

Attrition Rate of Follow up Attendance in a Western Nigerian Foetal Malnutrition Study

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Abstract: The aim is to determine the factors contributing to outpatient follow up default rate (attrition) in a prospective study on foetal malnutrition in Nigeria and proffer suggestions on how to reduce it. This is a study of outpatient follow up attendance attrition (attendance default rate) in a study of Foetal Malnutrition in consecutive mothers who delivered singleton, term, live babies between January and August 2002 at the Wesley Guild Hospital, Ilesa, Nigeria. Foetal malnutrition was diagnosed using Clinical Assessment of Fetal Nutritional Status (CANS) and the score (CANSCORE) as adapted by Metcalf. The mothers of the babies were informed that they would be required to attend the follow up clinic after discharge. The present research is the report on the rates of default from clinic attendance after discharge presented in relation to certain maternal and baby factors which had been elicited in the research proforma prior to the clinical assessment exercise. These factors were the socio-economic class, parity, age, attendance for antenatal care of the mothers and the presence or absence of foetal malnutrition or illnesses compelling hospital admission in the babies. Of the 473 studied and expected to be followed up, 89 [18.8%] had FM. Three hundred and fifteen (66.6%) and 249 (52.6%) were the attendance in the follow up clinic at the first and fourth weeks, respectively. The 224 (47.4%) lost to follow up at the 4th week were examined in relation to the factors listed under methodology. Attrition rate at the 4 weeks follow up was higher among the mothers who had no antenatal care compared with those who did ($\chi^2 = 11.3$, $p = 0.001$), among teenage than older mothers ($\chi^2 = 3.1$, $p = 0.08$), among primiparous than multiparous mothers ($\chi^2 = 2.5$, $p = 0.1$) and among lower than higher social class mothers ($\chi^2 = 8.0$, $p = 0.005$). Attrition was also higher among mothers of female than male sex babies ($\chi^2 = 4.5$, $p = 0.03$), mothers of babies without foetal malnutrition than those with FM ($p = 0.5$), among clinically well than ill babies requiring admissions ($\chi^2 = 39.7$, $p = 0.000$). To reduce the frequency of attrition in a research study, better education of subjects and enlistment of the services of social worker/health visitors should be undertaken. Researchers in the developing nations should make generous allowance for attrition in calculating the number of the subjects to be recruited. This may be higher than what obtains in the developed nations. Research work should be made relevant to subjects need and planned in a way that subject participation would not overstretch their resources. Improvement in infrastructure including transportation and road network would also assist research activities.

Key words: Follow-up, attrition rate, foetal malnutrition, Nigeria, CANS, CANSCORE

INTRODUCTION

Attrition is a major factor for consideration when carrying out research work involving patient follow up or cohort design. The number estimated as would be lost to attrition is usually taken into consideration when calculating the minimum size of the subjects needed for the study. Patronage of modern health facilities in the developing countries is low. This has been attributed to long distances to the facilities, lack or high cost of drugs and services, long waiting time, gender preferences, poor

quality of care and preferences for traditional healers Katung (2001), Ward (1987), Quah (1977) and Bamisaiye *et al.* (1986). Also, poor transportation system, incessant and abrupt stoppage of services through strikes at very critical period of care, ignorance, increasing poverty among others were said to have hindered health facilities utilization in some communities (Katung, 2001; Ward, 1987; Quah, 1977; Bamisaiye *et al.*, 1986; Adebami *et al.*, (2005). At times, subjects who had given informed consent change their mind and bolt away from the study. To our knowledge there has been no study in Nigeria

reporting the attendance rates of subjects to follow up clinic in a research study situation. The aim of the present study was therefore, to examine the role of maternal and child factors in attrition rates in follow up attendance in Nigeria. The study was undertaken to study the attrition rate in follow-ups in a research programme in Wesley Guild Hospital (WGH), Ilesa, Southwestern Nigeria. This is the main referral health institution providing general and specialist Paediatrics and maternity services to the semi-urban Ijesa community of Osun State in Southwestern Nigeria.

MATERIALS AND METHODS

During the period between January and August 2002, four hundred and seventy three consecutive, singleton, live birth, term (37-42 weeks gestation) babies delivered at the Wesley Guild Hospital, Ilesa, Nigeria were studied for the prevalence and other details of foetal malnutrition. The details of methodology of the study and the findings ensuing from it are as reported in another study Adebami *et al.* (2007). It was planned at the time of study of each patient that he/she would be followed up for 4 weeks or more (if the delivery was complicated). This would involve clinic attendances at 1 week and 4 weeks of age at the minimum. The details were fully explained to the parents and their consents were obtained. The mother/parents gave a general consent including that of attendance for follow up.

The follow up attendance rates of the 473 babies at the 4th week of life were recorded and compared in relation to maternal age, parity and socioeconomic classes and attendance of antenatal clinic as well as each baby's sex and coexistence in them of foetal malnutrition and other clinical problems. Babies were classified into those with Foetal Malnutrition (FM) and those without FM.

RESULTS

Of the 473 expected for follow up, 315 (66.6%) and 249 (52.6%) attended the follow up clinic at the first and fourth week, respectively. The 224 (47.4%) lost to follow up at the 4th week therefore, formed the subjects studied with respect to the maternal and baby factors listed above under methods.

Of the 473 total subjects recruited, 246 [52.0%] males and 227 [48.0%] females giving a male: Female ratio of 1.08:1. Male and female clinic attendances were 141 (56.6%) and 108 (43.4%), respectively meaning that 105 (46.9%) of the 246 males compared with 119 (53.1%) of the 227 females defaulted. Therefore, significantly higher proportions of female sex were lost to attrition than males ($\chi^2 = 4.5$, $p = 0.03$).

Maternal factors

Places of antenatal care and social class: On the whole, 394 (83.3%) of the mothers had antenatal care in various health units. Altogether, 173 (43.9%) of the 394 who had antenatal care compared with 51 (64.6%) of 79 who had no antenatal care defaulted at the 4 week follow up ($\chi^2 = 11.3$, $p = 0.001$).

The ages of mothers ranged between 15 and 45 years. There were 23 (4.9%) mothers aged 19 or less, 363 (76.7%) mothers aged 20-34 and 87 (18.4%) aged 35 and above. Fifteen (65.2%) of the 23 teenage (age = 19 years) mothers compared with 209 (46.4%) of the 450 mothers who were over 19 years defaulted ($\chi^2 = 3.1$, $p = 0.08$). Parity of the mothers ranged between 1 and 9. One hundred and fifty six (33.0%) were primiparous and 317 (67.0%) were multiparous. Higher proportions of primiparous mothers though not statistically significant were lost to attrition. Thus, 82 (52.6%) of 156 primiparous mothers versus 142 (44.8%) of 317 multiparous mothers defaulted ($\chi^2 = 2.5$, $p = 0.1$).

Also, there were 34 mothers in social class I, 95 in class II, 123 in class III, 145 in class IV and 76 in class V. One hundred and twenty (54.3%) of the babies of the 221 mothers in lower social classes IV and V were lost to follow up compared with 104 (41.3%) of the babies of the 252 mothers in social class I to III. ($\chi^2 = 8.0$, $p = 0.005$). Therefore, 120 (53.6%) of the 224 babies lost to attrition were delivered by 221 mothers in lower social classes IV and V.

Associated neonatal problems: Overall, 89 (18.8%) of the 473 babies had fetal malnutrition. There was no statistically significant difference in the clinic attendance between babies with FM and those without, though higher proportions of babies without FM were lost to follow up. Thus, 39 (43.8%) among the 89 babies with FM defaulted compared with 185 (48.2%) among 384 babies without FM ($p = 0.5$).

One hundred and ten (23.3%) of the 473 babies were admitted for different adverse clinical conditions. Twenty nine (26.4%) of the 110 babies who had clinical problems and were admitted compared with 220 (60.6%) of the 363 babies with no clinical problems and hence not admitted were lost to attrition ($\chi^2 = 39.7$, $p = 0.000$). None of the three babies with severe birth asphyxia who had sequelae of hypertonia, hyper-reflexia, poor sucking and seizures defaulted from the clinic during the period.

DISCUSSION

The overall attrition level in the present study was 47.4%. This is very high especially as it was a short time follow-up study. However, since the majority of the

babies were clinically normal, term babies with no clinical problem, the parents may have considered follow up unnecessary. The rate recorded in the present study is higher than the 32.6% rate obtained by Wilbur *et al.* (2006) in a controlled trial study among adult subjects and also than 44.7% by Young *et al.* (2006) among children. Problems leading to underutilization of health facilities like lack of good, affordable transportation, long distances to health facilities, poor services, high cost of drugs and services and long waiting time have biased the community against the modern health facilities. Other reasons for poor usage include incessant and abrupt stoppage of services through strikes at very critical period of care, ignorance and prevailing poverty had earlier been observed (Katung, 2001; Ward, 1987; Quah, 1977; Bamisaiye *et al.*, 1986; Adebami *et al.*, 2005).

Maternal factors found in the present study which favour attrition include lack of antenatal care and mothers from low socioeconomic groups. Primiparous and teenage mothers may also be expected to fail to keep clinic appointments because of their lack of maturity and poor motherhood experience. However, the results are not at a significant level in the present study. These factors are inter-related and could be linked with the prevailing poverty in the developing countries. Hospital services are expensive, transportation is unaffordable to many families especially with the bad roads which make clinic visits time taking. Even if a researcher wishes to help patients to pay or subsidize for the transportation and drugs, he is unlikely to pay for the long time spent on the road to get to the health facilities and for the feeding of the whole family which may be compromised when the mother fails to get to her place of work. Low socioeconomic status may also be related to ignorance or poor understanding of the purposes and extent of a research work. Follow up or cohort research work therefore in the poor nations of the world is prone to be burdensome.

The present study also showed higher proportions of female sex and well babies to be lost to attrition than male sex and ill/admitted babies. Illness in the child, wasting, presence of sequelae may force a parent to look for solutions. Thus babies obviously ill for example, those with foetal malnutrition and other illnesses are likely to be brought up to follow up clinics conversely well babies may not be brought. Gender preference for male sex is a relevant factor in the environment of present study and it may explain the predominance of males in the clinic Adebami *et al.* (2005). Attrition may therefore, be a particularly important consideration when clinically well individuals are being used as cohorts and control Dumville *et al.* (2006).

To reduce the problem of attrition in a research study especially when following up apparently normal individuals, education must be thorough and repetitive. A

generous allowance should be made for attraction in the estimation of the sample size. Research study should be seen to be relevant to the current needs of the subjects and their socioeconomic conditions Tansella *et al.* (2006). The researcher should also consider paying transportation or similar costs of subjects. Efforts should be made by the government to improve current infrastructure including transportation, road network, as well as the socioeconomic status of the families through education and economic empowerment programmes. Involvement of social workers and or health visitors may also be helpful.

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