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A rapid assessment of breastfeeding status using current status data

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Summary

Probit analysis of current status epidemiological data was used to estimate breastfeeding rates using 3428 mother-baby pairs from randomly selected facilities in the city of Ibadan, Nigeria. The children whose ages range from 1 to 548 days were distributed over 13 age groups. The observed proportions of breastfeeding children (exclusive and ever-breastfed) in each group were transformed into probits, and a weighted linear regression of probits (y) on ages (x) was calculated using the maximum likelihood Iterative procedure. Prevalence rate for exclusive breastfeeding for Ibadan was 39.6 percent and over 99 percent of the children were ever-breastfed. Median duration of exclusive breastfeeding was 61 days, when half of the exclusively breast fed in the study population would have discontinued exclusive breastfeeding. Mean duration was 64.8 \pm 44.4 days. Nationwide efforts to promote exclusive breastfeeding started in 1992, but there remains a lot more that can be done to promote, support and protect the practice of exclusive breastfeeding in this community. Using this simple procedure, current status data, easily obtained from mothers can be used to rapidly assess breastfeeding practices in the community. This will go along way towards improving documentation of rates, thereby making planning easier.

Keywords: Probit analysis, exclusive breastfeeding, rapid assessment, baby-friendly hospital initiative.

Résumé

L'analyse probit des resultants ou des données recentes de l'etat epidemiologique a été utilisé pour estimer le taux d'allaitement maternel chez 3428 couple de mere-bebe choisi au hazard dans la ville d'Ibadan au Nigeria.

Les enfants d'age variant entre 1 et 548 jours avaient ete divise en 13 groups. La proportion observee d. enfants allaite excluivement et pendant toute l'enfance dans chaque groupe était transformee en probit et une pesce de regression lineare de probit (Y) sur les ages (X) était calcule avec la procede maximale de probabilite iterative. Le taux de predominance d allaitement maternel exclusif pour Ibadan était 39.6 pourcent et plus de 99 pourcent d'enfants avaient ete allaite jusqu'au sevrase.

La mediane de la durce d'allaitment maternel exclusif était de 61 jours pendant que la moitee de l'allitement maternel exclusif dans cette population etudice pouvait etre discontinue.

La durée moyenne était de 64.8 ± 44.4 jours. Dans tout le pays, les efforts de promotion d'allaitement maternel

Correspondence: Dr Taiwo O. Lawoyin, Department of Community Medicine, College of Medicine, UCH, Ibadan, Nigeria. exclusif ont commence en 1992, mais il reste encore beaucoups a faire pour promouvoir, supporter et proteger la pratique de l'allaitement maternel exclusif dans la communaute.

Ceci aidera a ameliorer la documentation des taux d'allaitement maternel et par consequent aider a faire des plans facilement.

Introduction

The calculation and comparison of the parameters of distribution of postpartum variables such as breastfeeding, lactational amenorrhea and postpartum abstinence have been found to be complicated and require basic types of data and several approaches to sample design [1]. One of the three basic types of data on breast-feeding is current status data which involves variables of a form, the score depending on whether the mother is or is not still breastfeeding or whether the mother is currently breastfeeding exclusively or not. Retrospectively collected data is subject to recall biases and is generally affected by heaping so it is not so totally reliable in relation to some postpartum variables [1,2]. It may be better therefore to rely upon current status information in large populations from which the proportion in a given state can be computed. Nationwide efforts to promote breastfeeding in Nigeria started in 1992 with the introduction of the Baby Friendly Hospital Initiative [3]. Data on the current situation in Nigeria is generally lacking. In a recent publication, United Nations Children Education Fund (UNICEF) put the national rate of exclusive breastfeeding at two percent for the period 1990-1998.4 This study was carried out to determine if probit analysis of current status data can be used to rapidly assess the breastfeeding practices in the country as this will hasten documentation of this vital information for planners of the BFHI program and to determine the prevalence rates for exclusive and non exclusive breastfeeding at different ages in Ibadan. This population has had access to information on exclusive breastfeeding.

Materials and methods

The study was carried out in Ibadan, the capital of Oyo state, Nigeria. It is one of the largest cities in Africa, south of the Sahara and has a population of over two million. Ibadan municipality covers all well-demarcated socio-economic zones in the city [5,6]. Namely, the inner city (lower socioeconomic zone), the transitional (middle socioeconomic zone) and the low-density sub-urban periphery (higher socio-economic zone). The city is divided into five local government areas, namely Ibadan North, Ibadan North-East, North-West, South West and South East. These five zones are representative of the different socio-economic zones within the city. UNICEF sponsored training of government health workers

in the tertiary, secondary and primary care facilities within the five zones have been completed and these facilities are expected to have received some training in lactation management that would enable them promote, support and protect exclusive breastfeeding adequately. Through a multistage sampling technique, two secondary and five primary care infant welfare clinics were randomly selected for the study. The infant welfare clinic of the only tertiary hospital in the city was also selected for the study. A total sampling of all mother-infant pairs seen in the clinics from July to December 1998 were enrolled. Mothers were interviewed during routine consultation and asked about their babies' current feeding status. For this study, breastfeeding was defined as infant feeding with human milk in addition to other liquids and solids. Exclusive breastfeeding was defined as infant feeding with human milk without the addition of any other liquid or solids. This is expected to continue from birth until the child is six months. Thereafter it is expected that the infant is commenced on complementary diet in addition to breastmilk.Infant's age at the time of the interview measured in days was computed from the data of birth recorded in the Road-to-Health clinic cards. Collected data were entered into the computer using EPI Info version 6 [7].

The babies were distributed over 13 age groups and average ages were calculated for each age using the same program. Data was exported into STATA computer software for further analysis [8]. The observed proportions of breastfeeding babies (exclusive and ever-breast fed) in each group were transformed into probits and a weighted linear regression of probits (y) on age of baby (x) was calculated using Maximum likelihood iterative procedure [8,9]. The relations between probits and age is described by the equation y = 5+(x-m)/s where m is the mean of distribution of ages of exclusively breastfed children in a given proportion and s is its standard deviation.

Results

A total of 3428 mother-infant pairs were enrolled. Of this number, 39.6 percent (1357) babies of different ages were currently exclusively breastfed while 60.4 percent (2070) were not. Among the study sample, 99.9 percent (3424) of the babies were ever breastfed.

 Table 1: Distribution of children according to feeding status and age

AgeRangeMeanAgeof (Days) group(days)		No. N of note: children			No.&(%) exclusively breastfed	
1-30	13.3 ± 7.4	608	259	(42.6)	349	(57 4)
31-60	46.7 ± 6.8	636	317	(49.8)	319	(48 6)
61-90	75.3 ± 7.5	637	327	(51.3)	310	(45 2)
91-120	104.9 ± 7.8	587	21	(58.8)	266	(45.2)
121-150	133.9 ± 8.6	215	140	(65.1)	75	134 9
151-180	165.1 ± 9.1	111	85	(76.6)	26	123 4
181-210	195.1 ± 8.5	77	69	(89.6)	8	(10 4)
211-240	223.5 ± 9.4	64	62	(96.9)	2	(3 1)
241-270	261.3 ± 11.1	100	100	(100)	ō	(0)
271-300	280.3 ± 8.4	247	247	(100)	ň	(0)
301-330	316.9 ± 8.6	68	68	(100)	ñ	
331-360	344.4 ± 8.7	37	37	(100)	ñ	(0)
361-548	420.6 ± 53.4	39	39	(100)	õ	(0)
TOTAL	107.9± 92.4		3428			

Table 1 shows the distribution of infants according to feeding status. The children were distributed over 13 age groups and the total number of children in each group, their average ages, and proportions by type of feeding were recorded. The proportions that were exclusively breastfed reduced with increasing age ($chi^2 = 66.17$, P < 0.0000, slope = -0.05).





Figure 1.shows the proportion of babies that were exclusively breast-fed by age. The age specific prevalence rates for "ever-breastfed" and "exclusively breastfed" were determined and fitted to the probit models and these are shown in Figures 2 and 3.



Fig. 3

The mean and median durations for exclusive breastfeeding for the study population were then determined as $64.8 \pm$ 44.4 and 61 days respectively. Fifty percent of the exclusively breastfed babies were no longer fed by this method at 61 days and only 23.4 percent of babies were breastfed exclusively at 6 months.

Discussion

Probit analyses have been employed in cross sectional surveys to determine age at menarche and have been found to be useful when analyzing postpartum variables [1,10]. The median duration estimated for exclusive breastfeeding in the data presented remains close to the mean suggesting that this type of infant feeding follows Gaussian distribution. On the other hand, just over half of the population of babies less than one month were breastfed exclusively.

Thereafter, the prevalence rate for exclusive breastfeeding dropped until the eighth month after which no child was breastfed exclusively. The steepest falls were seen in the first month of life and after 90 days. The second and third months were stable. This draws attention to the periods when more care should be paid to lactating mothers.

Appropriate counseling and encouragement will ensure that they continue feeding their infants in the subsequent months. The first month decline in exclusive breast-feeding seen in this study has been observed in Canadian mother infant pairs [11]. They however had lower prevalence rate for exclusive breastfeeding at four months when compared to this study (35 percent versus 45.3 percent). Collected data on exclusive breastfeeding can also be compared with that of other populations.

At a time when resources are scarce, exclusive breastfeeding in the first six months of life and then the addition of timely complementary feeds can prevent disease and even deaths due to infection and can also have a strong contraceptive effect [12,13]. This will cost the nation very little when compared with programs to provide water, sanitation, primary health care, better housing, and improved education which in themselves are needful and good. Government commitment to exclusive breastfeeding program must not be seen to wane.

The use of probit analysis of current status breastfeeding data can be explored as a method for rapid epidemiological assessment. Only two pieces of information are obtained from the mothers (the age of the baby and whether the baby is currently breastfeeding exclusively or not) thereby avoiding lengthy and expensive questionnaire surveys. Periodic assessment by this method will complement information provided on the proportion breastfed exclusively in a given period and will help to provide trend data, which are generally lacking now.

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