

Effects of natural disaster on aged women: A case study on Chattogram metropolitan coastal area, Bangladesh

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Abstract: Population attributes like health, age group, education and gender are not only dependent on the socio-economic entities but also on the spatial arrangement of the variables. Among population, aged women are always at high risk to natural disaster and climate change related exposure. The study tries to explore the types of natural disaster faced by aged women and assess the coping strategies with their socio economic condition of coastal area of Chattogram metropolitan, Bangladesh. The study was carried out by the combination of both primary and secondary data sources. The primary data were collected from questionnaire survey which consisted of 100 questionnaire. It was conducted through household interview from 65+ Aged women. The study explored that aged women mostly face cyclone, tidal flood, and coastal bank erosion and lose their life and assets. They faces worst situation in disaster time due to unfavorable health condition. Despite of hurdle situation, they intensively involved themselves in various activities in before; during; and post disaster time. So it is the responsibility and duty of society and new generation to take essential steps for their betterment.

Keywords: Disaster, aged women, coastal area, coping.

Introduction

Natural disaster is a distinct and distinguishable occurring event in the nature and community that involves merging of various factors that influence the degree to which someone's life and livelihood is put at risk (Blaikie *et. al.* 1994). This is a frequent event for Bangladesh. Different disasters like cyclones, floods, storm tide, etc. are causing high level of suffering every year in the country (Islam, 2011; Rahman *et. al.* 2017). Comprehensively, Bangladesh is more climate vulnerable than other countries in the world (Harmeling, 2010; WB, 2018). During past 200 years not less than 70 major cyclones have struck the coastal area of Bangladesh and in the last 35 years almost 900,000 people have died because of catastrophic cyclones (PDO-ICZMP, 2004). Women are supposed to be the most vulnerable for many causes namely their vulnerability, mental attitude, physical structure and other social issues (Mitchell, 2007). Half of the total population in our country is women who are considered as more vulnerable group and need to be taken care of in disaster situation (Islam, 2011).

Population ageing is a global occurrence. Growth of aged people in size and proportion has been observed throughout the world (UN, 2019). The term 'ageing' refers the gradual natural process of growing older. This natural process is of course a biological reality, which, no matter how much anyone tries has its own dynamics; something beyond we human can control. Yet each society makes sense of old age derived from its

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constructions (Gorman, 1999). Generally, vulnerability and old people in most developing countries are marginalized. They are often amongst the poorest of the poor. In ancient period women frequently died in childbirth (Hayflick, 1996) and the life span was merely 20 years, let alone they lived long enough to have children (Butler, 1976). Around 1900, the developed countries of that time had an average life span of 45 to 50 years. Now, life span is about 78 years in developed countries and 68 years in developing regions. United Nations refers to older people 60+years (UN, 2017). By 2050, 1 in 6 people in the world will be over the age of 65 (UN, 2019),

Bangladesh is more vulnerable to climate change, and disaster prone than other countries (WB, 2018) with the process of urbanization, industrialization, individualization, and the expansion family planning programs. It has poor management scenario to face environmental problems by aged people specially women. With increasing population, ratio of aged people is increasing with facing many socio economic problems. The environmental problems are ultimately more threatening to the coastal area. It is important to make significant progress in the coastal area of disaster and disaster management for the elderly population (Elahi and Islam, 1995). Poor women can survive on their own with little help from the society and they are enabling to utilized united women power and come forward side with men (Khatun, 2005).

Ageing population: Bangladesh Situation

In its very much vulnerable population and progress context, Bangladesh, which is the seventh largest (152.51 million in 2011) and a densely populated country (1015 persons per sq. km) in the world, has started to experience another evolving issue of population ageing (BBS, 2017). The older section is increasing much faster than total population along with their vulnerability and dimension of problem (Rahman, 2013). Currently, almost 5.2% of the total population of Bangladesh is 65+ and by the year 2030 it will be 7.4% (UN, 2019).

Table 1: The trend of increasing number of aged people in Bangladesh (in thousands)

Age group	Year					
	1974	1980	1990	2000	2010	2020
65-74	1645	1921	2475	3541	4702	5154
75-84	394	506	709	1243	1982	2760
85-94	28	32	59	135	346	650
95+	0	0	0	2	11	44

Source: United Nations, (2019). World Population Prospects, 2019

Table 2: Estimated age-sex distribution of aged population of Bangladesh: 1974, 1980 -2020 (in thousand)

Age Group	Man						Woman					
	Year						Year					
	1974	1980	1990	2000	2010	2020	1974	1980	1990	2000	2010	2020
65-74	915	1060	1317	1851	2439	2 697	730	861	1158	1690	2263	2457
75-84	213	277	383	645	1003	1343	181	229	326	598	979	1417
85-94	14	16	30	69	169	285	14	16	29	66	177	365
95+	0	0	0	1	5	16	0	0	0	1	6	28

Source: United Nations, (2019). World Population Prospects 2019.

Increasing trend in the number of aged persons in Bangladesh also shows that increase rate of women are higher than man (Table 1 and 2).

Aged women are key contributors to household security, through profit from small business, through the growing of agricultural foodstuffs as well as livestock rearing for direct household consumption and sales. The significance associated with the caring of the aged persons is strongly embedded in the Bangladeshi culture and tradition. But as time is passed, falling of joint families and with evolving of nuclear families is more often noticed with urbanization, industrialization, modernization, and poverty & migration process. In this situation older women are more affected than men.

The coastal zone of Bangladesh is mainly perceived to be a zone of multiple vulnerabilities to risks from earthquake, tsunami and above all climate change. A vast majority of the people who are affected by natural hazards in Bangladesh are women. The prime reason behind this situation is deeply rooted in the adverse societal, cultural and economic environment of the country. Women suffer more during the natural disasters like cyclone and river bank erosion in the coastal region of Bangladesh from time immemorial. When disaster strikes, the women especially those women who are households head become most vulnerable. In this context this paper has taken an attempt to understand the situation of aged women in coastal area of Chattogram metropolitan.

Aim and objectives of the research:

The aim of this research is to identify the natural disaster faced by aged women and understanding their coping strategy in the study area. The following objectives are taken for this research.

1. To study the socio economic condition of aged women in the *Patenga* coastal area of Chattogram Metropolitan;
2. To identify various natural disaster faced by aged women in the *Patenga* Coastal area;
3. To assess the different types of adaptation practices performed by aged women in the study area.

Study area:

This study is an attempt to identify the situation of aged women in an urban coastal area portrayed by natural disaster. In order to collect primary data, the area under Chattogram City Corporation (CCC, comprising of 41 administrative Wards) *Patenga* ward (ward no. 41) has been selected as the study area. Study area was selected on the basis of worst situation occurrence due to natural disaster.

Chattogram- The commercial capital of Bangladesh –is the second largest city in the country having the status of statistical Metropolitan Area (SMA) or Metropolitan city. The total area of the city is about 209.67 sq km. (BBS, 2011) with an estimated population of about 6.5 million. The diversified land use characteristics of the city are now under constant threat due to rapid population influx, impact of climate changes and unplanned development activities. The study area consists of 17.26 sq km. and located on the south of Chattogram Metropolitan (Fig-1) area. In the study area, total population is 44084 where males are 52.75% and females are 47.25% (BBS, 2017).

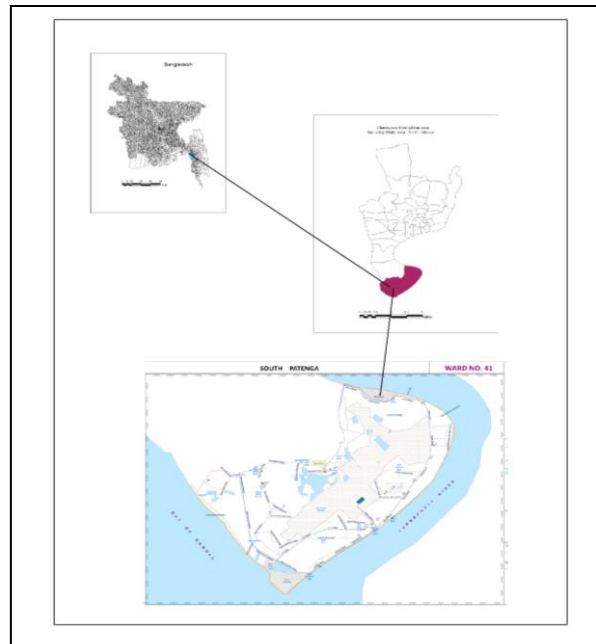


Fig. 1: Study Area location

Data and Methodology

The study is a combination of both quantitative and qualitative method. For the present study, perceptual data have been collected from the primary sources and factual information has been gathered from various secondary sources. First of all a reconnaissance survey was conducted to understand overall scenario regarding research theme in the study area. To collect primary data, 100 household of *Patenga Coastal* area were surveyed using a structured questionnaire prepared on the basis of various selected indicators. Household questionnaire is designed in a manner which extracts information about socio-economic characteristics of respondents, risk exposure level and the

experience they had about the catastrophic impacts of natural disasters on their life and livelihood. For the present study, purposive sample survey was undertaken and selection of the individual respondents is based on stratification i. e., aged women and residents staying in the city for at least ten (10) years. It is decided to take only the aged (65+ age group) women of household as the sample population. In-depth interviews were conducted to identify the various environmental problem facing by aged women with a check list. On the other hand, secondary information collected through books, articles, internet to find out overall status of the study area. Some general statistical techniques were used for table and diagram for showing different types of data.

Result and discussion

1. Socio economic condition of respondents:

Socio-economic information represents the real picture of any society or community. To take any development programme for any area, it is very much needed to collect information about the socio-economic condition of the locality. Otherwise; the initiatives or programmes will not be fulfilled. In Bangladesh women are more vulnerable in all stages regarding socio economic condition. Natural disaster accelerate that condition in vulnerable situation. In this perspective aged women face the worst period during disaster. So the respondents of this study is considered aged women 65+. By analyzing the educational qualification of the respondents, it was found that 70% of the respondents were literate while only 30% were illiterate. Occupation is an important part for the survival of any person in any area. Among the respondents, the percentage of housewife is higher (85%) than the others. These respondents have given valuable information about effects of natural disaster. Besides, there were some respondents who are garments worker, school teacher, small business owner etc. also give essential information from their own experience. Among them, many people are living here by birth. So, they are aware about the condition of disaster and give valuable information. Around 64% of the respondents of this study were from small size family consisting of 2-4 family members. On the other hand, only 13.34% respondents had more than 7 members in their family.

1.2 Health situation and disease:

Due to poor economic condition of the coastal people of *Patenga* doesn't get proper health facilities by Government. There were limited city corporation health complex and community clinic in study area but they don't provide better health facilities. In the third world country like Bangladesh, Our health sector is geared towards maternal, child health and containing infectious diseases, not towards the elderly disabled and sick. According to Abedin (1999), the physical condition of aged women is not as good as aged male; in fact steady with their shorter life span. Respondents of this area suffer various types of health problem and their health condition decreases in absence of proper care and facilities. Social and economic dependency of women also impact on health with poor diet. Figure -2 shows that most of the aged women in the study area suffer from vision problem (32%) even lose their vision; hearing impairment (20%), diabetics (16%), various heart diseases (32%) and their walking become very slowly which they barely manage with the help of a stick.

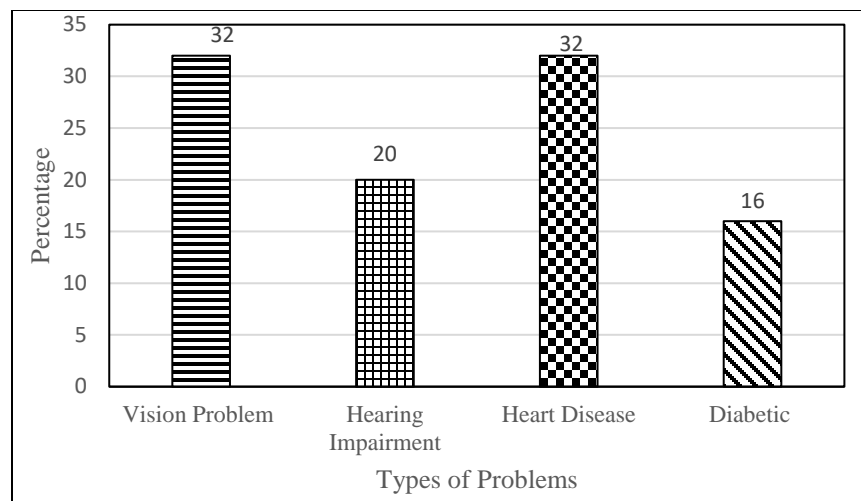


Fig 2: Health Problem of the respondents

Source : Field Survey, 2018

1.2 Treatment:

In Bangladesh, where a large proportion of the population is vulnerable to climate change, health impacts are expected to take place through a variety of ways, including an increase of water and vector borne diseases and of health problems in general. At the onset of disease and sickness maximum of the respondents used their self-knowledge of medication and previous healing experiences to treat themselves and their family members. To take any treatment, money problem is the major difficulty to aged people (CPD, 2000). Maximum aged women believe in Homio medicine (40%) or ayurvedic (24%) but for the developed technology and higher treatment they like to go the hospital (36%) in the study area (Fig -3).

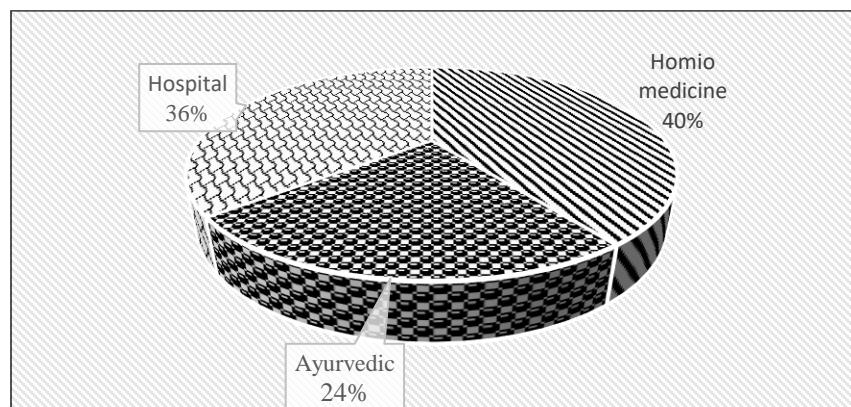


Fig 3: Sources of Treatment

Source: Field Survey, 2018

1.3 Income:

Economic situation of the aged women is very vulnerable. They depend on their family for survival as burden. For their over age, they are physically less active and some are

non-productive. Sometimes they get little amount of money as aid but its ranges between (500-1000) tk. Aged women expressed their desire for more aid from government and NGO.

1.4 Social isolation:

Social isolation is a particular problem for aged women. In the study area, many aged women lack social interaction outside the home environment and experience feelings, like neglecting and loneliness due to restriction on freedom of movement and public exposure. These effect on their mental health.

2. Natural Disaster

2.1 Facing of various natural disaster

Natural disasters can have a life-altering impact on the individuals and families fortunate enough to survive them. But the effect of natural disasters can be felt at the community, city and state level, or many times can impact an entire country. In generally the people of coastal area faces various kind of natural disaster every year such as; tidal flood, cyclone, storm surges etc. Maximum respondents highlighted to tidal flood then cyclone (Fig 4.). It is revealed from survey that flood (tidal flood, water logging) 64%, cyclone including tidal surges 24% and embankment erosion 12% respondents express their attitude with multi-answers. During tidal flood/storm surge women's privacy appears to be totally challenged. Sewerage and Sanitation problem becomes worse specifically in case of aged women.

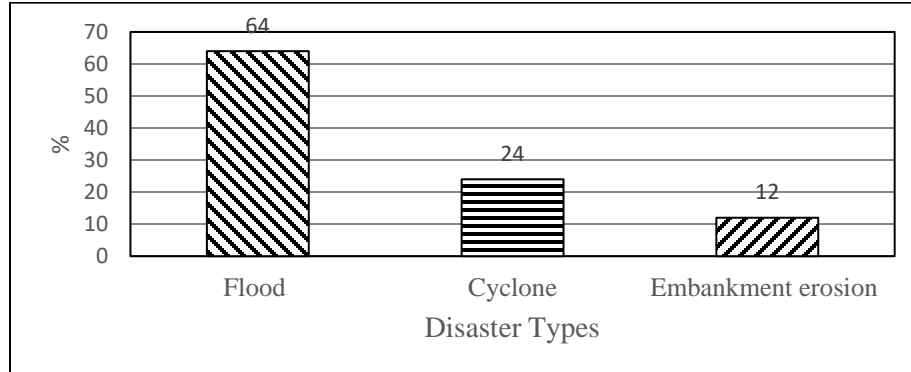


Fig-4: Major Disasters faced by the respondents

Source: Field Survey, 2018

2.2 Level of natural disaster:

Disasters are more severe for the people living in coastal areas. Now its occurrence time and severity level is increasing day by day. According to field survey, about 80% answered that it is more than previous time and 20% said medium level (Table -3).

Table 3: Level of disaster increasing

Type	Percentage (%)
More	80
Medium	20

Source: Field Survey, 2018

2.3 Losses during disaster:

Environmental or natural resources refer to the materials that are made available by nature in this planet. According to Field Survey, it is seen that different types of environmental resources such as vegetation, water, biodiversity, land etc. have lost in the study area due to natural disasters. During disaster losses are great which are showing below as a list with ranking considering multiple answers on the basis of priority. It is arranged by respondent's maximum consent and in depth interview. Table 4 shows the respondents sensitivity about losses of disaster period.

Table 4: Losses from disaster

Category	Percentage (%)
Damage of settlement	24
Agriculture damage	17
Losses of life	14
Damages of trees	21
Water logging and salinity	11
Losses of domestic animals	10
Others (road, electric pole damage, shortage of drinking water, sanitation etc.)	3

Source: Field Survey, 2018

3. Coping strategy

Coping refers to short-term responses to the impacts of events. By contrast, adaptation refers to longer-term adjustments to more permanent changes in the climate. Adaptation options for coping with the natural disasters depend on geographical, social, economic and cultural settings of the region. In coastal zone of Chattogram, respondents are taking different adaptation options to cope with existing natural disasters. Along with the structural measures, non-structural measures can also be fruitful to reduce vulnerability of the coastal livelihoods.

3.1 Sheltering:

The operational plan of cyclone shelters in Bangladesh is not found to be gender-responsive (CCC, 2009). This situation prohibited women to go for shelter in disaster time for safety. In the study area about 56% respondent go to shelter, 28% stay at own home, 16% move to less disaster prone area during disaster period (Fig-5). In

Bangladeshi families most of the important decisions are rarely held by family's elderly person. Consequently, it is an indicator of the status of the older person's in the family. People are more alert now about disaster situation by making, radio, television etc. The study found that even after receiving early warning women remained dependent on the (male) household head to take the final decisions.

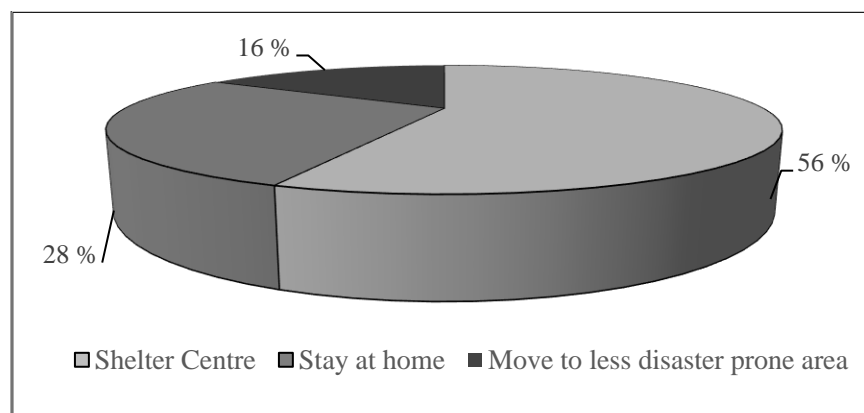


Fig 5: Staying at time of disaster

Source: Field Survey, 2018

3.2 Use of experience for disaster preparedness:

It is found that aged women play a complementary role for disaster preparedness from previous experience. They advise various ways to family members, like having savings, keeping portable cooking stoves, and maintaining a store of dry foods, molasses, and necessary medicines, utensils stored high up, away from the floodwaters, bury jewellery and valuable documents for safekeeping. They also advise to keep cattle in safe place and store their food, planting more fruit and woody trees nearby their houses for reducing disaster affect. This protects the houses from strong wind and flooding, as well as provides food and fuel after the disaster as a part of disaster risk reduction (DRR) approach. It is also the women who advise to cover tube-wells with plastic to prevent saline water intrusion (Table 5).

Table 5: Aged women activities in disaster situation (multiple answer synthesized)

Before disaster	During disaster	After disaster
<ul style="list-style-type: none"> - Savings from income, loan - Plantation around homestead as protection wall or putting fence around homestead. - Raise home base with mud, brick and uses of plastic cover around the base as well as for tube-well. - Making portable stove (Chula), and maintaining dry 	<ul style="list-style-type: none"> - Suggest go to shelter or near safe site relative house. - Look after small children of the family. - Storing drinking water and food. - Shifting livestock and poultry near high road/elevated place 	<ul style="list-style-type: none"> - Cleaning house and surrounding homestead area. - If need selling assets. - Helping collecting aid and relief. - Suggest for changing crop pattern as early as possible. - Managing daily

foods. - Store medicine and water purifying pill and utensils, fuel. - Stock/ sell crop, poultry and livestock.	- Helping in collecting aid or relief. - Perform prayer and reciting holy books.	necessities of family members.
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Source: Field survey, 2018

3.3 Obtain aid or relief:

Six to seven per cent of annual budget spend on climate-sensitive activities by government of Bangladesh (UNICEF, 2020). The government, NGOs and many other organization afford relief and aid during disaster period (Islam 2011). The development of disaster coordination systems within Bangladesh has improved the relief that affected families receive (UNWB, 2020). It has found from survey that during and post disaster period, aged women along with their family get food (36%), water (32%), and medicine (32%) as aid or relief elements by government and non-government in the study area (Table- 6). Age-sensitive relief distribution approach could be apply in this situation (Help Age International, 2007). During disaster to cope with safe and limited food and water, people change their eating habit and reduce the frequency of meal consumption which is managed by women where aged women play a vital role.

Table 6: Getting relief in disaster time

Elements	Percentage (%)
Food	36
Water	32
Medicine	32

Source: Field Survey, 2018

3.4 Family's support during disaster:

In coastal zones, women control homestead-based livelihoods, livestock, fisheries, trees, seeds and animal fodder. Despite the limited resources in coastal areas women play a significant role in food preservation to combat the adverse situation. Women preserve dry food (such as rice, onion, garlic, puffed rice, etc.), fuels, candle, matches, ropes and medicine at home and prepare portable mud stoves for future use (Islam, 2011). Aged women need maximum care during disaster and they get 100% family's support. It is mentionable that our social norms and ethics always teach us to respect the elders. Moreover in disaster prone coastal areas this practice is normal in most of the families which also founded in study area.

3.5 Opinion to reduce losses:

In Bangladesh, multi-sectoral policies are incorporated regarding climate change adaptation. It could be incorporated into sector-specific policy regarding environment, health and gender (Shabib and Khan, 2014). Aged women's experiences, understanding

and coping ability in adaptation strategies are recognized. Experience and knowledge of aged women could boost up reduction losses in disaster which should be facilitated on a customary basis (MOF).

From in-depth interview it is revealed that the knowledgeable aged women are more concern about our environment losses. During tidal surge the road become muddy and after disaster it destructed. The river bank erosion and inundation situation throw their family and society in losses of land and other property. They have thrown some of their ideas to reduce the losses of their precious resource which is shown in Fig. 6:

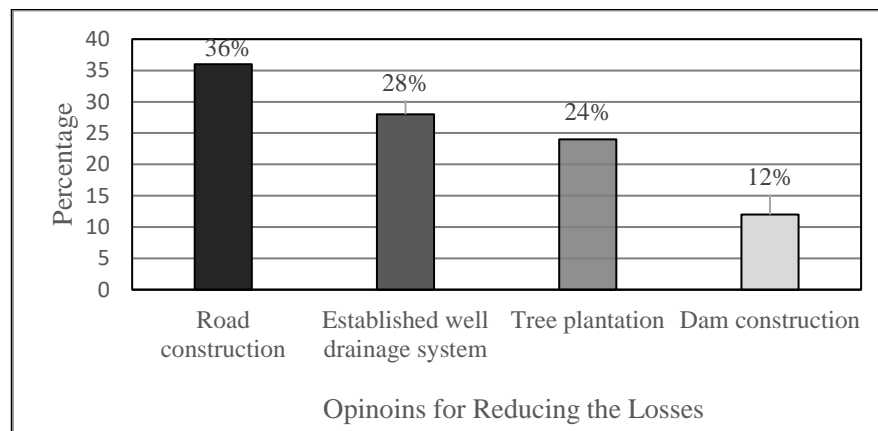


Fig 6: Opinion to reduce losses from disaster

Source: Field survey, 2018

4. Conclusion

Proper guidance or experience from aged women can significantly contribute to reducing the consequence of vulnerability during or after disaster. This increases the confidence level of other women in their ability to protect their property. They are more realistic in evaluating personal and household preparedness- such as water storage, dry food preserve, secured personal material, financial and other documents in a safe place. Most of aged people of Bangladesh cannot meet their essential needs. Vital requirements of the aged people are health (health care & drug), shelter, cloth, income employment or any available resource, healthy environment, expense of funeral and education. The difficulty of aged is not simply about medical matters. It is assemblage of physical, psychological, economical and socio-cultural condition. So a broad and complimentary approach required to face the crisis.

We should take strong steps to relieve the trouble of aged women. This kind of work is an ethical, public, humanistic and sacred responsibility for the residents. The steps incorporate, build community alertness, sustain the usual orthodoxy, initiate long term social security, and establish more health complex for the aged, specialized aged hospital and aged care units in the existing hospital. Ageing issue can be introduced into the different level of educational curricula, so that the new generation can have adequate acquaintance, resource assemblage and solidarity from government, contributor agencies and well-off people for sustainability of all sort of schemes adopted for the aged.

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