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P 67
POSTER 4 YOU
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Prevalence of water-borne diseases among people exposed to climate disasters in Mozambique: a cross-sectional study

Francesco Di Gennaro1, Francesco Vladimiro Segala1, Edoardo Occa2, Elsa Chambisse2, Francesco Cavallin3, Agostinho Nanomba2,Sergio Cotugno1, Simone Cadorin2, Ketan Chitnis4, Angelo Ghelardi4, Giovanni Putoto5, Aly Mussa6, Annalisa Saracino1

1 Clinic of Infectious Diseases, Department of Precision and Regenerative Medicine and Ionian Area - (DiMePRe-J), University of Bari "Aldo Moro", Bari, Italy
2 Doctors with Africa CUAMM, Maputo, Mozambique
3 Independent statistician, Solagna, Italy
4 UNICEF Mozambique
5 Operational Research Unit, Doctors with Africa CUAMM, Padua, Italy
6 NIOP Nucleo de Investigaçao Operacional del Pemba, Pemba, Mozambique

Introduction

Climate change – caused by greenhouse gas emissions primarily produced by the Global North – is subjecting Mozambique to increasingly frequent extreme weather events [1]. In April 2023, cyclone Freddy affected 1.3M people and lead to 23,000 cases of cholera[2]. Aim of this study is to explore factors associated with the prevalence of severe diarrhea and cholera among people exposed to cyclones and floods in Mozambique.

Materials and Methods

This was a cross-sectional, community-based study assessing prevalence of diarrhea and other gastro-intestinal syndromes among people living in Cabo Delgado province, Mozambique. Data collection was carried out by trained community health workers by face-to-face administration of a structured survey in July 2023. Outcome of the study was self-reported severe diarrhea or cholera in the three months prior to interview. Association of collected variables with study outcome was explored with chi-squared or Mann Whitney U test, as appropriate. A p-value < 0.05 was considered statistically significant.

Results

This study included a total of 408 households and 2,255 people from six districts of Cabo Delgado province. Participant characteristics are summarized in Table 2. Overall, 26/408 households (6.4%, 95% CI 4.3 to 9.3%) experienced severe diarrhea or cholera in the last three months, and 12/26 (46.2%) involved child aged <5 years. Few households (102/408, 25.0%) were vaccinated against cholera. Factors associated with severe gastro-intestinal syndrome included study district (p=0.01), households with internally displaced people (IDP) (p=0.01), access to electricity (p=0.003), access to soap for handwashing (p=0.01), and source for health information (p=0.01) as showed in table 1.

Table 1. Factors associated with cholera or severe diarrhea

N of family units (Overall (n=408))	Severe diarrhea or cholera in the last three months	p-value
District		
Ancuabe	1/70 (1.4)	
Chiure	10/70 (14.3)	
Montepuez	2/78 (2.6)	**0.01**
Balama	3/71 (4.2)	
Mueda	4/47 (12.2)	
Ibo	4/70 (5.7)	
Households with IDP [a]	9/68 (13.2)	**0.02**
Households without IDP	17/340 (5.0)	
Households with children aged <5 years.	19/265 (7.2)	0.49
Households without children aged <5 years	7/143 (4.9)	
Source of drinking water:		
Tap water inside the house.	0/8 (0.0)	
Public source	15/199 (7.5)	0.79
Unsafe hole with pump	11/197 (5.6)	
Other	0/4 (0.0)	
Food conservation:		
Drying	10/200 (5.0)	
Refrigeration	0/46 (0.0)	0.21
None	16/162 (9.9)	
House electricity:		
Yes	9/259 (3.5)	**0.003**
No	17/149 (11.4)	
Access to radio:		
Yes	7/86 (8.1)	0.61
No	19/322 (5.9)	
What do you use for washing hands: [d]		
Water and soap	10/283 (3.5)	
Water and ashes	5/34 (14.7)	**0.01**
Other	1/17 (5.9)	
Access to sanitary landfill		
Yes	16/206 (7.8)	0.34
No	10/202 (5.0)	
Time to reach the closest health center <2 hours.	21/341 (6.2)	0.90
Time to reach the closest health center >2 hours	5/67 (7.5)	
Source for health information:		
Healthcare personnel	12/289 (4.2)	
Government personnel	8/72 (11.1)	
Healer	1/2 (50.0)	**0.01**
Family members	4/33 (12.1)	
Friends	1712 (8.3)	

Conclusion

Among people affected by Cyclone Freddy, factors associated with cholera or severe diarrhea were being IDP, having access to electricity and having non-healthcare personnel as primary source of health information. These data could guide policymakers in designing targeted climate adaptation interventions.