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Professional Nurses' Perceptions of Skills Required for Performing Preterm Infants' Follow-up Assessments

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ABSTRACT

Improved perinatal and neonatal care enhances preterm infant survival rates, but the adverse outcomes remain high. Nurses play vitally important roles regarding the follow-up assessments, treatment, and care of preterm infants. This explorative, descriptive study aimed to describe nurses' perceptions of skills required to perform effective preterm infant assessments. Thirteen semistructured interviews were conducted. Identified themes included the role of the professional nurse, the importance of preterm infant assessments, lack of skills and knowledge to conduct quality assessments, formal and continuous development training needs, the absence of assessment tools and physical resources to perform standardized assessments of preterm infants, and the required support and referral systems.

Key Words: follow-up assessments of preterm infants, management of preterm infants in South Africa, nurses' preterm infant assessment skills, nursing care of preterm infants

Annually 15 million babies are born prematurely globally and 84 000 were reportedly born in South Africa during 2011.[1,2] This implies that South Africa's under-5 clinics have to provide services to approximately 20 000 preterm infants. Despite improved premature neonatal survival rates, the incidence of chronic morbidities, adverse outcomes, and developmental delays continue to be high.[3,4] Preterm infants have a higher incidence of growth failure and ongoing medical illnesses than full-term babies.[3] It is vitally important that preterm infants receive optimum health care and opportunities to develop and grow, based on effective follow-up assessments and timely referrals for intervention services.[1] This can address growth and developmental delays, ensure support and appropriate treatment,[3] and assist parents to access specialized health care services and community resources.[5] There is a common misperception that high-risk follow-up care mainly concerns detection and management of neurosensory disability, but growth failure and ongoing illnesses are equally important issues during preterm follow-up assessments.[4] In South Africa, preterm infant follow-up care is provided by nurses at well-baby clinics, comprising part of the country's primary health care (PHC) services. There is, however, no standardized assessment protocol for preterm infants in South Africa and thus no guidelines ensuring that preterm infants' follow-up assessments are conducted appropriately. The Road to Health Chart is the only South African tool currently used in well-baby clinics.[6] However, it does not make provision for preterm infants' assessments. This implies that after discharge from hospitals, preterm infants might only be assessed when immunized at 6 weeks of age.

In the South African context, the professional nurse/midwife, often the health care provider, is responsible for performing infants' follow-up assessments. The shortfall in South Africa seems to be that these professionals, employed in the PHC setting, are rarely trained in neonatal intensive care and possess

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healthy newborn assessment skills but not necessarily preterm infant assessment skills. According to Purdy and Melwak,[5] nurses should be skilled in performing preterm assessments and identify risk factors early, to assist these infants' parents to access specialized post-discharge health care and community resources. However, the role of the professional nurses/midwives, and their perceptions of their role concerning assessment and follow-up care of high-risk infants in the PHC setting are unclear. The question then follows: "If the nurses in the PHC setting in South Africa are required to perform preterm infants' assessments after hospital discharge, what are their perceptions about these preterm infants' assessments as part of their clinical role?" This study thus attempted to describe PHC nurses' perceptions of skills required to perform effective preterm follow-up assessments, ensuring early detection of developmental delays and making early appropriate referrals to improve the preterm infants' long-term outcomes.

METHODS

Thirteen semistructured interviews were conducted with nurses in the Polokwane district of South Africa, employed in both private and public clinics in this district and who were willing to be interviewed. Data saturation occurred after 5 interviews, but 8 more interviews needed to be done to include the public sector and to ensure that no new information emerged and both public and private contexts were accounted for (see Table 1).

The inclusion criteria required participants to be registered with the South African Nursing Council (SANC); employed full-time at well-baby clinics in the Polokwane district; willing to give written, informed consent to be interviewed and voice-recorded; able to communicate in Afrikaans or English; and performing preterm infants' assessments during follow-up clinic visits. Potential participants were contacted, explained the purpose of the study, and provided a consent form, and an interview appointment was scheduled at a convenient time and place.

Data collection

Thirteen semistructured interviews were conducted from June till August 2015 and field notes compiled, comprising observational, theoretical, and methodological information (see Table 2).

Data analysis

The audio recordings were transcribed verbatim. Fieldnotes were typed, providing data that assisted with the analysis process to ensure triangulation of data. Data were analyzed thematically using Tesch' 8 steps as described by Creswell,[8] implying that one transcript was selected and its fundamental meaning determined and the researcher wrote ideas that came to mind on the transcript,[8] repeated this process a number of times, made a list of all the topics, grouped similar topics together into columns, and arranged them as main topics and supporting topics.[8] Codes were allocated to each topic and organized logically and themes were formed.[8] A descriptive term was identified to clearly describe each theme, where after themes and subthemes were finalized. An independent co-coder used that same process of data analysis and confirmed the researcher's findings, which also enhanced rigor.

ETHICAL CONSIDERATIONS

Ethical approval was obtained from the relevant university and the clinics that participated in the study. Written, voluntary consent was obtained from every participant. The interviewer assured participants about safeguarding their confidentiality and anonymity.

FINDINGS

Six categories were identified, namely, the role of the nurse when performing preterm infant follow-up assessments, skills and knowledge regarding these assessments, training needs, tools and resources required during these assessments, support and referral systems, and strategies for performing effective assessments (see Table 3).

Nurses' role in conducting preterm assessments in well-baby clinics

Nurses are often the parents' first contact with a professional health care provider after the infants' discharge and therefore perform an important role. They stated that they fulfilled an important role in the early detection, management, and referral of problems, but they wanted to do more. They perceived assessments to include measuring height, weight, head circumference; checking immunizations; detecting hearing problems; assessing eye development; evaluating milestones; providing nutritional and breastfeeding support; detecting problems; and recommending referrals to other health care providers, as transpired during the following statements:

> . . . definitely important role, being usually the first stop before the doctor . . . early detection and diagnosis of any potential problems is key to prevention . . . the nurse should pay close attention to potential problems

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Table 1. **Distribution of participants**[a]

Private clinic	Public sector clinics	Average infants seen per month	Average preterm babies seen per month	Number of registered nurses/midwives (RNs)/(RMs)[b]
Clinic A1		60	1 in 10	1
Clinic A2		74	3 in 10	1
Clinic B1		70	1 in 10	1
Clinic B2		160	2 in 10	1
Clinic B3		64	1 in 10	1
Clinic C1		160	1 in 10	1
Clinic C2		94	2 in 10	1
Clinic D		170	3 in 10	1
	Clinic E	1100	10 per 1100	2
	Clinic F	400	No estimate	8
Total				18

[a]The letters A, B, C, and D refer to the 4 companies and the number next to it, to the number of clinics that each group managed. Letters E and F refer to public sector clinics, each with 2 well-baby clinics and registered nurses alternating as per schedule.
[b]In South Africa, upon successful completion of the basic course to become a registered nurse,[7] a person registers with the SANC as a nurse (general, psychiatric, and community) and a midwife. There are other avenues by which persons can become registered general nurses only and thereafter complete a midwifery course. Thus in South Africa all registered midwives (RMs) are registered general nurses (RNs), but not all RNs are RMs.

> and listen well to what the mother says in order to assess the prem baby . . . take time to do proper assessment and those will be in terms of the baby's development, nutritional status, development of hearing and vision . . . you must assess them and give them immunizations and then again parent education . . . we refer to the doctor for further management . . . .

Perceptions of skills and knowledge required to perform preterm infant assessments

Participants' perceptions, regarding their current skills, were grouped into assessment skills, parent interaction skills, facilitating multidisciplinary collaboration, and confidence. The nurses required more knowledge to ensure better skills to do proper follow-up assessments specifically on the preterm infant.

> . . . we need skill on how to immunise them . . . site of injection . . . do some parent education, also the parent must be educated how to take care of these babies . . . .

Twelve of the 13 interviewed nurses indicated that specialized skills were required to perform effective preterm infant assessments, but that they lacked these skills. Although they indicated that their role included problem detection and referral, they also voiced the need for guidelines regarding preterm infant assessment, as they lacked self-confidence in assessing these infants.

> . . . .to be honest, I am scared of the preterm infant . . . .

The nurses required knowledge about assessment of milestones, growth and development, feeding, immunization routes, and schedules specific to preterm infants.

> . . . Need to have knowledge of child's developmental stages, their milestones, their immunisation schedules, their nutritional state and how to do proper assessments . . . firstly skills to work with a growth chart that will be specific for a premature baby . . . we need to develop technical skills, you know, regarding assessment, what to assess, you know, the hearing and the sight and the heart problems and the possible feeding problems that they might have as well as, specifically for the preterm infant . . . .

Perceptions concerning training needs

Seven of the 13 participants underwent general hospital-based nursing training while 2 had additional exposure to NICUs. They received no training on the assessment of preterm infants, although this was needed:

> . . . training was very basic . . . we didn't go into the specific needs that they have . . . only in the neonatal ICU, you know how to take care of them while they are still in hospital, not after they are discharged and gone home . . . truly speaking, I think we don't have enough skill, because we never got training about . . . about them, about how to handle them . . . nothing, nothing at all. . . . received the IMCI [integrated management of child illnesses] training, but I can't say that I am confident with what I am doing . . . I never worked with them, the preterm babies . . .

The need for training was clearly identified and continued professional development (CPD) training was perceived to improve professional nurses' skills.

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Table 2. **Interview questions**

Formal question	Probing question
How do you perceive the role of the nurse/midwife in the well-baby clinic concerning assessment and follow-up of the preterm infant?	Your role/duty/job Your role as a registered nurse/midwife, regarding referrals, diagnosis, treatment, and participation in care Is your position important and why?
How would you describe the skills required to be able to assess the preterm infant in a follow-up clinic?	What is an assessment? What is important to do during these assessments? What is covered during these assessments? Do you need additional skills to assess the preterm infant? Is assessment done correctly in your opinion? What is your view on current practice? Can it be better?
What training did you receive to do assessments on the preterm infant and do you think it was enough?	Previous training received? Postgraduate training? Continued professional development or in-service training?
What tools do you have available to do these assessments?	What do you use while doing assessments? If participants struggle to name tools, suggest the following: Discharge planning Previous assessments Road to health chart Growth monitoring, Fenton Growth Chart Instruments, NBAS, NIDCAP Assessment room Training on prematurity, little steps Other
What would you say is your own level of skills to render quality assessments on the preterm infants and was your training enough? Elaborate	Lack in training? Lack in tools? Self-confidence Suggestions?
What skills, if any, do you think you need to develop in yourself to do quality assessments on the preterm infant?	What skills are necessary for nurses to do quality assessments?

No professional postgraduation training concerning preterm infant assessment is provided in South Africa and medical representatives were the only resource persons for some participants.

> . . . Need possible CPD courses . . . meeting with people that are working with preterm babies, so that you can gain a little bit of knowledge . . . we need in-service training about the prem babies so that you can be knowledgeable and know how to help them and be confident about helping them . . . the department must just take us to training . . . or to the neonatal clinics . . . .because we do not have enough qualification . . . rep is very clued up, so they are on my support system . . .

Tools and resources

Assessment tools and resources were inadequate to do proper assessments of preterm infants:

> We only have the scale, we don't even see how the child is progressing because we do not have the resources . . . .and the road to health chart, ... with no specific area where they talk about the preterm infant . . . .

Preterm infants did not have written discharge plans that accompanied them to the follow-up clinics and sometimes even the baby's weight at discharge from hospital was unknown:

> " . . . very few actually have discharge planning . . . one or two had a bit of a meal . . . but very little have other plans that they come with . . . . They just come in, we don't have a borderline where the baby is coming from . . .

Parents received the Road to Health charts, specifying the basic immunization schedule and milestones for full-term infants, when their babies were discharged

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Table 3. **Themes from findings**

	Perception of:					
Role of nurse in follow-up assessment	**Skills and knowledge needs**	**Tools and resource needs**	**Support and referral systems**	**Training needs**	**Strategies for effective follow-up assessments**
Most appropriate professional to perform follow-up assessment	Follow-up assessment skills	Physical resources, eg, scale	Parent support	Basic training	Parent education
What needs to be assessed	Parent interaction skills Facilitate multidisciplinary work Confidence	Immunization route and schedules Feeding	Discharge planning Road to health chart	Referral to appropriate health care professional	Continued professional development /in-services training related to preterm infant assessment	Multidisciplinary team Exposure to preterm infant assessment Training and tools

from hospitals. The nurses felt that the booklet needed information about and a special growth chart for preterm infants:

> . . . a growth chart specifically for preterm babies, so if they were born 900 kg, something that will follow them there and then obviously we can transfer it over to the normal chart later on . . . . It does not even have a page specific . . . to record anything about the preterm babies . . . . guidelines onto what the baby at that age should be drinking . . . and the type of feeding . . . guidelines from a paediatrician on what to look for, what type of assessments to do . . . Checklists would assist nurses' assessments and information leaflets could enlighten parents.

Support and referral systems

Support for effective referrals would enable nurses to refer preterm babies appropriately:

> . . . Refer to baby gym . . . . She will do some exercises with the baby . . . our peads (paediatricians) . . . can give us some information . . . on prematurity, and how to work with them . . . .

Strategies to perform effective follow-up preterm infant assessments

The interviewed nurses suggested strategies to improve preterm infants' assessment in the well-baby clinics, including that assessments could be enhanced by exposure to preterm assessments, working with multidisciplinary team members, including nurses in multidisciplinary discussions, and access to tools and training as well as acquiring skills to educate the parents.

> . . . it comes from a paediatrician on what to look for . . . Person who is working with the preterm baby . . . What kind of information that the mother were given that we'll take from there . . . .

DISCUSSION

South African professional nurses/midwives interviewed during this study described their own perceptions and experiences regarding their current skills to perform preterm infant assessments in the well-baby clinics and made some suggestions for improving preterm infants' follow-up assessments. The findings identified new information and insights into nursing practices. Most participants perceived similar shortfalls and needs for this specialty area that could improve specialty care provided even at PHC level and stated a need for specialized training in conducting preterm infant assessments. The findings of this study were similar to those described by other researchers.[2,9,10] The nurse/midwife is often the leader

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of the multidisciplinary team and sometimes the sole team member to perform preterm infants' follow-up assessments.[5,11,12] Literature reports confirm that follow-up assessments should include assessments of growth, weight, milestone development, hearing, and visual screening as well as feeding[4,11] and that assessment of ongoing illnesses is equally important during the follow-up assessment of the preterm infant.[4,13] The importance of the role of the nurse in PHC settings, providing infant follow-up assessments and care, has been well documented[5,9,12] and the participants in the current study felt confident assessing full-term infants. However, concerning preterm infants' assessments, their self-confidence was low because they lacked knowledge, experience, and skills, similar to other researchers' findings.[14] Detecting and referring problems during assessments are key functions of nurses/midwives as reported by the participants in the current study and by other researchers.[5] However, 12 of the 13 interviewees reported a lack of skills in this regard. The current study's findings are consistent with those of other researchers, including the March of the Dimes Report (2010), indicating that parental needs should be identified and included in preterm infants' follow-up assessments.[11,15] The study participants were willing to attend training to improve their skills. Literature confirms the perception that rendering quality follow-up assessments and improving competencies during the follow-up care of preterm infants requires appropriate specialized training.[2,14] The enhanced quality of preterm infants' posthospital discharge care could improve their future long-term outcomes.[10] Professional nurses, working in the PHC setting in South Africa, are responsible for assessing preterm infants in the well-baby clinics even though no standardized tool, specifically designed for preterm infants, is availability to guide these assessments. The Road to Health Chart is currently used in South Africa as the only standardized follow-up assessment tool for all infants,[6] but the nurses/midwives perceived it to focus on healthy full-term infants without accommodating the preterm infants' specific needs. This finding is unique to the South African context, since literature indicated that other developing countries have tools for this population and in developed countries various preterm infant follow-up assessment protocols are used during standardized assessments.[4,16,17] The unavailability of tools and resources makes it difficult for the professional nurses/midwives to render quality assessments and to identify and refer problems to the multidisciplinary team.

Discharge planning and follow-up assessments[18] are crucial for the success of the preterm infants' care after discharge from hospital,[9] emphasizing the support and referrals required for performing optimum follow-up preterm infants' assessments.[5,18] However, these were usually unavailable to the nurses/midwives who participated in the current study, and are therefore not currently used in well-baby clinics. Participants recommended strategies such as being part of a multidisciplinary team, participating in discussions concerning treatment, and being capable of referring detected problems early. This correlates with Kumar's[4] suggestion that all required personnel should be available under one roof, at a place earmarked for providing follow-up care. Kelly[9] also stated that PHC nurses and neonatologists should be partners in providing care to preterm infants and that good communication is crucial for the success of the survival of the infant after discharge from hospital.[9]

LIMITATIONS

Only 1 district in the Limpopo Province of South Africa was interviewed and therefore the findings could not be generalized without replicating the study in a larger area.

RECOMMENDATIONS FOR PRACTICE

Registered nurses/midwives need to be up-to-date with the latest information on prematurity. It is advisable for registered nurses/midwives to become members of the Neonatal Nurses Association of South Africa to ensure that they remain updated. The registered nurse/midwife is a central part of the multidisciplinary team and could facilitate coordination of services as part of the follow-up assessment on the preterm infant to identify developmental delays and problems early. Standardized follow-up assessments of preterm infants in the well-baby clinics could reduce cost and ensure better outcomes for preterm infants. Training needs to be included in nurses' undergraduate curricula to ensure good-quality follow-up assessments. Postgraduate training, CPD training, and in-service training regarding preterm follow-up assessments should be developed for and accessible to all registered nurses/midwives working in well-baby clinics. Results of the study need to be shared with the National Department of Health and learning opportunities and suggestions need to be shared with the SANC and institutions offering postgraduate courses in advanced midwifery and/or neonatology to ensure knowledge transfer of this study's findings to improve nurses'/midwives' assessments of preterm infants in South Africa. The Road to Health Chart needs to be brought to their attention to alter and include the preterm infant growth chart as well as an instrument for assessment. Support for and education

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of parents with preterm infants should be promoted by means of proper discharge planning, providing sufficient information regarding proper follow-up assessments, as well as ensuring access to available support services, and this could be a new model of care, where good collaboration between the discharge team and the future primary care nurses takes place prior to discharge to ensure proper follow-up and the understanding of the needs and care of the preterm infant. Future research should include larger samples from various regions to determine whether the results are consistent throughout the country. Future research should also formulate guidelines or a standardized preterm infant assessment instrument for professional nurses to use in the well-baby clinics as well as a discharge checklist to assist the care team taking over after discharge to ensure that all elements are met for preterm infant follow-up. Researchers should also investigate how preterm infants' parents perceive follow-up visits in well-baby clinics.

CONCLUSION

In South Africa, nurses perform most preterm assessments in well-baby clinics, usually as part of PHC services. However, nurses need to have the required knowledge and skills, basic tools, resources, and guidelines to perform effective preterm infant assessments. Implementation of these recommendations could help to enhance the long-term outcomes of the 84 000 preterm babies born in South Africa annually,[3] or an estimated 420 000 preterm infants attending well-baby clinics until they are 5 years old.

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