Review article

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Effects of Disaster on Primary Health Care in Low Income Countries

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ABSTRACT

Primary health care is considered to be a practical approach to provide basic curative, preventive and promotive health care as an accessible medium for the people particularly in low resource income countries in an affordable way. This paper reviewed that an integrated primary health care system could reduce fundamental vulnerability of disasters; thereafter protect the health facilities and services for providing health programs. Further it focused on the increased uptake on health services to build resilience among individuals of low resource countries having high exposure to disasters. It also provides an idea on the practices adapted for gaining resilience of primary health care of low resource regions like Africa, South and South East Asia which are frequently exposed to disasters. However, this study did not focus on the health governance, pre-hospital disaster management and funding policies which are limited at present in low income countries affected by frequent disasters.

Keywords: Disasters; disaster management; low income countries; primary health care; resilience.

INTRODUCTION

Primary health care (PHC) encompasses basic preventive, promotive, protective and curative health cares for enhancing the health status of the people by reducing morbidity and mortality.[1]Disasters does not only lead to widespread deaths, epidemics and ill health but also causes disruption in health systems, quality of water, food, hygiene and other basic services which are vital for better health care. Further, it has conspicuous effect on the social and economic development particularly in low income countries.[2]

The rate of global catastrophe has increased five-folds, while damage was considered to increase by a factor of nine if contrasted to the decade of the 1960's.[3] The paper reviewed the effects of disaster on PHC in low income countries, and how these countries are practicing to build resilience of PHC. From the available resources an idea could be generated and suggestions could be provided for future studies on the missing areas.

METHODS

The study is a review based paper analyzed on different available literature and data sources. We searched Google Scholar, Science Direct, PubMed by using the following search terms: primary health care, effects of disasters on health in low income countries, resilience, health sector financing and disaster management published in English regardless of year of study. Emergency Events Database (EM-DAT) website was searched for collection of global disaster data. At the initial stage, a total of 114 articles and reports were reviewed, out of those 90 were selected for reviewing. After detailed review, only 62 articles and documents met the review criteria and used for preparing this paper (Figure 1). At first, the titles and abstracts of the article were reviewed for relevance and then full articles were reviewed for valid methods and results which were then included in the review. The major reviewed national and international reports were Millennium Development Goals (MDGs), Sendai Framework for Disaster Risk Reduction 2015-2030 (SF-DRR), Sustainable Development Goals (SDGs), World Bank and World Health Organization (WHO) on disaster and its effect on health and primary health care system.

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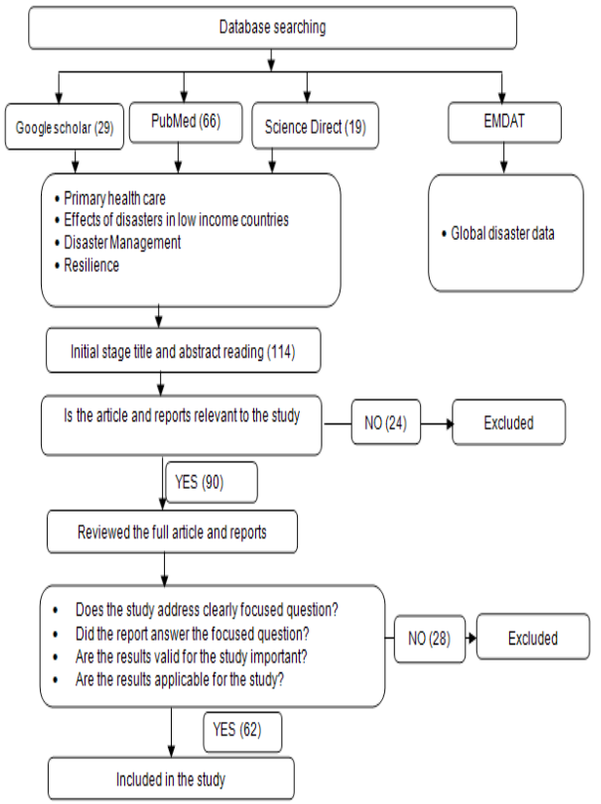

Figure 1.Flowchart for selection of the relevant literature.

RESULTS

Disasters affect all countries but the major impacts are felt particularly in low income countries where around 86% of deaths occur due to flooding.[4] There has been sustainable rise in natural disasters during the last century. The most impacted regions include the South Asia, South East Asian and African and most the low economic countries. Since 2000, EM-DAT recorded an average of 341 climate-related disasters per annum, up to 44% from the 1994-2000 on an average and well over twice the level in 1980-1989.[5]

Whether natural or anthropogenic, the phenomena of disaster combined with other incidents had long as well as short impacts on health care and providing resilience.[6] The disasters have increased the mortality and morbidity rates including the health impacts like such as injuries, toxic exposure, diseases and mental health problems.[7] But even when disaster-related mortality is absent, disasters can bring deleterious consequences on nutrition, education, health, income-generation and seriously jeopardize recovery of human and physical assets.

The natural events had a profound long term damage and rise in poverty of nations. The analysis of 30 years of macro-level damage data from different disasters and according to income groups showed that low-income suffered unequally large damages relative to their assets. Earthquake vulnerability was considered as the root cause of poverty which further affected the level of development of countries. More resources were diverted to react to natural hazards and less were applied to health, growth, poverty reduction and development. It has been found from researches that natural disasters have got a significant negative impact on development and poverty. [5]

The report suggested that the poor were more vulnerable and exposed to the economic and human capital losses due to the disasters.[8] The poor households suffered heavy from disasters and were found to be most vulnerable as they lacked in resources to cope during and after the flood affecting their health, hygiene which is difficult to fully capture by standard quantitative analysis for

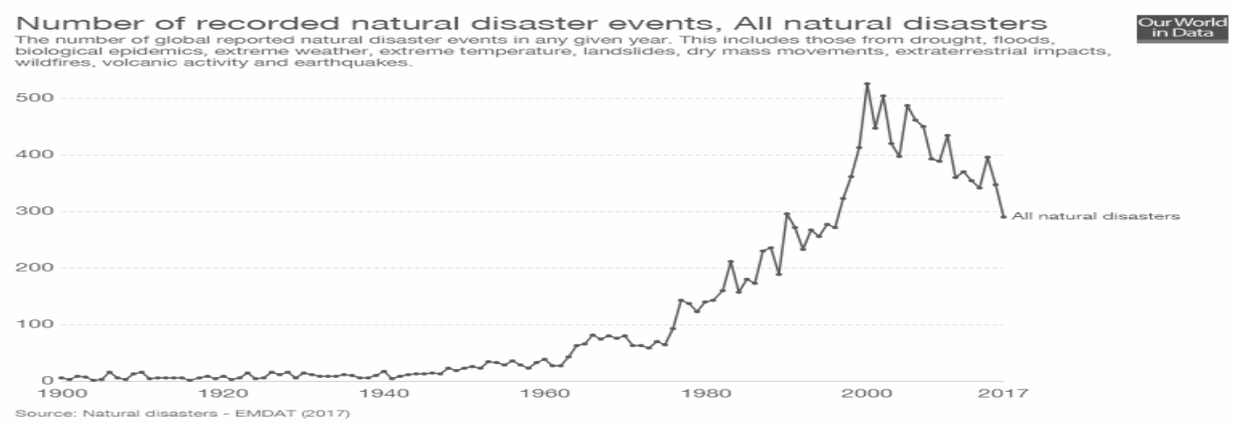

Figure 2. Global situation of disaster (source: EMDAT 2017).

instance, post-disaster traumas and depression.[9, 10]

Emergencies can lead to an acute exacerbation or a life-threatening deterioration in the health of people with non-communicable diseases (NCDs). Following the earthquakes, the people affected due to damage or destruction were forced to acquire shelter in open areas that lacked in hygiene for the people mainly for the old, ill and children which was a great matter of concern. There were high possibilities of expansion of NCDs like cardio-vascular diseases, chronic lung diseases.[11]

The immediate and direct as well as secondary consequences following any disasters are food shortage, damage to basic infrastructure as water supplies, safe shelter which are essential for health. A wide range of human health associated with the impacts of hazards in economically and socially deprived areas were related to cases of respiratory and diarrheal diseases, cases of psychological and social behavioral disorders, possible food shortage and nutritional deficiencies.[12]

Malnutrition among people at an early age had a long lasting impact. For example, evidences from Zimbabwe showed that the 1982-1984 drought led to increased probabilities of child stunting, which delayed the school enrollment of the children by on average 3.7 months and led to worsened performance at school (0.4 grades lower) measurable up to 16 years after the disaster. These impacts can be expected to have further consequences on future productivity and income.[13]

The Ebola epidemic that occurred in the Western Africa seriously disrupted and damaged the local health systems that were at an early stage of reconstruction continuing decades of conflicts. The humanitarian crisis in the Middle East has challenged the health systems through physical destruction, health workers' death, migration and urgent requirements for health care. [14]

There have been reports of spread out of communicable infectious diseases after the break out of natural disasters like measles, diarrhea, dengue, typhoid fever and cholera disease due to the death of large number of people as were seen during the Turkey earthquake of 1999.[15] Central Java and Yogyakarta province earthquake of 2006 and Mentawai Island of West Sumatra province when a tsunami struck after earthquake in October, 2010.[16] The diseases resulted due to poor sanitation and lack of proper water supply in the affected areas. The 2004 Indian Ocean earthquake and tsunami which too created mass casualties illustrated how natural hazards can become devastating when social vulnerability of a country is high.[17, 18]

Nepal ranked 144th on HDI and 28th in relation to risk assessment for humanitarian crises and disasters where 61.8% and 33.6% of the total population stays within 30 minutes of travel time to Health Posts (HPs), Primary Health Care Centers (PHCC). [19, 20] Access to health care facilities at times of disasters becomes very critical. Nepal's rugged terrain and the lack of properly enabling infrastructure make it highly inaccessible; limiting the availability of basic health care in many rural areas even in easy access areas. In many villages, the only mode of transportation is by foot. This results in a delay of treatment, which can be detrimental to patients in need of immediate medical attention.[21]

The earthquake of 2015 in Nepal damaged a total of 446 public health facilities responsible to deliver the primary health care. Pregnant women, women in a post-natal condition and newborns are the single biggest vulnerable group considering their usual needs of health care services provided through them. According to the assessment estimated around 30,000 deliveries and a corresponding number of newborns who would have been directly affected in the three months following the earthquake exposing the vulnerable people to further risk. Similarly, those suffering from chronic conditions (TB, HIV, leprosy and NCDs), severely injured persons, and people living with disabilities, children, elderly, and adolescents are also vulnerable to health risks in such a post-disaster scenario.[22]

People who did not have adequate health care were tend to be more prone to sicknesses and less mobile often with chronic illness like diabetes and unmanaged hypertension. These chronic illnesses tend to depend on constant treatment of a network of doctors, hospitals, clinics and pharmacies which were disrupted and got destroyed during disasters. Countries being economically poorer were also not able to evacuate their people from disaster prone areas on short notice. Therefore the medically underserved areas faced challenges in their mobility and relocation required a high level of attention at time of a disaster response. Therefore these existing disparities create a barrier to develop a preparedness culture.[23]

The disaster affected people of a community are shifted to safer locations where they are provided shelter together irrespective of essential considerations such as water safety, food availability, adequate sanitation and human waste disposal systems. Water and sanitation was considered to be at a critical stage during and after disasters, people were more susceptible to illness and deaths due to injections of new dreadful diseases and diseases like Cholera, Typhoid fever, Hepatitis A and E,

Dysentery, asthma, cardiovascular diseases also rise in unhygienic conditions etc.[24]

In low income countries, though attempts were made by the government to increase the health expenditures to reach the MDGs for improving the health conditions, budget constraints have restricted it. When these low income countries are exposed to disasters without a risk component built, the scare development resources are spent on disaster recovery, limiting their capacity to invest in building resilient primary health care.[25]

The PHC services deliveries in Nepal are made through the health post and primary health care centers while female community health volunteers (FCHVs) are also trained and mobilized to provide necessary need and support to the people giving the last mile connectivity.[26, 27] Nepal's health care issues are largely attributed to its political power and resources being mostly centered in its capital, resulting in the social exclusion of other parts of Nepal. The restoration of democracy in 1990 has allowed the strengthening of local institutions. The 1999 Local Self Governance Act and the subsequent Local Governance Operation Act (LGOA, 2017) aimed to include devolution of basic services such as health, drinking water, and rural infrastructure but these policies have not provided notable public health improvements.[28] Due to a lack of political will, Nepal is yet to achieve complete decentralisation, thus limiting its political, social and physical potential.[21]

Good progress has been made by the African region since 2009.The PHC initiatives had contributed to the major success in the facing and managing serious epidemics like HIV/AIDS, tuberculosis, high mortality of women and young children and rise in threat to the spreading NCDs.[29] The evidence based assessment on the effectiveness of PHC programs and interventions in low-middle income countries like Malaysia, Myanmar, Sri Lanka, and Indonesia of South East Asia are cited as good examples.[30]

The leading causes of global mortality and morbidity in low middle income countries are due to the spread out of the NCDs in the year 2014, which also increased at times of disasters. The complex nature of the diseases including the co-morbidities must get reflected through the heath strategies for NCDs management. At different levels PHC plays a major role to strengthen the healthcare systems. It is important to integrate care into the existing health care systems rather than creation of parallel programs.[31, 32]

A majority of the prevailing health problems can be satisfactorily managed at PHC level even during disaster scenarios with better health outcomes compared to other models.[1] Analysis influenced by resilience would deliver a deeper understanding of how a community or society has changed and adapted in response to pressure of conflict. There is an urge to strengthen the PHC systems affected by disasters in countries which face high poverty and poor health management. Thus, to build resilience, there should be improvement in the PHC systems to reduce the exposure of the people to infectious diseases and other epidemics and with provisions for diagnosis and detection of threats before the disaster strikes.[33]

Countries in Africa tend to have a higher load of diseases and challenges in the health systems with increases in chronic non-infectious diseases adding to the already existing large burden of infectious diseases, injuries, and maternal and child health conditions and exposure to disasters. Though there have been tough challenges yet their health care systems are making considerable efforts to recognize, accept and adopt the evidence based health care (EBHC). The progress to promote EBHC from the past two decades in the African region which included the primary and secondary research, research capacity development, supportive initiatives, more access to collect information and work with decision makers to get clinical guidelines and health policies into research.[34]

Most low resource countries which are affected by cyclones and floods have got the highest disaster mortality rate in the world, with over half a million people lives lost in disasters since 1970. Services provided to the people for mental health management in the disaster prone areas to support and prevent immediate psychological distress and long term mental health problems that are provided through primary health care. [35]

There should be better promotion of primary health towards disaster preparedness in earthquake prone areas as the number and quality of health management staff is inadequate in numbers and there must be increment in the number of doctors, trained health staff, and a need for improvement in coordination among the government hospitals, PHCs, NGOs and the local people.[36]

DISCUSSION

The article finds that there has been substantial increase in natural disasters particularly affecting the low income countries in South and South East Asia, African countries.[5]Disaster consists of the direct interaction between the hazard and the vulnerability

of those affected, not the mere fact of the hazard's occurrence.[37,38] High rate of natural disasters is projected to continue and/or increase across the world impacting particularly the low income countries due to rapid climate change, unmanaged urbanization, lack of resources, poverty, and loss of biodiversity.[4,39]

The major threats of disasters were felt due to lack of proper PHC assistance in these countries leading to a vicious cycle of poverty and poor health.[6,8] Health disaster management "the aggregate of all measures should adequately address to reduce the likelihood of impact on health outcomes including other factors like that of water, sanitation, nutrition, and security through multi-sectoral working.[37,40]

Good health and wellbeing are fundamental to the prosperity of societies.[41] Potential health problems resulting from the disaster are multifaceted and do not all occur at the same time.[42] The effects of disasters on PHC were beyond just deaths rather substantially impacts the health and nutrition, mental wellbeing, sanitation and hygiene, livelihood, food and social security which are essential for a holistic development.[9,12] All healthcare facilities including the PHC system need to create, practice and implement efficient disaster preparedness to provide an adequate medical disaster response.[43-45] Effective preparedness of PHC system is more likely to be achieved if it adopt an all-hazards response plan for managing different scenarios.[46-50]

A majority of prevailing health problems can be satisfactorily managed at PHC facilities. It was found that towards the end of the MDGs in 2015, the efforts through PHC intervention led to enormous gain in the health.[17, 51] Literature indicated that over 15 years death in children under age group of 5 declined by more than 50 %, maternal mortality dropped by 45%, new HIV infections fell by 40%, and over 6.2 million malaria-related deaths were prevented through adequate PHC in low income countries repeatedly exposed to disasters.[52]

The article further revealed that lack of proper governance system being one the hindering factor in the development of risk integrated PHC system in low income countries.[21] In Nepal, the inter-sectoral coordination in health has been going on for a long time through its sector wide approach (SWap), however multi-sectoral approach by health sector is relatively weak and needs to be institutionalized.[53]

While 90% of disaster related deaths occur in countries with income less than 760 US dollars per year, it is not surprising that there are lower levels of disaster preparedness and response capability in these countries.[54] Sustained funding is essential to achieving health disaster preparedness and developing capacities.[55]

Overseeing the complexities and intricacies of disaster response these activities cannot be handled by a single agency or single discipline. The surveillance systems through PHC facilities must be strengthened for water and vector borne diseases which also includes the outbreak control measures during humanitarian crisis.[56]

Strong primary health care rooted in community participation and action with sound disaster preparedness is the foundation of every health system, and no country can achieve "Health for All", the core principle of Alma-Atta Declaration and health as a human right as provisioned within the Constitution of Nepal.[57, 58]

In spite of the PHC facilities being the closet and first level of contact between the individual and the health system where essential health care is provided, its potentials are not fully understood and exploited. Strengthening PHC system's disaster preparedness at the community level will reduce the vulnerability of at-risk populations, particularly women, children, pregnant and lactating women and socially marginalized groups.[59, 60] The continuity of the disasters has exposed a dire need to strengthen the PHC system's disaster preparedness to act as first health responders and mitigate/ reduce the effects of disasters.[61, 62]

CONCLUSIONS

The key factor to social, political and international community development rests on the PHC of the people. The PHC is based on community as well as individual self-reliance and participation in the planning, organization, control and operation of the services related to it. Therefore, proper government interventions are required for building resilience and improving the PHC systems particularly in low income countries. Though different measures or approaches were adopted for development of PHC facilities yet diverse geographical and poor governance has been one of the key hindering factors for improving the PHC system particularly in low income countries having high exposure to disasters. A strong political transformation with multi stakeholder approach would work as a foundation for building resilience of PHC system within its community from the risk and complexities of natural disasters in the region. There can also be other controlling factors related to healthcare services on which further studies could be done.

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