Research Article

Development of Postograph for the Healthcare Professionals in Selected Hospitals of Delhi

Varsha Sharma[1], Somibala Thokchom[2], Manju Chhugani[3]

Abstract

Postpartum is the time after birth, a time in which the mother's body, including hormone levels and uterus size, returns to a non-pregnant state. The purpose of the study was to develop and evaluate postograph for the healthcare professionals. The study has been carried out in different phases: (1). Preliminary preparation of postograph, (2). Validation of postograph through modified Delphi technique, (3). Pilot study (n=20), to assess the feasibility of postograph and pre-test the scale for the language and sequence of items. After this phase, final try out of postograph (n=220), validity (content validity, face validity, construct validity) of postograph through exploratory factor analysis was done. For assessing quality and adequacy of postograph, reliability was done. For internal consistency, Cronbach alpha was used, for stability test retest (r=0.95) was done. Postograph consists of 51 items and it is divided into two domains. Content validity of the postograph was checked by calculating CVI (content validity index). The value of CVI was 0.98. Construct validity was done through exploratory factors analysis. Cronbach's alpha was used for internal consistency; the overall Cronbach's alpha of present scale is 0.98. Hence, a valid and reliable postograph is developed for the healthcare professionals to evaluate condition of mother and newborn during postnatal period.

Keywords: Postograph, Postnatal assessment chart, Factor analysis

Introduction

The birth of the baby is one of the most overwhelming and emotional events that can occur in one's lifetime. After nine months of anticipation and preparation, the neonate arrives amid a flurry of excitement. In spite of reviewing a lot of literature, there was found to be a scarcity of tools for the evaluation of postnatal mothers and newborn during the postpartum period,[1] although there have been research studies on evaluation tools for mothers in the antenatal and intranatal periods. So, the researcher felt the need to conduct the study. In recognition of this complexity, the study was used to develop the postograph (graphical representation of the condition of the mother and newborn during postnatal Period).[1]

There are some serious health problems faced by the mother and the newborn in the postpartum period. This can be easily tackled by early postnatal assessment of the postnatal mother and the newborn. Nurses or healthcare professionals need to be aware and always in check of any postpartum complications. This can be done by a checklist and protocols for the healthcare professionals.[2]

[1]Tutor, Holy Family, College of Nursing, New Delhi.

[2]Tutor, [3]Principal, Rufaida College of Nursing, Jamia Hamdard, New Delhi.

Correspondence: Ms. Varsha Sharma, Holy Family, College of Nursing, New Delhi.

E-mail Id: varshasharma0591@gmail.com

Orcid Id: http://orcid.org/0000-0002-5843-2135

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In spite of reviewing a lot of literature there was found to be a scarcity of tools for the evaluation of postnatal mothers and newborns during the postpartum period, although there have been research studies on evaluation tools for mothers in the antenatal period and intranatal period. So, the researcher felt the need to conduct the study. The purpose of this study was to describe how postnatal complications can be detected early to prevent further complications and how it will be a milestone to reduce the maternal mortality rate and infant mortality rate due to postnatal complications, which is one of the major challenges of every developing nation. This tool is essential to assess the wellbeing of mother and better experience of postnatal duration for the mother. In recognition of this complexity, the study was used to develop the postograph (graphical representation of the condition of the mother and the newborn during postnatal period). There was scarcity of literature related to this study. Also previously no tool had been designed for the assessment of postnatal mothers and newborns thus resulting in the healthcare professionals doing monitoring by writing down detailed notes in different sections. The literature relevant to the present study has been discussed regarding postnatal monitoring and complications of newborns and mothers during postnatal duration to decide the items for the postograph.

Aim of the Study

- To develop postograph for healthcare professionals
- To establish validity of postograph for healthcare professionals
- To establish reliability of postograph for healthcare professionals

Materials and Methods

Quantitative research approach with methodological research design was adopted to carry out the study. The setting of the study was Hakeem Abdul Hameed Centenary Hospital, Rufaida College of Nursing and College of Nursing Safdurjung Hospital. Total enumerative sampling technique was used in this study. A total of 220 healthcare professionals were the sample. The postograph scale was developed under four phases. And under each phase some steps had been taken which are as follows:

Phase I – Preliminary Preparation

This phase was completed in three steps.

- Review of literature
- Generation of item pool
- Preparation of preliminary draft: The blue print of postograph for the Items were categorized under following domains:

For the mother

It contains total 22 items for the assessment of postnatal mothers.

For the baby

It contains total 14 items for the assessment of newborn.

Phase II – Validation of First Draft and Subsequent Drafts of Postograph Scale

The modified Delphi technique was used for content validation of the postograph. The first draft of the tool was circulated among 13 experts. As per the experts' opinion the modifications in the scale were made. Three rounds of modified Delphi technique were completed.

Phase III – Pilot Study

The postograph scale was administered to 20 students of B.Sc. nursing 4th year from Laxmi Bai Batra College of Nursing, who were posted in the postnatal ward. The result of the pilot study indicated that the language of items was clear and understandable. The average time taken in assessment and filling up the findings in postograph scale was 10–15 minutes. All the items were same after pilot study; no modifications were done.

Phase IV – Final Tryout

Draft prepared after the third Delphi round was tried out on a large sample (220).

Results

Section 1: Reliability of Postograph Scale

Data was analyzed by SPSS (version 20.0). There were total 51 items in the postograph scale and overall Cronbach's alpha of postograph scale was 0.98 which indicates internal consistency. Corrected item to total correlation was applied on 51 items of scale; 40 items in the scale had item score to total score correlation between 0.3 and 0.7, whereas 1 item in the scale had item score to total score correlation less than 0.3, showing that there was incompatibility with the overall scale.

To check the individual contribution of items, each item was deleted one by one to see the changes in the value of Cronbach's alpha. But no item showed increase in the value of Cronbach's alpha rather the value of Cronbach's alpha remained same or it decreased which indicates all the items are contributing in the scale.

This indicated that all the 51 items were contributing for the reliability of the scale.

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Tests Re-test Reliability of Postograph Scale

Stability of Postograph Scale

The test-retest group (n=50) was formed from B.Sc. nursing 4th year students of Rufaida College of Nursing, Jamia Hamdard. The test-retest reliability was 0.95, which showed that the postograph scale has good stability

Section 2: Validity of Postograph Scale

Pearson's Correlation

To analyze inter-item correlation among items of postograph scale, Pearson's Correlation was applied. All (51) items had correlation >.30.

Construct Validity

The KMO value of data in this study was 0.825 which was calculated by SPSS (version 20), whereas p value of Bartlett's test of sphericity was 0.000. It means that the data was suitable for factor analysis.

Extraction Communality of Items of Postograph Scale

Extraction communality of items was in range of 0.63-0.93.

Rotated Component Matrix by Using Principal Component Analysis

By applying rotated component matrix by using principal component analysis scale had generated 7 components listed as 1, 2, 3…7 as depicted in Table 1.

All the items had loaded (>.30) on factor 1 to 7 so all items were retained in the final scale.

Principal component analysis technique with varimax rotation had yielded a total of 7 factors having Eigen value of above 1. The Eigen values of seven components were in the range of 2.424–14.678. The seven factors so generated accounted for 70% variance.

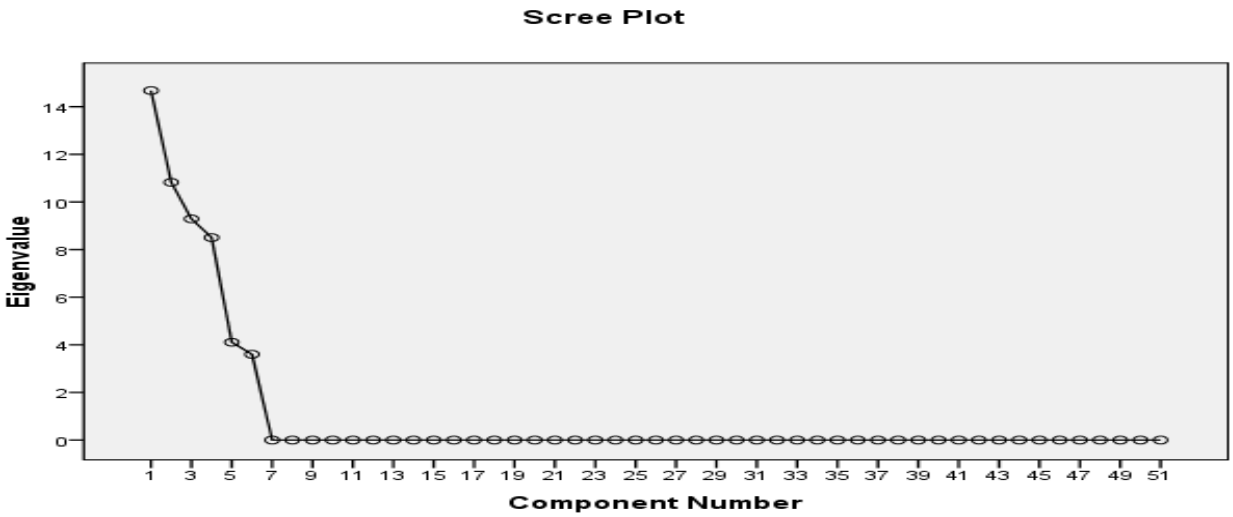
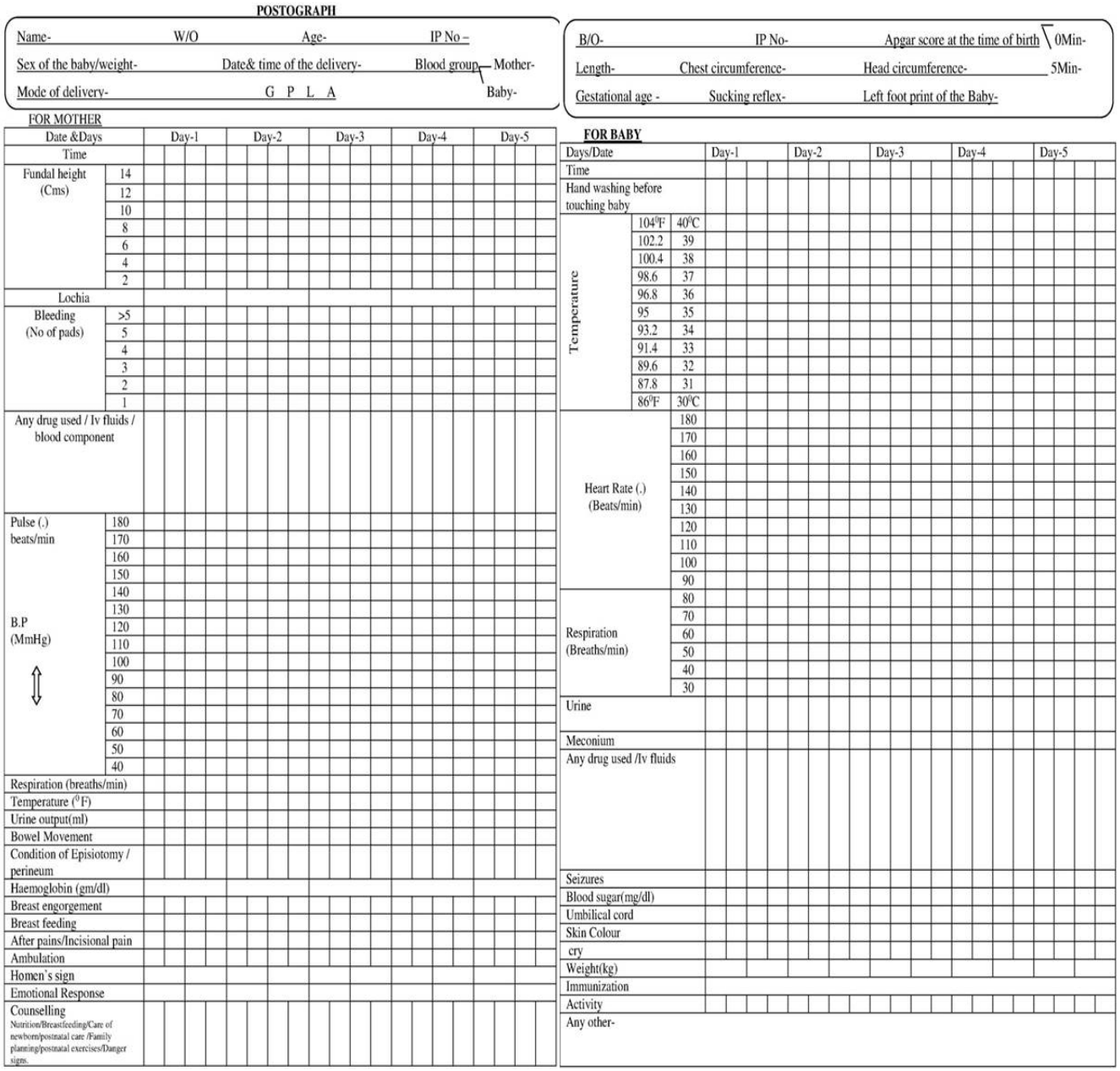


Figure 1.Screen Plot



POSTOGRAPH

Name- W/O Age- IP No –

Sex of the baby/weight- Date& time of the delivery- Blood group- Mother-

Mode of delivery- G P L A Baby-

B/O- IP No- Apgar score at the time of birth 0Min-

Length- Chest circumference- Head circumference- 5Min-

Gestational age - Sucking reflex- Left foot print of the Baby-

FOR MOTHER

Date &Days		Day-1	Day-2	Day-3	Day-4	Day-5
Time						
Fundal height (Cms)	14					
	12					
	10					
	8					
	6					
	4					
	2					
Lochia						
Bleeding (No of pads)	>5					
	5					
	4					
	3					
	2					
	1					
Any drug used / Iv fluids / blood component						
Pulse (.) beats/min	180					
	170					
	160					
	150					
	140					
	130					
B.P (MmHg)	120					
	110					
	100					
	90					
	80					
	70					
	60					
	50					
	40					
Respiration (breaths/min)						
Temperature (^{0}F)						
Urine output(ml)						
Bowel Movement						
Condition of Episiotomy / perineum						
Haemoglobin (gm/dl)						
Breast engorgement						
Breast feeding						
After pains/Incisional pain						
Ambulation						
Homen's sign						
Emotional Response						
Counselling Nutrition/Breastfeeding/Care of newborn/postnatal care /Family planning/postnatal exercises/Danger signs.						

FOR BABY

Days/Date			Day-1	Day-2	Day-3	Day-4	Day-5
Time							
Hand washing before touching baby							
Temperature	104^{0}F	40^{0}C					
	102.2	39					
	100.4	38					
	98.6	37					
	96.8	36					
	95	35					
	93.2	34					
	91.4	33					
	89.6	32					
	87.8	31					
	86^{0}F	30^{0}C					
Heart Rate (.) (Beats/min)		180					
		170					
		160					
		150					
		140					
		130					
		120					
		110					
		100					
		90					
Respiration (Breaths/min)		80					
		70					
		60					
		50					
		40					
		30					
Urine							
Meconium							
Any drug used /Iv fluids							
Seizures							
Blood sugar(mg/dl)							
Umbilical cord							
Skin Colour							
cry							
Weight(kg)							
Immunization							
Activity							
Any other-							

Figure 2.Postograph

Discussion

A postograph was developed for the healthcare professionals of selected hospitals of Delhi to assess the condition of the mother and the newborn during postnatal duration from day one to day five. There was a scarcity of the related literature and no previous studies were found regarding assessment of postnatal mother and newborn to compare the findings of the present study. The conclusion drawn from the study was that postograph scale has high validity and reliability and can be used effectively to assess the condition of the mother and baby during postnatal duration by the healthcare professionals. Based on the findings of the study, it is recommended that the study can be replicated on a large sample to develop reliable and valid postograph. The study may be conducted to assess the condition of the mother and the newborn by using the postograph, and the study may be conducted to assess the effectiveness of using postograph in terms of improving standard of postnatal care.

Conflict of Interest: None

References

1. Warren et al. Postnatal Care.
2. World Health Organization. Postpartum Care of the Mother and Newborn: A Practical Guide.

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