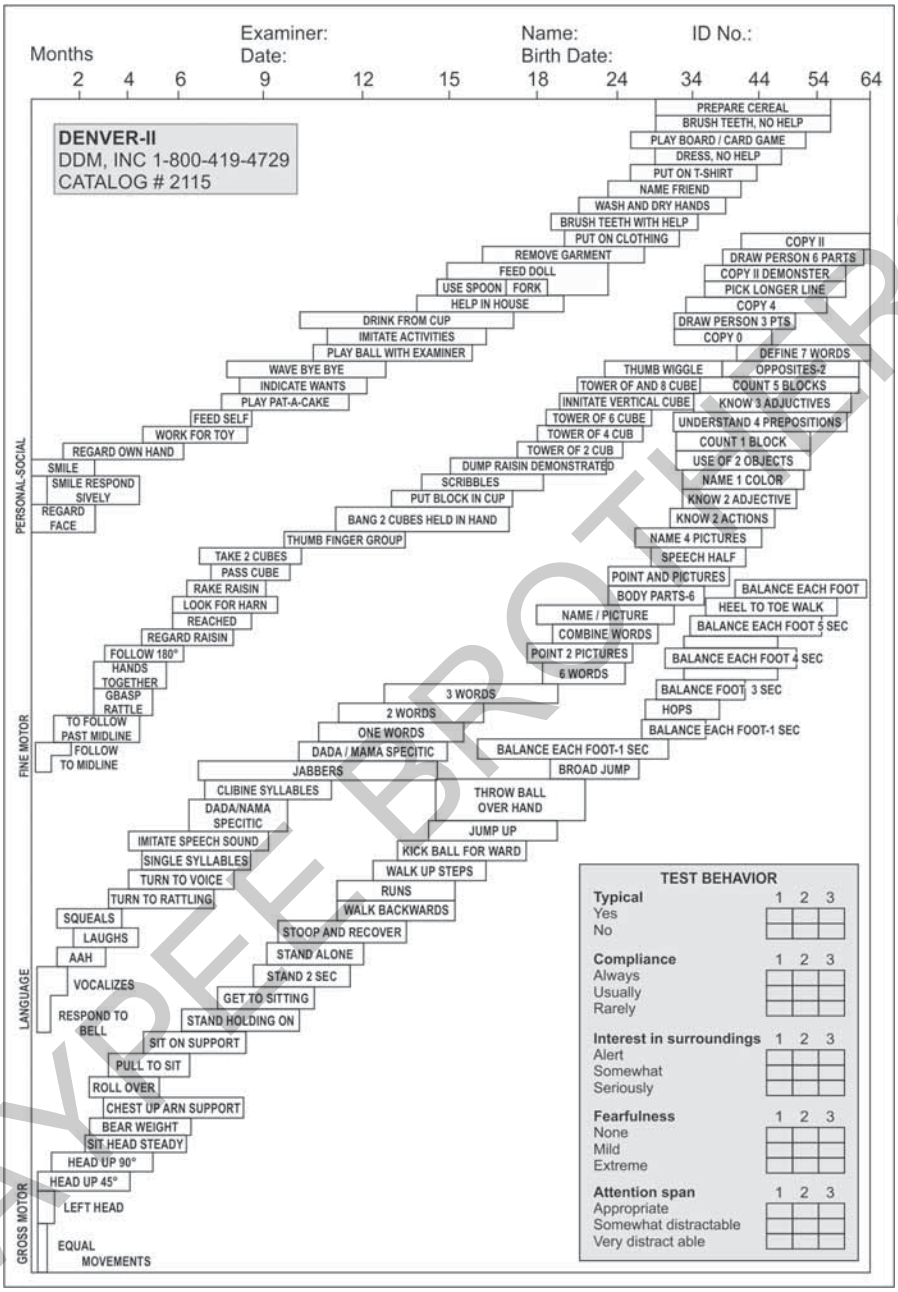

Fig. 6.10: Denver II test.

When giving items 12, 13, 14 and 15, do not name the forms. Do not demonstrate 12 and 14.

16. When scoring each pair (2 arms, 2 legs, etc.) count as open part.
17. Place one cube in cup and shake gently near child's ear, but out of sight. Repeat for other ear.
18. Point to picture and have a child name it (no credit is given for sounds only)

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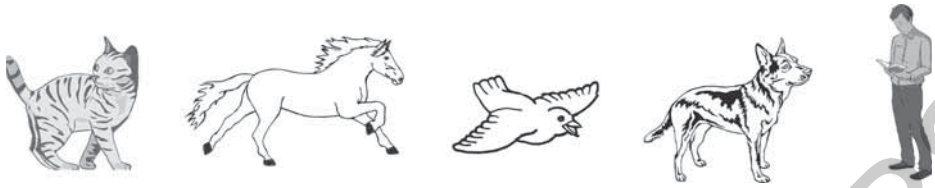
If less than 4 pictures are named correctly, have child point to picture as each is named by tester.



19. Using doll, tell child: Show me the nose, eyes, ears, mouth, hands, feet, tummy, hair. Pass 6 of 8.
20. Using pictures, ask child: which one flies?.....says meow? ..... Talks?..... barks?.....gallops? Pass 2 of 5, 4 of 5.
21. Ask child: what do you do when you are cold?.....tired?.....hungry? pass 2 of 3, 3 of 3.
22. Ask child: what do you do with a cup? What is a chair used for? What is a pencil used for? Action words must be included in answers.
23. Pass if child correctly place and says how many blocks are on paper (1,5).
24. Tell child: put block **on** table; **under** table; **in front of** me; **behind** me. Pass 4 of 4. (Do not help child by pointing, moving head or eyes.)
25. Ask child: what is ball? .....Lake? .....desk? .....house? ..... banana? .....curtain? ..... fence? ....ceiling? ..... pass if defined in terms of use shape, what it is made of, or general category (such as banana is fruit, not just yellow). Pass 5 of 8, 7 of 8.
26. Ask child: if horse is big, a mouse is ----? If fire is hot, ice is ----? If the sun shines during the day, the moon shines during the ------? Pass 2 of 3.
27. Child may use wall or rail only, not person. May not crawl.
28. Child must throw ball overhand 3 feet to within arms reach of tester.
29. Child must perform standing board jump over width of test sheet (8½ inches).
30. Tell child to walk forward ⇨ heal with one inch of toe. Tester may demonstrate.
31. In the second year, half of normal children are noncompliant.

Observations

Write any observations while performing the test.

DENVER DEVELOPMENT EXAMINATION

Overviews

- ❖ Administered to children at birth—6 years
- ❖ Assesses the child's performance on age appropriate tasks
- ❖ Screen for possible problems
- ❖ Not a predictor of later development

The Test

Test consists of 125 tasks or items covering four areas:

1. Personal—social
2. Fine motor —adaptive
3. Language

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4. Gross motor
   - Children are tested on the tasks or items pertinent to their age
   - It must be conducted in a standardized manner
   - Kit comes with the necessary supplies and scoring sheets.

Prior to the Test

- ❖ Know four types of tests on the right side of DDST
- ❖ Directions of the test is given at the back
- ❖ Determine testable tasks and items based on the child's age
- ❖ Ensure your supplies are in order
- ❖ Set up an appropriate testing location.

The Test

- ❖ Give her/him blocks to arrange
- ❖ Give doll and bottle for feeding
- ❖ Ask baby about body parts of doll (e.g., nose, mouth, legs, arm, etc.)
- ❖ Ask him to name the figures
- ❖ Give a ball and ask him to throw.

Scoring

- ❖ Assign each tested task/item a pass, fail, no opportunity or refusal score
- ❖ Mark on DDST chart against each task as P (pass), F (fail), No (no opportunity), R (refusal)
- ❖ Interpret the test based on findings:
  Normal: No delays and max of one caution.
  Suspect: Two or more caution and/or one or more delays
- ❖ Schedule follow-up
- ❖ Repeat test and/or follow-up with appropriate healthcare provider.

POINTS TO NOTE

These indicators suggest that development is seriously disordered and that the child should be promptly referred to a developmental or community pediatrician:

- ➤ Loss of developmental skills at any age.
- ➤ Parental or professional concerns about vision, fixing, or following an object or a confirmed visual impairment at any age (simultaneous referral to pediatric ophthalmology).
- ➤ Hearing loss at any age (simultaneous referral for expert audio logical or ear, nose, and throat assessment).
- ➤ Persistently low muscle tone or floppiness.
- ➤ No speech by 18 months, especially if the child does not try to communicate by other means such as gestures (simultaneous referral for urgent hearing test).
- ➤ Asymmetry of movements or other features suggestive of cerebral palsy.
- ➤ Increased muscle tone persistent toe walking complex disabilities.
- ➤ Head circumference above the 99.6th centile or below 0.4th centile.

PRACTICE QUESTIONS

1. Identify the following:
   a. Rooting reflex
   b. Glabellar reflex

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c. Moro reflex
d. Tonic neck reflex
e. Crossed extension reflex

2. Write short notes on:
   a. Mile stones of an infant

MULTIPLE CHOICE QUESTIONS

1. Which of the developmental milestone puts the 4-months-old infant at greatest risk for injury?
   a. Switching objects from one hand to another
   b. Crawling
   c. Standing
   d. Rolling over

2. The nurse notes a swelling on the neonate's scalp that crosses the suture line. What is this assessment finding?
   a. Cephalhematoma
   b. Caput succedaneum
   c. Hemorrhage edema
   d. Perinatal caput

3. What is the use of the administration of the Denver Developmental Screening Test or (DDST) to a five months old infant?
   a. To assess the intelligent quotient
   b. To assess the emotional development
   c. To assess the social and physical activities
   d. To assess the predisposition to genetic and allergic

ANSWER KEY

1. d 2. b 3. c

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PEDIATRIC NURSING PROCEDURE MANUAL

Pediatric Nursing Procedure Manual promotes nursing as an evolving art and science, directed to child health and well being. The primary objective of this book is to prepare nurses who combine the highest level of scientific knowledge and technological skills with responsible-caring practice.

KEY FEATURES

- Book is prepared according to the revised INC BSc Nursing syllabus
- Comprehensive procedures prepared for both undergraduate and postgraduate nursing students
- Contains 37 procedures and each procedure is designed as a chapter
- Current information is given on newly introduced procedures, such as pediatric drug calculation, family assessment, assisting with common diagnostic procedures and so on
- All the chapters are illustrated with figures
- Serves as a reference manual for the practicing nurses
- Nursing educators will find it easy to teach their students and prepare them for the examinations
- This book will also bring a uniform standard of the nursing education in India.

A Padmaja MA (Psy) MSc (N) PhD is Retired Professor, College of Nursing, Sri Venkateswara Institute of Medical Sciences, Tirupati, Andhra Pradesh, India and was the 1st Batch of BSc (Hons) Nursing Student of All India Institute of Medical Sciences, New Delhi, India during the year 1979–1983. She has done MSc (Child Health Nursing) from Saveetha Dental College and Hospitals (SDCH), Dr MGR Medical University, Chennai, Tamil Nadu, India during the year 1998–2000 and received best student award during decennial celebrations, SDCH, Chennai, 2002. Awarded PhD from the Department of Human Development and Family Studies, Sri Padmavati Mahila Visvavidyalayam (Women's University), Tirupati, in February 2006. She has been involved in teaching nursing over a period of 18 years for both undergraduate and postgraduate (Child Health Nursing) students.

She has published articles in national and international journals and presented papers in national and international conferences. She is the member of editorial board to Indexed Journal of Society for Wound Care and Research, New Delhi and International Journal of Nursing Education, New Delhi.

She is PhD guide to national consortium, Indian Nursing Council, New Delhi and to other universities. She is also an examiner for MSc Nursing and PhD to various universities. National Florence Nightingale award 2020 was conferred by Hon'ble president of India on 15 September 2021 virtually.

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