

ORIGINAL ARTICLE

DISCHARGE AGAINST MEDICAL ADVICE IN PEDIATRIC WARDS AT TERTIARY CENTER IN ADDIS ABABA, ETHIOPIA: A RETROSPECTIVE CROSS-SECTIONAL SURVEY.

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ABSTRACT

Background: Children are at high risk of problems related to discharge against medical advice (DAMA). Because they are not part of the decisions their best interests may be violated. This study is aimed to determine the prevalence, clinical outcomes, and factors associated with discharge against medical advice.

Methods: We cross-sectionally described 123 admissions in which caretakers decided to discharge against medical advice. A mixed data collection method from the patient's charts and telephone interviews was employed. A pretested semi-structured questionnaire tool was used. The data was manually cleaned and analyzed using SPSS software version 25, USA. The frequency and percentage of categorical data were calculated, as well as the mean, median, SD, and IQR of the continuous variable. A multivariate regression analysis was performed, with an adjusted odds ratio of 95% CI and a statistical significance of 0.05.

Results: Hospital prevalence of DAMA was 1.42%. The median age was 11(±59) months—eighty-one percent of the caretakers signed before leaving the hospital. The median hospitalization was 7 days (IQR=13 days). The majority of the caretakers were discharged during working hours (71%). Discharge was registered in all seasons: winter (31%), spring (28%), summer (23%), and autumn (18 %). Hemato-oncologic conditions, infectious, and neonatal problems were common. Most of the cases were reported from pediatric emergency and neonatology wards. Patients' poor clinical response and the caretaker's financial constraints were the main reasons for signing DAMA. Death was significant when the DAMA occurred in fast-improving cases and infants; (AOR=6.909, 95% CI-2.191-21.782), and AOR=1.3, 95% CI -0.48-3.3) respectively.

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Conclusion: DAMA in the Pediatric wards of Tikur-Anbessa Specialized Hospital was similar to the reported data elsewhere. However, death was very high which could be due to insufficient follow-up after DAMA.

Key Words: Discharge against medical advice (DAMA), pediatric admission, Tikur Anbessa Hospital

INTRODUCTION

When a caretaker decides to take a sick child off the hospital before the treating physician recommends it, this is referred to as discharging against medical advice (DAMA), also known as "self-discharge" or "discharge at own risk". The issue of leaving care settings against medical advice is poorly understood and addressed, despite its prevalence and negative impact on quality and safety (1). Every time a patient departs against medical advice, he or she may be vulnerable to significant consequences, such as permanent disability or death. If a patient requires additional urgent or emergent care following self-discharge, it will often be with the use of a disproportionate amount of healthcare resources (2, 3).

Financial constraints, parental perception that the child is well, disruption of family business, preference for traditional medicine, and loss of hope in the clinical course are some of the predictors of DAMA in developing countries (4). It is assumed that the magnitude of the problem is much higher in poor socio-economic countries as compared to better socio-economic communities (5). Reported predictors of DAMA in children include age under 2 years or adolescents, male sex, duration of hospital stay \leq 48 hours, financial constraints, lack of health insur-

ance, and low socioeconomic status (6,7). In low and middle-income (LAMI) countries like Africa and the Middle East, the rates of DAMA in children ranged from 1.5% to over 6% (4, 8). DAMA rates in low and middle-income countries may be twice as high as in high-income countries, according to some estimates (9).

The attitude of healthcare providers also affects DAMA. Reports showed that the provider-patient relationship directly affects patients' decisions to leave against medical advice (10, 11). For healthcare professionals, patients who signed DAMA create clinical, moral, practical, and legal issues (2,12). It was recommended that Healthcare professionals can prevent DAMA by actively listening, understanding patient discomfort, and using de-escalation tactics. When DAMA is inevitable, follow-up plans should be created and patients informed that they may return. Patients should also be educated and recommended alternative therapies. If a patient is in danger, follow-up calls or home visits are recommended.

In many African nations, traditional medicine (TM) is used as an alternate option to replace missed treatment due to DAMA. Due to its accessibility and affordability, it is frequently

used in low-income countries when conventional medicine is not accepted by patients and caretakers (13). Reports showed that patients and caretakers experienced DAMA less frequently when hospitalization is planned than it is emergency admission (14).

It is assumed that the problem of DAMA is significant and contributes essentially to child mortality in our settings. However, we are unaware of any published data on the topic in the pediatric age group. Therefore, to determine the hospital prevalence of pediatric DAMA, contributing factors, and its outcome, we aimed to conduct this study in the largest tertiary hospital in Addis Ababa.

Methods

Study Design and period: Instances of DAMA were described among pediatric admissions cross-sectionally between April 1, 2018, and April 1, 2020.

Study site

The study was conducted at the main referral hospital in Addis Ababa. Tikur-Anbessa Specialized Hospital (TASH) is a university hospital serving as a training facility for medical students (undergraduate and postgraduate levels), nurses, midwives, pharmacists, and laboratory and radiology technologists. TASH has over 700 operational beds and treats more than 400,000 patients annually. The pediatric department, includes pediatric emergency, Neonatology, and Pediatric intensive care units, pediatric under-5 and above-5 wards, a pediatric surgical, oncology, and orthopedics wards.

Study Population

The study population is pediatric admissions between April 1, 2018, and April 1, 2020, with discharge against medical advice or leave without notifying the medical team. Cases having complete data and volunteer caretakers for telephone interviews were included in the data collection.

Exclusion criteria: -DAMA cases with grossly deficient data, or whose caretakers were not willing or not available for telephone interview were excluded.

Sample size determination

The sample size was determined to be 112 using a single population proportion formula, with a DAMA prevalence of 7.9%, a 95% confidence interval (CI) of $z=1.96$, and a 0.05 margin of error. The total sample size was 123 after a 10% non-responder rate was added.

Sampling Procedures

Stratified sampling was used to get cases from each ward. The study subjects were chosen using a systematic sampling based on the caseload in each ward. The first case was chosen by lottery method, followed by every other case, and so on until the target sample size was reached.

Variables

Family sociodemographic information, such as age, gender, occupation, income, marital status, number of children, level of education, and monthly income of caretakers were collected either from the child's medical record

or telephone interviews. The patients' characteristics such as age, gender, admission diagnosis, cause of DAMA, and outcome of DA-

MA were also gathered. The variables considered in the analysis were presented in the conceptual framework below (Fig 1).

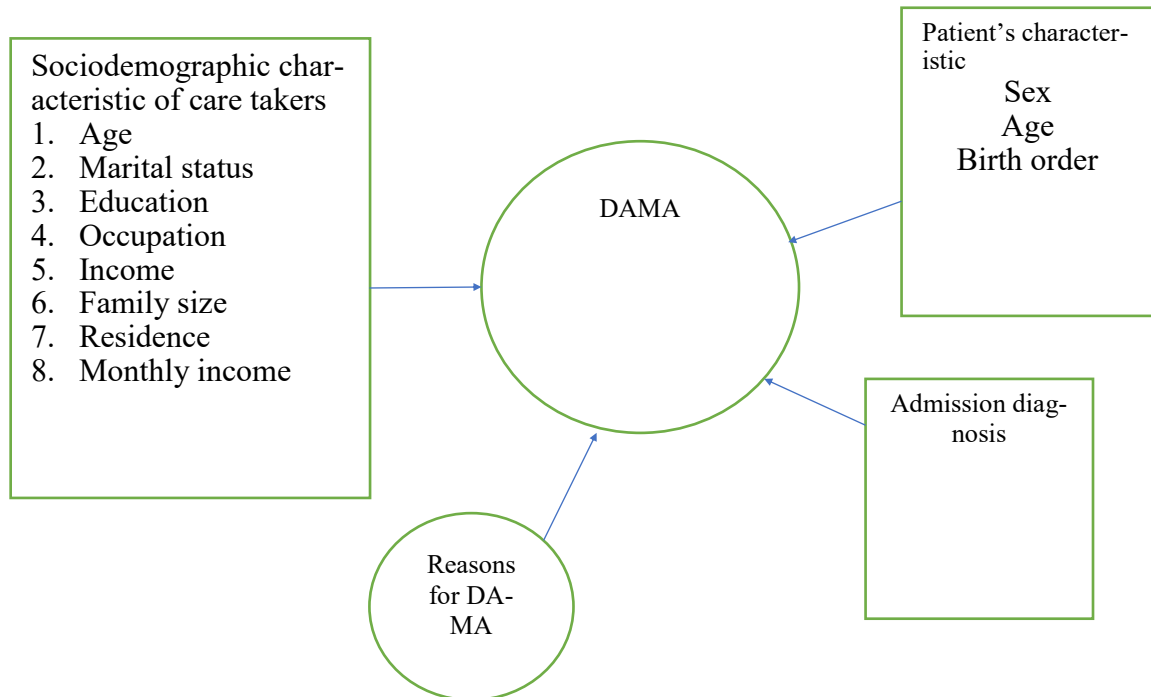


Figure 1: Conceptual framework showing the relation between the outcome variable and explanatory variables considered in the analysis. TASH, 2021.

Data collection tool

A pre-tested, structured questionnaire was used to gather data. After studying earlier studies on the same topic, the questionnaire was prepared in Oromifa, English, and Amharic, it was modified before the data collection began in light of the pretest findings.

Data entry and Analysis

Before data entry, the data was checked through a data-cleaning process for outliers, missed values, and discrepancies. SPSS software, version 25 from IBM USA, was used to analyze the data. Descriptive statistics such as numbers, frequencies, and percentages were

used to describe the categorical data. We also computed the odds ratios (OR) and the multivariate regression analysis to quantify the relationship between the independent and outcome variables. Statistical significance was defined as a 95% confidence interval and a p-value below 0.05. The findings were presented in tables and graphs.

Operational Definitions

Admission: -. Means admission as an inpatient to a hospital, for a stay of twenty-four hours or longer for medically necessary and Appropriate care and treatment of illness or injury.

DAMA: - DAMA is defined as a situation in which a patient decides to leave the hospital against the recommendation of the treating Physician. A child was considered a DAMA case, upon signing the hospital's standard discharging form by the parents or guardians (1).

LAMA: - refers to a condition in which the patient insists on leaving the hospital against the medical advice. Without notifying the medical unit.

Summer: (kiremt or Meher) includes June, July, and August are the summer season. Heavy rain falls in these three months. **Spring:** (tseday)- September, October, and November are the spring season sometimes known as harvest season. **Winter:** (bega) –December, January and February are the dry season. **Autumn:**

(belg) -March, April, and May are the autumn season with occasional showers. May is the hottest month in Ethiopia. Mortality refers to all deaths following DAMA. Readmission refers to readmission within 30 days of DAMA.

Result

The mean and median patient ages were 36.8 (± 4.5) and 11(± 59) months. The majority (64.2%) of the admitted cases were males. Most (54%) are aged 12 months or below. DAMA occurrence is bimodal, either in the first 72 hours or between 10-30 days of admission. First child (34.1%) and Second child (28.5%) accounted for most DAMA cases (Table 1).

Table 1: Sociodemographic characteristics of cases, TASH, 2021.

Variables		Number	Percent
Patient's sex	Male	79	64.2%
	Female	44	35.8%
Age	Mean (SD)	36.8(4.5)	
	Median (IQR)	11.0(59)	
Age category	Neonate	41	34%
	Infant (1mon-1 year)	25	20%
	Preschoolers (1-5 years)	31	25%
	School-age (6-11 yrs)	16	13%
	Teens (> 11years old)	10	8%
Birth order	First child	42	34.1%
	Second child	35	28.5%
	All other	46	37.4%
Duration of hospital stay at DAMA	0-3days	46	37.4
	4-10days	29	23.6
	11-30 days	42	34.1
	>30 days	6	4.9%

Caretakers Characteristics

In terms of age, the mother, father, and other caregivers were 29.8 years (SD±4.7), 35.9 years (SD±6.0), and 33. ±6 years (SD±25.3), respectively. Of the mothers, 76.4% were under 25 years old, and of the fathers, 55.3% were over 35 years. But only 55% of the fathers and 44% of the mothers had formal edu-

cation. 63.4% of the participants lived in rural area and the majority of them were living as farmers. The bulk of them earned less than 2000 Birr per month on average, and almost all of Care takers were married. The majority of DAMA signatories were fathers, followed by mothers. Table 2 displays comprehensive details about caregivers.

Table 2: Socio-demographic characteristics of caretakers, TASH, 2021

Variable		number	percent
Maternal occupation	Farmer	48	39.0%
	Gov't employee	25	20.3%
	Private business	16	13.0%
	Unemployed	34	27.6%
Paternal occupation	Farmer	51	41.4%
	Gov't employee	25	20.3%
	Private business	44	35.8%
	Unemployed	3	2.4%
Mothers educational level	Illiterate	56	45.5%
	Primary	22	17.9%
	Secondary	22	17.9%
	College& above	23	18.7%
Paternal educational level	Illiterate	45	36.6%
	Primary	27	22%
	Secondary	26	21%
	College& above	25	20.3%
Care-taker marital status	Single	3	2.4%
	Married	114	92.7%
	Widowed	5	4.1%
	Divorced	1	0.8%
Caretaker living place	Urban	45	36.6%
	Rural	78	63.4%
Family monthly income	<600birr	21	17.1%
	6001-1650birr	32	26.0%
	1651-3200birr	33	26.8%
	3201-5250birr	8	6.5%
	>5250birr	29	23.6%

DAMA characteristics

The median hospital stay before DAMA was 7 days (IQR=13 days). Eighty-one percent of the

caretakers signed DAMA before leaving the hospital (figure 2).

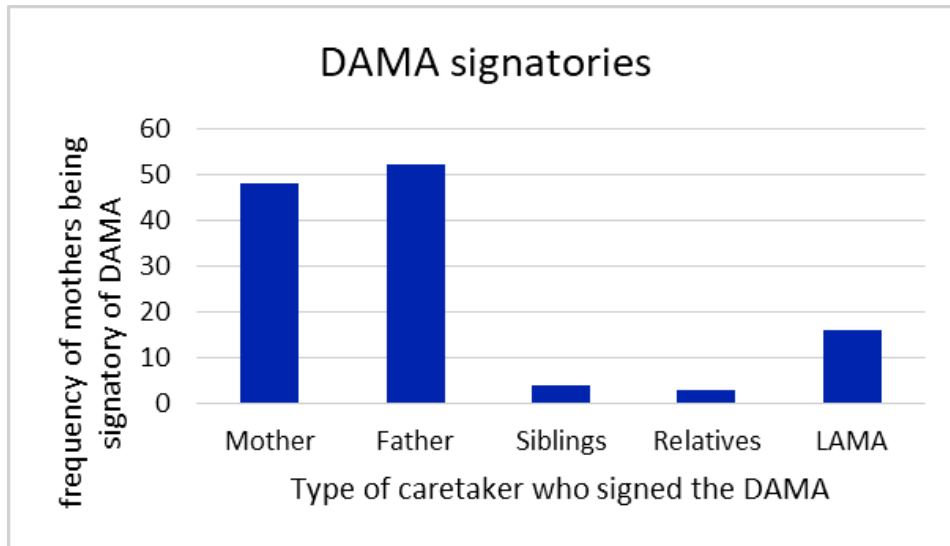


Figure 2. Caretaker type signed the DAMA form, TASH 2021

Nearly two-thirds of cases left the hospital during working hours and during daytime. DAMA occurred in the weekends in 31.7%, and the rest during holidays (4.8%). One-third of DAMA occurred at night time, with two-thirds (75.6%) ob-

served during Bega (sunny season). Hemato-oncologic problems, infections and newborn problems were common. The type of clinical diagnosis is displayed in figure 3.

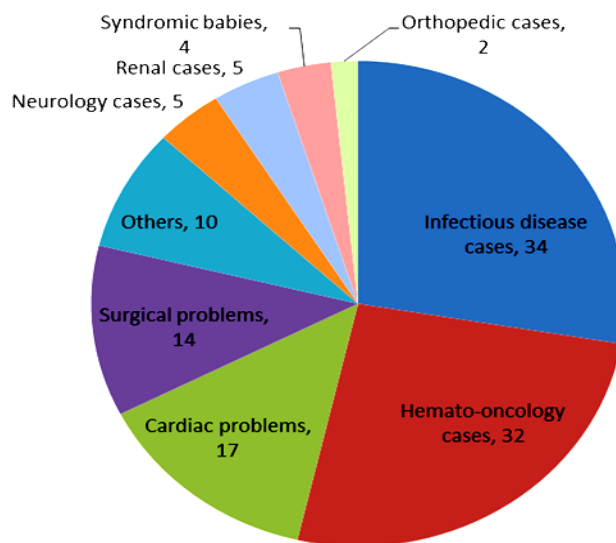


Figure 3: Main admission diagnosis of cases of DAMA, TASH 2021.

The reasons that led caretakers to DAMA are (52.0%) and financial constraints (27.6%) were shown in Figure 3. Lack of clinical improvement the main reasons for deciding DAMA (figure 4).

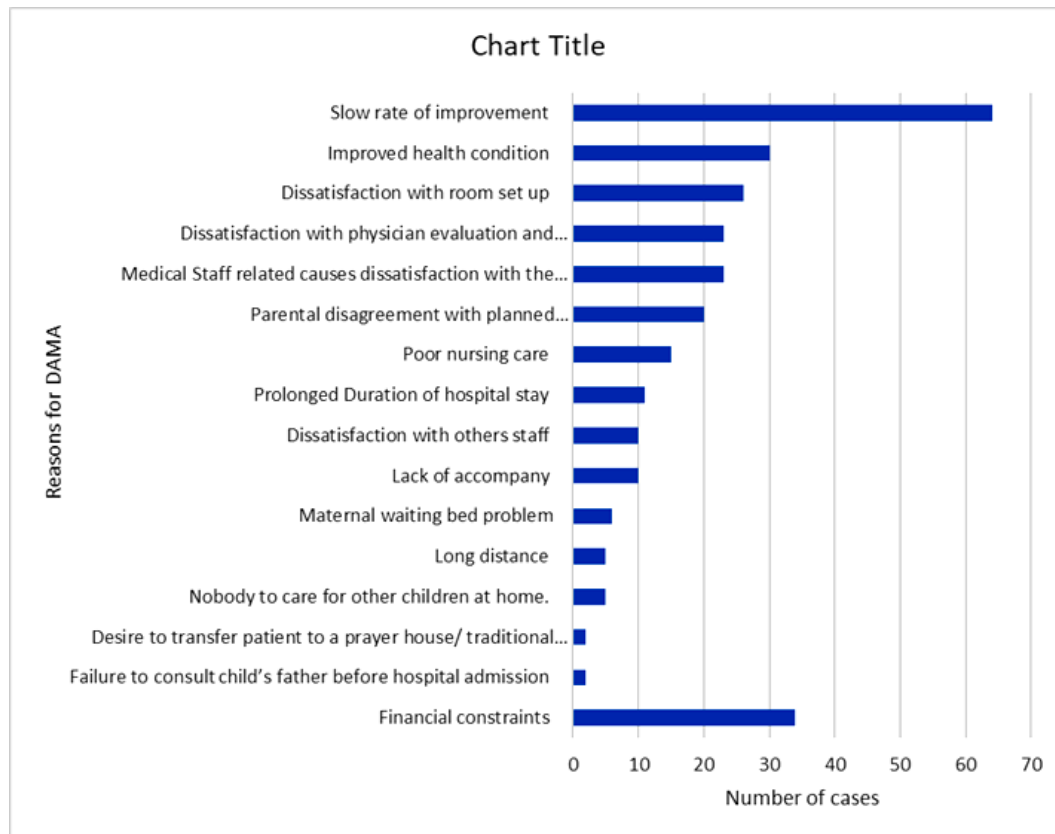


Figure 4: Reasons that led Caretakers to DAMA their sick kids, TASH 2021.

Most of the cases were reported from the pediatric emergency and Neonatal wards. Cases that resulted in death, re-admission, improved health,

and follow-up in other places occurred in 32), 11.4%, 25.2%, and 30% respectively. The determinants of DAMA are shown in Table 3.

Table 3. Determinants of DAMA outcome, TASH, 2021

Variable	Category	DAMA outcome		Chi square	P-value	COR (95% CI)	AOR (95%CI)
		Died	Other				
Financial constraints	Yes	6	28	3.5	0.06	0.4 (0.14-1.07)	1.00(0.37-2,71)
	No	31	58				
Fast improving	Yes	30	29	23.2	<0.001	0.1(0.04-0.30)	6.90(2.19-21,78)
	No	7	57				
Dissatisfaction with physician	Yes	4	19	2.1	0.14	0.4(0.13-1.35)	1.6(0.46-5.8)
	No	33	67				
Dissatisfaction with nursing care	Yes	5	10	0.08	0.076	1.2(0.37-3.8)	1.0(0.22-4.4)
	No	32	76				
Dissatisfaction with the ward diet	Yes	4	6	0.5	0.47	1.6(0.42-6.1)	0.4(280- 6.102)
	No	33	80				
Monthly income	≥5000birr	11	19	0.8	0.36	1.5(0.6-3.6)	2.8(0.8-9.6)
	<5000birr	26	67				
Age(months)	0-12	28	37	0.001	10.702	4.0(1.7-9.6)	1.3(0.48-3.3)
	≥13	9	48				
Time of DAMA	Weekdays	22	56	1.3	0.55	0.8(0.4-1.7)	1.7(0.6-4.5)
	Weekend & holi-days	15	30				

Discussion

Over the two-year period, DAMA prevalence was 1.42% in the current study. Death and re-admission were 32% and 11.4% in discharged children. Lack of clinical improvement is the frequent cause of DAMA. Infants and neonates are commonly affected. Hemato-oncologic cases and neonates were commonly affected.

The result was compared with different reports. for eg- DAMA reported from a pediatric center in Iran at 5.3% while in Singapore's Alexandra Hospital, at 2%(5). In Nigeria, DAMA rates were ranging from 1.5% to 5.7% (6, 7, 15) among different pediatric centers. A variance over time was also observed in the Zam-

boanga City Medical Center's Department of Pediatrics. DAMA was recorded at 2.1% in 2005 but rose to 4.6% for the first six months of 2010 (7). The prevalence of DAMA was low compared to most reported cases even among the developing countries (16, 17). Given the above observation, DAMA in our setting may not be beyond control if specific measures are taken. An alternative explanation for the low prevalence may be a lack of proper documentation. Further study is required to verify such speculation.

Shahla Roodpeyma et al reported that 79.4% of the DAMA cases were aged ≤12 months and the mean duration of hospitalization was

4±3.3 days while our finding showed the same age distribution but with a bimodal pattern. They reported neonatal problems and infections as a common reason for admissions. Oncologic problems were not a common cause of admissions in their report. The difference may be because our center serves as an oncology referral center. In contrast to our finding, financial constraints were the least cause of DAMA in their report (18). A study conducted in Singapore at a general hospital showed that infants and neonates accounted for over half of the cases and the common reason for DAMA is the inconvenience of having a child admitted in the hospital and the preference of being treated by the general practitioner. Financial constraint was the least cause of DAMA in their report. Maybe this is owing to that Singapore is economically in a better position than we are (17). In our study, over 63% of the parents who signed DAMA were living in rural areas. A study from Ebonyi State University Teaching Hospital, Abakaliki in southeastern Nigeria, reported a similar finding. They reported that financial constraint is the commonest cause of DAMA followed by hopelessness of the disease condition. In Australia where the patient is not required to pay for their hospital stay due to a government-funded hospital service, length of hospital stay was not predictive of DAMA. However, in low socio-economic communities, because of financial burden, the duration of hospital stay may be predictive of DAMA (14).

Neonates accounted for the larger proportion

of the reported cases similar to our report but they reported children with surgical conditions as the most vulnerable groups in their report (16). Sex and age distribution were compared with the report of A N Onyiriuka from Benin. There, they reported female sex predominance. Male sex is commonly observed in the current study as in most other reports. The interpretation requires further study. They reported the common age to be affected is the second and third year of age instead of infancy and neonatal age in contrary to our findings.

Similar to our findings, they reported that nearly half of the parents (51.7%) did not have formal education or did not complete primary school (19).

In this study, we observed higher DAMA prevalence in the neonatal ward. It was reported that intense stress and psychological sufferings experienced by delivering mothers postnatally may contribute to a decision to discharge at own risk. Further study is required to determine this assumption (20). In the current report, the DAMA signature is done more frequently by the fathers. To explain this observation, evidence-based conclusions are required, however, in many LAMI nations, fathers occupy a dominating role and make many family-related decisions because men provide the majority of the family income and are frequently older than their spouses (21). Death was observed in our report in those cases who showed fast clinical response before DAMA was decided. The fast clinical response was interrupted by the DAMA might

have caused clinical deterioration and death in the affected cases. Such finding has to be substantiated by similar findings elsewhere if one has to accept the result.

Limitations of the study: A retrospective cross-sectional survey is subject to recall bias. In addition, cases might have been missed because of incomplete documentation. Because we have taken all death cases we didn't know whether the cause of death is related to the DAMA or not.

Conclusions: DAMA in the Pediatric wards of Tikur-Anbessa Specialized Hospital was similar to the reported data elsewhere. However, death was very high which could be due to insufficient follow-up after DAMA.

Declarations

Ethical consideration

Departmental research and publication committee (DRPC) approval was obtained and a letter was written to each ward to have permission for data collection. Oral consent was obtained from caregivers before the telephone interview.

Authors contribution

HF was involved in writing the research proposal, get approval from DRPC, Collecting the data, and did the writeup. TM was involved in the inception of the research question and reviewed the proposal and the writeup. TM is the corresponding author.

Competing interests

The authors did not have any conflict of inter-

est on the manuscript.

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