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Impact of an educational comic book on epilepsy-related knowledge, awareness, and attitudes among school children in Ethiopia

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ABSTRACT

Introduction: Epilepsy is of worldwide public health importance because it is common, often accompanied by physical and cognitive disabilities, and is widely stigmatized. The incidence of epilepsy in Ethiopia was reported to be 64/100,000 population and a prevalence of 520/100,000 population. A minority of subjects is treated, and religious and sociocultural beliefs influence the nature of treatment and care. One approach to support the development of positive attitudes toward individuals with disabilities is through the use of comics. Comics have been effective in creating awareness and educating about epilepsy.
Material and methods: We conducted a cross-sectional study among randomly selected students from two preparatory schools (one from a city and the other from a rural area) in June 2014. We collected information using a structured KAP questionnaire before and after reading a comic book. The comic book relevance was assessed by 40 health professionals.
Result: One hundred sixteen students from urban and 110 from rural high schools were enrolled in the present study with an age distribution of 31.9% in 16–17 years, 48.7% in 18–19 years, and 19.5% in 20+ years. Thirty percent of the urban school was male compared with sixty-five percent of the rural school. The comic book was recommended as useful educational material to be distributed among school children by 90% of interviewed health professionals (internists, neurologist, psychiatrists, residents, GPs, and nurses).
Conclusion: The comic book was appreciated by the Ethiopian high school students. After brief exposure to the comic book, students could extract a great deal of information, it could change misconceptions and provide correct information about epilepsy, and can be an effective approach to epilepsy awareness creation.
Health professionals found the comic book to be very informative and recommended its distribution to students, teachers, nurses, libraries, and community/religious leaders. Illustrations were Ethiopian-oriented.

1. Introduction

Epilepsy is of worldwide public health importance because it is common, often accompanied by physical and cognitive disabilities, and is widely stigmatized [1]. Epilepsy is a frequent chronic neurologic disorder that affects approximately 70 million people of all ages worldwide. Nearly 80% of people with epilepsy are found in developing countries, where epilepsy remains a major public health problem, not only because of its health implications but also for its social, cultural, psychological, and economic connotations [2]. Epilepsy has been perceived for a long time the world over as a sacred disease and carries much social stigma and discrimination. In most African countries, traditional beliefs constitute a major challenge for treatment and may be responsible for the current treatment gap [3]. The median prevalence of active epilepsy was 4.9 per 1000 (2.3–10.3) for developed countries, and the global prevalence of epilepsy in sub-Saharan Africa is 9.39 per 1000 [4,5].

However, worldwide prevalence of epilepsy varies from 2.8 to 19.5 per 1000 of the general population [4]. The incidence of epilepsy in Ethiopia was reported to be 64/100,000 population as indicated in a community-based study in rural Central Ethiopia [6]. In another study done in rural Ethiopia, the prevalence of epilepsy was reported to be 520/100,000 population [7]. In rural Ethiopia, a high incidence and prevalence of epilepsy were explained by a high degree of spontaneous

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remission of epilepsy and/or a high mortality due to epilepsy. A minority of subjects was treated with AEDs with a treatment gap of 80–90%, which may reflect the inadequacies of the health services and transportation difficulties faced by the patients [6].

People with epilepsy report significant, negative psychosocial consequences of the disorder including decreased social and leisure opportunities, low self-esteem [8], and feelings of shame and guilt compared with individuals without epilepsy [9,10]. Misconceptions about etiological factors, curability, course, and outcome have contributed to the social stigma and poor quality of life among sufferers and their family members [10–12]. There are reports of elevated psychological distress among people with epilepsy [9,13], in addition to the increased morbidity resulting from seizure-related accidents, injuries, and the side effects of antiepileptic medication [14]. It is generally believed that the sequelae of a condition such as epilepsy are determined not only by the disease process itself but also, and perhaps to an even greater extent, by the meaning ascribed to the condition within the patient's social environment [12,15].

Religious and sociocultural beliefs influence the nature of treatment and care received by PWE [16]. Wrong perceptions and beliefs about epilepsy create serious negative social and psychological consequences for PWE such as fear, humiliation, and limitations in social interactions [17]. One of the greatest challenges facing the optimal management of epilepsy is stigma and discrimination [18]. In particular, incorrect information about the causes and inheritability of epilepsy increases the stigma and makes the lives of PWE more difficult [19]. Many communities in Africa believe that epilepsy results from insanity, witchcraft, or possession by evil spirits [16]. Persons with epilepsy are shunned and discriminated against in education, employment, and marriage because epilepsy is seen as a highly contagious and shameful disease in the eyes of the public [16]. This discrimination against people with epilepsy could also be due to lack of knowledge and understanding about epilepsy [20].

Social discrimination against people with epilepsy is particularly problematic for school children [21,22] as they are growing and have interactions at multiple levels [23]. A necessary first step to increasing the knowledge and changing attitudes among students in particular and the population in general is to assess what they already know [24].

The prevalence of stigma, discrimination, and marginalization is rampant in Ethiopia, with an estimated prevalence of 81.0%. Students with epilepsy reported experiencing significantly greater levels of stigma at school ($P = 0.0001$) compared with people living and working in another setting. Furthermore, they face markers of poverty, poor education, and undernourishment [25].

One approach to support the development of positive attitudes toward individuals with disabilities is through the use of comics [26]. Children often choose comic literatures over traditional texts because comic-based texts offer visuals, drawings, and other art along with words and dialogue, all of which make these texts "not only something one reads, but something one sees as well, like reading and watching a movie at the same time" [27].

Beyond motivating students to read, comic literature offers other benefits. Children connect with characters in cartoons, comic books, comic strips, and more recently graphic novels, both inside and outside school [26]. In a recent study on empathy, comics have been found to be particularly effective in communicating depictions of disabilities [28] in ways that represent the complex emotional, physical, and social aspects of disability that "texts alone cannot, such as the crucial importance of embodiment in the lived experiences of people with disabilities" [29]. The vividness of comics helps convey impactful messages, especially with strong storytelling. When educators select comics with strong prosocial messages, the effect may be similarly strong.

Comics were also effective in creating awareness and educating about epilepsy. This was witnessed in Toteman's epilepsy awareness and Medikitz comic book.

On the occasion of the 1st African Congress of epilepsy held in Nairobi (Kenya) from 21 to 23 June 2012, which brought together nearly 300 participants from 51 countries, Sanofi and its partners, the Ministries of Health and Education and the NGO KAWE (Kenyan Association for the Welfare of People with Epilepsy), launched an educational comic book "We'll Make It" [30].

This educational comic book is already available in English and French and, soon, in Spanish. The comic book is entirely geared to the African realities within the context of the African culture. The story of the book exposes the reader to both the traditional rural and the more modern educated African families. The inclusion of the popular game of football around the scary topic of epilepsy creates a more relaxed and conducive environment for reading. The comic book is authored by a neurologist who is best qualified to present the appropriate message about epilepsy. The illustrations are of the highest quality. It is designed to allow school children to better understand epilepsy and appreciate the stigma and exclusion it can lead to. The aim was also to involve them more to fight the myths and misconceptions related to this disease and share their new knowledge within their family [30].

In Ethiopia, the educational comic book on epilepsy "We'll Make It" was translated into Amharic. The main objective of this survey was to assess the impact of the comic book on epilepsy-related knowledge, attitude, and practice among school age children in both rural and urban settings. In addition, we asked Ethiopian health professionals to rate the comic book.

2. Material and methods

Students were randomly selected from two preparatory schools (one in Addis Ababa city and one from the town of Chacha in rural area). Students who did not give informed consent and those with previous or current epileptic seizures were excluded. The study data were collected in June 2014.

Addis Ababa is the capital city of Ethiopia with a population of 2.98 million people [31]. Chacha is located in the Semien Shewa Zone in the Amhara Region, about 120 km northeast of Addis Ababa on the paved highway to Dessie. There were approximately 500 students who were in grades eleven and twelve in the Addis Ababa school and 450 students in the Chacha School.

The study data were collected using a structured questionnaire in Amharic (a local language). This questionnaire assessed demographic data and the students' KAP about epilepsy.

As there was no previous study conducted on the current topic, a convenience sampling was used, and students were randomly selected. The number of selected students in each school was proportionate to the school population. More than 100 students each from an urban and a rural high school were recruited and asked to complete a KAP questionnaire on epilepsy after an explanation was provided about the concept of comic books and the purpose of the present study. Instruction on how to complete the questionnaires was given to each class before the distribution of the questionnaires. After collecting the first questionnaires, they were given the comic book. Adequate time was allocated for students to read the comic book. Comic books were collected, and the students were asked to complete the same KAP questionnaire again.

The survey instrument was a 13-item questionnaire in English, designed to evaluate knowledge, attitudes, and practices with respect to epilepsy that had been used in recent studies in Cameroon [24,32–34], South Korea [35], Brazil [18], India [21], Malaysia [20], and Turkey [23]. The questionnaire was in two parts; the first section elicited demographic information, while the second part elicited awareness of existence of epilepsy, best investigation for diagnosis, attitude toward epilepsy, knowledge of causes, first aid measures, and treatment options.

Analysis was performed using SPSS/PC version 20.0 software packages for statistical analysis (SPSS, INC, Chicago, IL). Descriptive summaries were employed to describe sociodemographic and KAP characteristics. Appropriate measures of central tendency, frequency distribution, and cross tabulation were conducted. Statistical comparisons were done