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Identifying Competencies for Student Nurse-Midwives through Delphi Technique

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Abstract:

Background: *Competency driven education is still a topic to be researched in India though it may sound too late when comparedglobally. In an attempt to do so in Midwifery the researcher has taken efforts to identify the competencies to be attained prior to registration by Nurse-Midwifery Students.*

Methodology:*Three round Reactive Delphi surveys were conducted, among 10 experts. They were selected through a non-probability purposive sampling in an attempt to gain consensus for a researcher generated list of consolidated competencies from various sources. The data gathered was analyzed and interpreted using descriptive statistics and content analysis.*

Results:*The surveys resulted in an array of 85 competencies distributed across eight domains. The study recommends the utilisation of these competencies in Nursing education, practice for new graduates and in research including rigorous testing of psychometric properties.*

Keywords: *Competencies, Delphi, Nurse -Midwives, eight domains of nurse-midwives.*

Introduction:

A competent workforce is a happier workforce. They are more motivated, effective and confident in doing their job. Nurse-Midwives are always expected to behave reasonably, demonstrating a caring and humanistic attitude while doing so. There is, however, a serious concern about the quality of midwifery services provided in addition to the critical shortage of midwives in many countries.**(More midwives needed to improve maternal and newbornsurvival,2014)**

The International Confederation of Midwives,**ICM (n.d-b)**emphasis midwivesto complete a Midwifery Education programmebased on the ICM Essential Competencies for Basic Midwifery Practice . A survey conducted by ICM reported that 30% of practicing midwives have completed a full three-year training course, 25% of those who have fully trained meet ICM competencies; and sadly only 15% of nurses who undertake midwifery duties meet the ICM core competencies**.(Chaturvedi, Upadhyay & De Costa, 2014)**That emphasises that the world requires not just qualified, but also competent midwives.

Thanks to **McClelland (1973)**, who, introduced the concept of "Competence" during a time when Cognitive ability mattered the most. Competence' refers to the state of being able to do something or a person's overall ability to fulfil prior set requirements. 'Competency', on the other hand, means a set of skills or characteristics: the ability to perform a task based on the required assets. 'Competencies', are the individual skills a person has to fulfill some requirement. Competencies are what lead to competence**(Kianna. 2018).**Competency and itsrelated terminologies though born long ago, do not have agreed-upon definitions till date.**(Awasthi & Sharma, 2016)**

A global analysis conducted by the UNFPA concluded that midwives, when regulated to international standards, have the competencies to deliver 87% of the essential reproductive maternal and newborn health services .**(Fullerton et al., 2016)**Supporting this a study conductedin Gujarat claimed 25–40% of midwifery students scored above the 75th percentile and 38–50% below the 50th percentile of competence. **(Sharma et al., 2015)**Competencies have been used as a benchmark for determining the beginning level of professional conduct in disciplinary hearings and given a serious thought in the developed part of the world. While in India we are a far way to go.(**Chiarella, Thoms, Lau & McInnes, 2008)**

The developed countries in the world follow direct-entry midwifery education and /or midwifery education post-nursing. While in India an integrated pathway for nursing and midwiferyarepracticed. According to the WHO and ICM, integrated programmes are the least effective as they compromise the development of competencies for both the nursing and the midwifery professions.**(Sharma et al., 2015)**Roughly only about 65% of the competencies matched with the Midwifery syllabus when compared to the ICM competencies**.(RGUHS,2007), (Diploma in General Nursing And MidwiferySyllabus and regulations,2015)**

Competencies acts as a foundation for experiential learning. Competencies highlight basic skills, sowing the seeds for the future where learning occurs from accompanying work experience. Though both prepare an individual for the world of work, the foundation must always be laid strong. So it is highly significant for competencies to be identified with care.**(Reynolds,1981)**

Many documented competencies in literature reviewed were termed to betoo broad unclear,ambiguous,repetitive and full of educational jargon. Making it difficult to interpret what s expected of the student.**(Fleming, Poat, Curzio, Douglas & Cheyne, 2001), (Smith, Muldoon & Biesty, 2012).**

Hence, attempts were made to collect a set of clinical competencies for nurse-midwife trainees using a Delphi technique.

The Delphi method is a process of arriving at group consensus by providing experts with rounds of questionnaires, as well as the group response before each subsequent round. **("How the Delphi Method Works", 2019).**A classical Delphi includes the following : anonymity of Delphi participants, iteration which allows the experts to refine their views in accordance with the progress of the group's work , two or more rounds of sequential questionnaires and/or interviews up to consensus or theoretical saturation and controlled feedback which keeps the participants informed about the perspectives of fellow participants. Statistical aggregation of group response which allows quantitative analysis and interpretation of data accompanied with or without qualitative analysis. A Delphi pilot study may be sometimes necessary to foresee any methodological issues**(Skulmoski, Hartman &Krahn, 2007), (McKenna, 1994), (Wilkes, 2015) (The ideal attributes of chief nurses in Europe: a Delphi ... (n.d.).**

The literature presents various modifications in the Delphi Method. One such adaptation is the 'reactive Delphi'. This technique asks respondents or experts to opine on a researcher prepared or previously existing information. This study seeks expert consensus for an alreadyprepared list of Clinical competencies in Midwifery for final year undergraduate and diploma students of Nursing.**(McKenna, 1994).**Thus a reactive Delphi survey was found relevant**.**

Purpose: The purpose of this paper is to identify the competencies of nurse-midwife trainees to be attained pre-registration upon completion of the prescribed Midwifery syllabus.

The study provides insights and implications surrounding the competencies of nurse-midwife trainees for assessment and evaluation on pre-registration.

Procedure:

- The researcher pooled items from an extensive review of literature, previous scales, clinical observation, expert opinions, patients reports, research findings and recommended syllabus.
- The investigator introduced herself followed by an explanation about the purpose,nature of the study, nature of participation, risks and benefits of participation, confidentiality, etc. Written informed consent was obtained.
- Data was collected from a Heterogeneous group of 10 experts.Panellists were selected purposively rather than randomly to attain maximum consensus. Criteria for selection of panellists were those identified as knowledgeable and experienced, who had the capacity and willingness to participate and who had effective communication skills.Experts not having sufficient time to participate were excluded.
- The tools accompanied by instructions were mailed over electronic media or given in person based on the convenience of the experts.TheQuestionnaire was based on previous rounds of Delphi with accompanying columns (keep,modify,remove and suggest)in an attempt to gain consensus. The experts were also requested to add items for which empty rows were provided under each domain. They were requested to give justifications if they deleted or asked for an item to be modified.
- Periodic reminders were sent to the experts. The experts were given three weeks (However liberty was given as per the convenience of the expert.) to complete a Delphi survey. The researcher assumed the role of the facilitator and summarized the content on completion of a Delphi round and headed on with the next subsequent Delphi round.
- The devised tool was subjected to content validation among 10 doctoral experts serving nationally and internationally.

Results

Reactive Delphi Pilot Survey: Reactive Delphi Pilot Surveyconducted among three experts (who were included in the main Delphi survey too) suggested a total revamp of the tool. The tool for the pilot study had 150 items distributed under the following headings: Professional /Ethical

Practice, Holistic Midwifery Care, interpersonal Relationship, Organisation and co-ordination of Midwifery care, Personal and Professional Development,Women's health care and family planning. The 150 items scale was reworded and refined. Some items were separated and this resulted in 172 items tool. The items were re-distributed under eight subheadings which were further segregated domain wise(Knowledge, skill or ability). The subdomains were Pre-pregnancy care, Care during pregnancy, Care during labour and birth, Care of women during postpartum, Care of new-born, Family Welfare Services, Gynaecology care and Professional /ethical Practice. The revamping was justified to match the subheadings with the Indian scenario and the curriculum recommendation by the university and/or board. Further, the items under each subheading were arranged based on the maxims of teaching, as per the sequence presented in the syllabus books following the ICM competencies as the base.

Table 1:Domain wise frequency distribution of items across Delphi Surveys

S.No	Competencies of Student Nurse Midwives (Domains)	Delphi Survey			
		I	IIa	IIb	III
1	Pre-pregnancy care	15	9	8	8
2	Care during pregnancy	36	12	8	8
3	Care during labour and birth	55	43	30	25
4	Care of women during postpartum	11	9	5	5
5	Care of new-born	26	24	14	13
6	Family Welfare services	12	9	9	8
7	Gynaecology care	9	9	10	10
8	Professional /ethical Practice	8	8	8	8
	TOTAL	**172**	**123**	**92**	**85**

Description of Demographic characteristics : The 10 experts included four nurse-midwife educators, three practicing nurse midwives, one academician,one Nurse researcher and one Obstetrician. Eighty percent had a Master's degree in Nursing (seven had their specialization in

Obstetrics and Gynaecology Nursing and one in Psychiatric Nursing),one was an Obstetrician while one was a doctoral candidate specialized in Paediatric Nursing. The Psychiatric Nursing and Paediatric Nursing Expert were included taking into consideration their expertise in Curriculum revision in University and board. Adding to that, the pediatric Nursing expert has a vast experience in research related to Midwifery Maternal,Newborn,Child and Adolescent Health 'MNCAH'.Thework experience of experts ranged from four years to 30 years.

Delphi I: The 172 item list under eight new domains(Table 1) were distributed to experts for Reactive Delphi I. Several panellists (seven out of 10) recommended that the knowledge (Example: Mentions physical examination content .) and the skill (Example: Performs a physical examination, including clinical breast examination, focused on the presenting condition of the woman .)items remain clubbed together. Forty-nine items (28.48%), most of them which were considered overlapping in knowledge and skill /ability columns received a consensus less than 70%.Few items were rearranged and few were suggested to be retained after modification. Thus, 123 /172 (71.5%) items which received 70% and above consensus were retained. Modification and reframing of the tool was done. The 123 item tool was tried out on 10 nurse midwife trainees for diagnosing issues in its utility as per the suggestion of five experts.This left the list to have 92 (74.7%) items at the end of the try-out.

Delphi II: A 92 item tool(Table 1) that evolved after the tool try-out was subjected to reactive Delphi II.The items reframed were highlighted to mark the difference along with consensus percentage received in round I. At the end of Delphi II,85 out of 92 items (92.3%) received 70% and above consensus. To refine the tool some of the sentences were suggested to be reworded. This made the tool much more compact. A few items were asked to be rearranged and clustered under a common stem (Example: Refer table 2:Item number 24, Item number 43, etc).

Delphi III: The 85 item list(Table 1 &2) was subjected to Delphi III. The tool was submitted to the experts indicating the consensus of the previous round.84 items (98.8%)received 100% consensus and one(1.2%) item(Provide appropriate preconception counselling) had 90%consensus. The itemwas however retained after a cognitive interview with the concerned expert highlighting its necessity. Thus, the final tool at the end of three reactive Delphi round yielded an 85 item tool distributed under eight domains.

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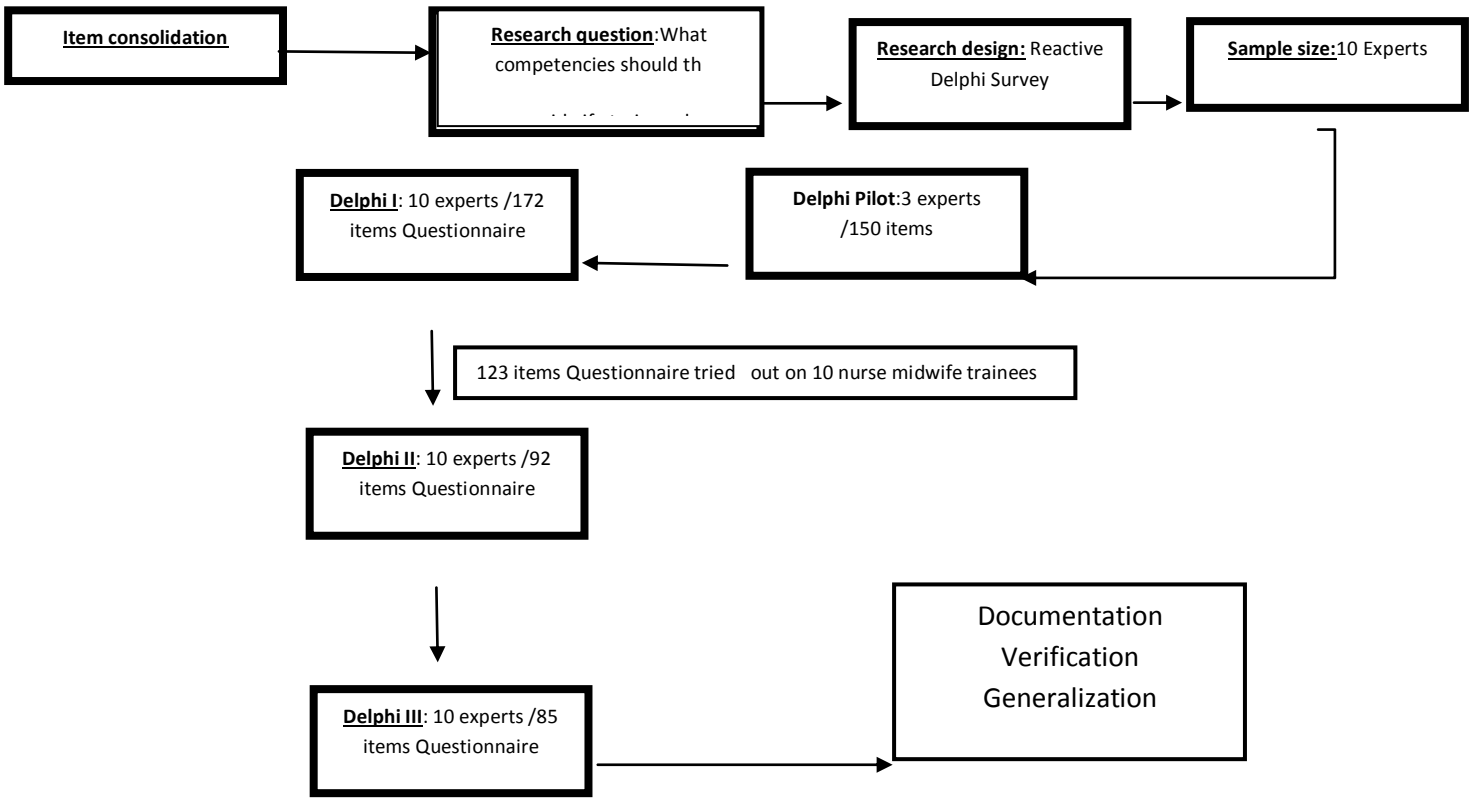
Figure 1:Schematic Representation of the Reactive Delphi Survey



Discussion: Thethree round Delphi survey which generated 85 items distributed under eight domains(Table 2)can be matched with a study conducted by**Woeber (2018)**to develop and implement a competency-based clinical evaluation tool for midwifery education in the United States. The items for the tool formulated were adapted from the International Confederation of Midwives(ICM) "Essential Competencies" and from the American College of Nurse-Midwives (ACNM) "Core Competencies". Likewise, the items for the study were generated with the International Confederation of Midwives(ICM) "Essential Competencies" as the base. Further, the items were matched with the syllabus of the Basic Nursing and General Nursing and Midwifery as recommended by the University and Board respectively.Supporting this in the same study mentioned above,the author had identified six domains ;Competency in Preconception care, family and well-woman care (15 items),competency in Provision of care during Pregnancy (14 items),Competency in provision of care during labour and birth (26 items),Competency of care for women during the postpartum period (11 items),Competency in postnatal care of the newborn(15 items) and Competency in facilitation of abortion and loss related care (11 items).The study recommended that by listing agreed-upon competencies vivid expectations can

be set for students, facilitating a more standard approach for evaluation indirectly developing a more strategic approach for its clinical use.

A study titled “Essential competencies for three grades of midwives in China “identified 186 items formulated under seven domains; Antenatalcare, IntrapartumCare, PostnatalCare, FeminineCare, Public Health Care, Integrative Competency ad Professional quality.**(Yin et al,2018).**The basic domains (i.e) antenatal,intranatal and postnatal remained similar across various studies, Whereas the additional domains were tweaked across various lists of competencies.**(Woeber,2018),(Yin et al,2018), (Icm. (n.d-b).**

The Professional /ethical Practice domain was supported by another study which involved consensus amongst midwifery experts globally about the essential competencies for basic midwifery practice A modified Delphi approach, involving a three-round online survey, reduced a set of 791 competencies to 320 at its termination. Professional and personal competencies were strongly endorsed.**(Butler, Fullerton, & Aman, 2018).**

During the Delphi, the researcher came across similar controversies. AChinese study reporteditems such as ‘conduct shoulder dystocia’ and ‘implement artificial rupture of membranes inlow location’ to be attached to the Chinese midwifery practitioners, Management of severe complications (Example, ‘Repair third and fourth-degree lacerations’) were removed from midwives’ competencies and transferred to that of Obstetricians.Instrumental assisted birth techniques, such as ‘perform vacuum extraction’, were found to be controversial items. Forceps deliverywas made a compromise, (i.e.)cooperate with doctors in low forceps delivery’ was added to increase vaginal deliveries. According to The State of the World's Midwifery 2014, Chinese midwives were unauthorised to prescribe contraceptives, insert intrauterine devices and perform induced and manual vacuum aspiration abortion.**(Yin et al,2018).** Despite the guidelines of WHOpermitting insertion of IUDs, many countries including India do not allow or practice task-sharing.**(Chakraborty, Murphy, Paudel, & Sharma, 2015).**

Special efforts were made to reword and reframe these items taking into account thesensitivity. The “Insertion of IUD’s”though a recommendation in the syllabus, was droppedas requested by 80% of the survey experts. “Repair of tears” and “Manual removal of Placenta “were termed as functions of the Obstetrician. The other items involving shoulder dystocia, artificial rupture of membranes, instrumental and operative deliveries were re-framed carefully (Table 2). This resulted in a set of competencies matching to the region where the study was conducted.

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I)PRE -PREGNANCY CARE
Identify growth and development related to human sexuality.
Recall female and male anatomy and physiology related to conception and reproduction.
List basic principles of pharmacokinetics in Midwifery.
Take comprehensive health and obstetric, gynaecologic and reproductive health history
Perform a physical examination, including clinical breast examination, focused on the presenting condition of the woman.
Interpret common laboratory tests (e.g., hematocrit, urinalysis dipstick for proteinuria)
Provide appropriate preconception counselling
Consult and refer appropriately

II)CARE DURING PREGNANCY:
Take a relevant history every antenatal visit
Perform a physical examination and explain findings to the woman
Calculate the estimated date of birth using Naegele's formula.
Educate women regarding the management of common discomforts of pregnancy
Provide guidance and basic preparation for labour, birth and parenting
Identify deviations from normal during the course of the pregnancy and plan nursing are appropriately in consultati with the Obstetrician for:
Anemia
Hypertensive disorders of pregnancy
Preterm labour
Infections
Other high-risk pregnancies
Low and or inadequate maternal nutrition
Oligo- or polyhydramnios
Molar pregnancy
Vaginal bleeding
Multiple gestation, abnormal lie/malpresentation at term
Gestational diabetes
Rupture of membranes prior to erm
Health issues related to other body systems:genitourinary,gastrointestinal,neurologic ,respiratory,cardiac,etc
Placental problems
Post-term Pregnancy
Intrauterine foetal death
Safely provide medications as prescribed.
Provide counselling and referral relevant to adolescent pregnancy, domestic violence, smoking, drugs, alcohol

III)CARE DURING LABOUR AND BIRTH:
Collect a relevant history
Perform a focused physical examination in labour
Perform an abdominal assessment
Assess the effectiveness of uterine contractions
Perform a complete pelvic examination for dilatation, effacement, descent, presenting part, position, the status of membranes, and adequacy of the pelvis for the birth of baby vaginally
Identify the stages of labour appropriately
Monitor progress of labour using the partograph
Provide support for woman and family and promote normal birth
Hydration and nutrition
Non-pharmacologic comfort measures
Pharmacologic therapies
Bladder care
Psychological support
Identify promptly abnormal labour patterns and initiate appropriate and timely intervention and/or referral
Implement augmentation/induction of labour appropriately under the guidance of a senior nurse.
Administer a local anaesthetic to the perineum when an episiotomy is anticipated or perineal repair is required
Perform an episiotomy if needed
Perform appropriate hand manoeuvres for a vertex birth to prevent laceration
Demonstrate the skill in managing cord around the baby's neck at birth
Clamp and cut the cord when appropriate
Conduct active management of the 3rd stage of labour, following the protocol
Examine the placenta and membranes for completeness
Provide a safe environment for the mother and infant to promote attachment (bonding)
Estimate and record maternal blood loss
Inspect the vagina and cervix for lacerations
Repair an episiotomy if needed
Identify and manage obstetrical shock as directed by a senior nurse.
Implement appropriate interventions for consultation,referral and /or transfer
Identify and perform interventions within the scope to manage obstetric complications and interventions:
Hypertensive disorders of pregnancy
Prolapsed cord
Infections:chorioamnionitis,vaginitis
Fetal distress
Shoulder dystocia
Postpartum Haemorrhage
Placental Problems:abruptio,previa,retained placenta
Multiple birth
Appropriately consult for instrumental or surgical delivery

IV)CARE OF WOMEN DURING POSTPARTUM-
Take a selective history, including details of pregnancy, labour and birth
Perform a focused physical examination of the mother
Breast changes and Nipple integrity
Uterine involution
Bowel and bladder functioning
Lochia
Edema and pain
Healing of lacerations or repair
Psychological adjustment to parenting
Bonding and attachment to the baby
Educate and support breastfeeding, expression of milk or milk storage
Counsel women and her family on family planning services /methods
Identify and manage postpartum complications within the scope of practice of Midwifery
Postpartum Haemorrhage
Anaemia
Breastfeeding challenges
Poor healing of incision, laceration or episiotomy
Postpartum psychiatric disorders
Thrombophlebitis
Infections
Medical /surgical complications

V)CARE OF NEWBORN:
Recognise the basic needs of a newborn: established breathing, warmth, nutrition, attachment (bonding)
Justify the advantages of various methods of newborn warming, including skin-to-skin contact (Kangaroo mother care)
Identify the characteristics of a healthy newborn (appearance and behaviours)
Identify the selected variations in the normal newborn (e.g., caput, moulding, mongolian spots)
Educate the parents regarding immunization needs, risks and benefits from infancy through young childhood
Provide immediate care to the newborn, including drying, warming, ensuring that breathing established, cord clamping and cutting when pulsation ceases
Assess the immediate condition of the newborn using APGAR scoring
Demonstrate emergency measures for respiratory distress (newborn resuscitation; suctioning in case of airway obstruction), hypothermia, hypoglycaemia
Demonstrate appropriate care including kangaroo mother care to the low birth weight baby, and arrange for a referral if potentially serious complications arise, or very low birth weight
Provide routine care of the newborn, in accord with local guidelines and protocols (e.g., identification, eye care, screening tests, administration of Vitamin K, birth registration)
Recognize indications of need, stabilize and transfer the at-risk newborn to an emergency care facility
Educate parents about danger signs in the newborn and when to bring infant for care
Support parents during transport/transfer of newborn or during times of separation from infant (e.g., NICU admission)

VI)PROVISION OF FAMILY WELFARE SERVICE:
Recall policies, protocols, laws and regulations related to abortion-care services
List the medical eligibility criteria for all available abortion methods
Mention the pharmacotherapeutic basics of drugs recommended for use in medication abortion

Take an appropriate history to identify an appropriate plan of care.
Educate and advise women (and family members, where appropriate), on sexuality and family planning post-abortion
Counsel women regarding family planning services concurrent with abortion-related services
Educate women on self-care and identification of complications
Identify the indicators of abortion-related complications (including uterine perforation); treat or refer for treatment as appropriate

VII)GYNAECOLOGY CARE:
Conducts an appropriate history collection
Perform a gynaecological examination
Identify appropriate laboratory investigations and tests
Assist in performing diagnostic or therapeutic procedures.
Teach women breast self-examination (BSE)
Educate women appropriately on perineal hygiene and prevention of sexually transmitted infections.
Provide pre-operative care of women undergoing gynaecological surgeries.
Counsel women regarding the management of common menopausal problems.
Assist in pap smear
Identify and manage common gynaecological problems
Menstrual problems
Polycystic ovarian disease
Breast problems
Tumours and masses in reproductive system
Menopausal health
Infertility

VIII) PROFESSIONAL/ETHICAL PRACTICE:
Try to promote privacy and confidentiality with respect to women and their families.
Does not support unsafe and unprofessional practice.
Consider training and clinical experience as useful.
Use medical terms appropriately.
Facilitate informed choice by the woman throughout her maternity experience.
Respect and support the cultural practices of women and their families.
Accept accountability for own professional actions
Use effective communication techniques in practice settings

Table2:List of competencies of nurse-midwife trainees

Conclusion:

Mere qualification may not be enough to face the challenges and increasing demands in Midwifery. To manage the alarming rates of Midwifery related mortality and morbidity, the . Midwifery environment requires not just qualified but also competent midwives, competencies which match real life clinical situations and a set of tailor made competencies set for the nation.

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