

Impact of Flooding on Nutritional Status among Early Childhood Development

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ABSTRACT

Purpose: *The purpose of this study is to assess and compare child nourishment in the communities affected by flood and non-affected households based on perception.*

Design/Methodology/Approach: *The data was collected from flood-affected and non-flood-affected areas of households using a structured questionnaire consisting of both closed-ended and open-ended questions, followed by a face-to-face interview with the mothers or caretakers of children ranging in age from 3–5 years. A case study was also conducted in an exceptional case for further validation to dig deeper. A judgmental sampling technique was used to identify riverine flood-affected areas, and nearby communities was selected for non-flood-affected areas. Non-flood area selected from nearby communities with similar socio-economic backgrounds. The location of Bardiyaya, Rajapur, is found to be victimized by the Karnali River of western Nepal every year. The focus group discussed and observation was also done. The research area was selected as highly affected by summer floods. Information was collected through a structured questionnaire and an in-depth interview with 3-5-year-old children's households' mothers or caregivers.*

Findings/Result: *Both areas found malnutrition, but the flood-affected area was more affected than the non-flood area. Every year, the deepest river in Nepal, Karnali, is affected one to three times annually. Its impact on society is to stay in safe places like community centers, school buildings, and Godam for one to four weeks (7 days to 30 days) annually. The main problem was monsoon flooding from June to September. When the Karnali River floods, the level rises and reaches 11 meters. In the riverbank area, residential people leave their homes and stay as refugees.*

Originality/Value: *This is the Ex-post facto research to assure impact of flood on child nutrition which will be a guiding document for the creation of health society.*

Paper Type: *Research paper*

Keywords: Feeding practice, Flood, Nutrition status, Child Development, Impact of flooding,

1. INTRODUCTION :

Ministry of Health and Population focused women who had a live birth and/or a stillbirth in the two years prior to the survey received antenatal care from a skilled provider (which includes a doctor, nurse, and auxiliary midwife) at 94.3%, and 96% took any iron-containing supplements while pregnant, according to the government of Nepal's health and population ministry (Ministry of Health and Population, 2022, p. 25) [1].

According to a summary by USAID and the Ministry of Health and Population, 96.0% of women took supplements containing iron throughout their most recent pregnancy those who visited the ANC four times or more (USAID, 2022, p. 37) [2]. The Ministry of Health and Population focused extent of ladies with no less than four ANC visits during their last live birth diminishes as birth request expands;

85% of ladies with a first-request birth had no less than four ANC visits 80%. There is common variety in the level of ladies with somewhere around four ANC visits during their last pregnancy, with Sudurpashchim Territory having the most noteworthy rate (90%) and Madhesh Area the least (68%) (Ministry of Health and Population, 2022, p. 181) [1]. According to the DoHS statistics in the annual report from the Nepali government, 65.7% of women gave birth at health facilities with expert attendance (DoHS, 2020/21, p. 113) [3].

The delivery rate in Nepal was 64.9% in the public sector, 12.6% in the private sector, and 21% at home, according to the Nepal multiple indicator cluster survey. In the province of Karnali, delivery is done in the rural public sector at a rate of 55.1%, the private sector at a rate of 0.4%, and the house at a rate of 44.5%, and in the urban public sector at a rate of 66.6%, the private sector at a rate of 4.1%, and the home at a rate of 10.2%. (UNICEF and CBS, 2019, p. 169) [4].

According to the Nepal multiple indicator cluster survey report focus, 98.7% of children were ever breastfed, 41.7% were breastfed for the first time within an hour of delivery, and 87.8% were breastfed for the first time within a day of birth. In the metropolitan region, 98.4% of mothers had ever nursed, with 42% of them starting within an hour of birth and 86.2% within a day. However, in the rural area, 99.3% of those who were breastfed did so within an hour after birth, and 41.3% within a day (UNICEF & CBS, 2019, p. 294) [4]. According to UNICEF, total 48.9% of women were in rural regions and 42.6% of women in urban areas underwent a health checkup following delivery in a facility, according to a health survey study (UNICEF and CBS, 2019, p. 179 & 180) [4].

CBS, Nepal focused, the median duration (in months) of any breastfeeding of 36 months or longer was summarized by the Nepal multiple indicator cluster survey. (UNICEF & CBS, 2019, p. 301) [4]. The ongoing use of bottle feeding is a worry due to the possibility of contamination if the bottle and/or nipple are not adequately cleaned or sterilized, according to Nepal's multiple indication cluster survey findings. Due to nipple confusion, bottle-feeding can also make breastfeeding more difficult, especially in the smallest children. the current proportion of children aged 0 to 23 months who received a nipple feed the day before (UNICEF & CBS, 2019, p. 294) [4]. According to the Department of Health Service (DoHS) annual report for 2020–21, 90% of the immunization dataset in HMIS for FY 2077–78 was reported (DoHS, 2020/21, p. 37) [3].

Ministry of Health and Population focused on childhood vaccinations include the BCG (tuberculosis) vaccine, the oral polio vaccine (OPV), the fractional inactivated poliomyelitis vaccine (fIPV), the pentavalent vaccine (DPT-HepB-Hib), the pneumococcal conjugate vaccine (PCV), the rotavirus vaccine (RV), the Japanese encephalitis (JE) vaccine, and the measles-rubella (MR) vaccine. In July 2020, the rotavirus vaccine was added to the regular schedule. According to the Nepal Health Sector Strategy 2016–22 aims for vaccination coverage, 95% of children between the ages of 12 and 23 months must receive all recommended vaccinations (Ministry of health and population, 2022, p. 27). According to UNICEF, having access to clean water, adequate sanitation, and hygiene (WASH) is a fundamental component of wellbeing, productivity, and human rights. The main factor in the spread of diseases like cholera, diarrhoea, dysentery, hepatitis A, typhoid, and polio is insufficient WASH. Malnutrition is made worse by diarrheal illnesses, which continue to be a major global cause of child mortality (UNICEF & CBS, 2019, p. 416) [4]. According to UNICEF's summary in the Nepal germs from human or animal faeces as well as chemical and physical contaminants that have a negative impact on children's health and development may be present in Nepal's drinking water. While improving water quality is important for disease prevention, it's also crucial to increase access to and availability of drinking water, especially for women and girls who are typically responsible for carrying water, frequently over great distances (UNICEF & CBS, 2019, p. 417) [4]. In their survey report, UNICEF focused pathogen-containing human or animal faeces, as well as chemical and physical impurities, can pollute drinking water and have a negative impact on children's health and development. While improving water quality is important for disease prevention, it's also crucial to increase access to and availability of drinking water, especially for women and girls who are typically responsible for carrying water, frequently over great distances (UNICEF & CBS, 2019, p. 416) [4]. Ghimire, M, and Majarjan, R.K., discovered a very minor difference between the nutritional health of Chepang and non-Chepang youngsters. A total of 4.3% of kids were severely underweight or severely malnourished (-3SD of weight for height). Similar to this, 26.9% of children were classified as mildly malnourished (-1SD) and 8.7% as moderately malnourished (-2SD). The report strongly urges further research on the subject among other age groups and geographic areas (Ghimire & Maharjan, 2018) [5]. Lamsal, K. P. et al. recommended MUAC cutoffs can be used as a quick screening technique to identify wasting in children aged 6-59 months,

they only detect a small portion of all wasted children (Lamsal K., Parajuli, Pun, & Adhikari, 2021, p. 1) [6].

According to Ninno, del Carlo et al., [7] the flood caused a decline in the health-related environment in homes. They wrecked or damaged people's bathroom facilities, their access to clean water was curtailed, and their dwellings. All age groups had large increases in disease as a result of these causes and the decrease in food consumption. Although adolescents experienced the biggest increase in illness among children, the floods presented a more serious health issue since disease has more severe effects on youngsters and can even endanger their existence. Many preschoolers lost weight and/or stopped growing due to floods during a crucial time for their physical and mental development. (Ninno, Dorish, Smith, & Roy, 1998, p. 79) [7].

According to Schaerbeek et al., behaviour changes, infrastructure upgrades, and technological advancements are the main adaptation responses to flooding, rainfall, droughts, and excessive heat. Reduced incidence of infectious diseases, improved access to water and sanitation, and enhanced food security were among the reported (direct and intermediate) health results. There were no studies found that reported on mother and child health, and all-cause mortality was rarely documented (Scheelbeek, 2021, p. 2) [8].

The assessment identified stunting as the most frequently reported serious form of undernutrition in flood-affected areas, according to Caroline Noel Agabiirwe. Undernourishment was most significantly affected by severe and frequent floods. The study is equivocal on the most important types within the short-term and intermediate periods following floods because of the scant and feeble evidence. On the other hand, in the long-term period following floods, stunting was observed as the most frequently reported major form of undernutrition (Agabiirwe, 2016) [9].

According to Dimitrova, Anna, and Bora, Jayanta Kumar, exposure to excessive monsoon precipitation during these early stages of life increases the risk of stunting, especially for children in the tropical wet and humid sub-tropical regions. Climate anomalies experienced in utero and during infancy are also linked to an increased risk of child undernutrition. In contrast, infants who have encountered an excessive amount of monsoon precipitation during infancy in mountainous places are at a lower risk of stunting. There is conflicting research regarding how quickly climate shocks affect waste. Additionally, we demonstrate that children under the age of five are more susceptible to developing diarrhoea when there is an abundance of precipitation, especially during the monsoon season (Dimitrova & Bora, 2020, p. 1) [10].

Adeova, et al. focused Pre-disaster malnutrition, food insecurity, shelter conditions, inadequate breastfeeding, including misperceptions about continuing breastfeeding practices in a debacle, sociocultural elements, and strategic and hierarchical troubles can fundamentally affect kid sustenance in misfortune, as per research pre-fiasco unhealthiness, food weakness, living climate in covers, unfortunate bosom taking care of remembering misinterpretations about keeping up with bosom taking care of practices for calamity, sociocultural variables, and authoritative and managerial difficulties can emphatically influence youngster nourishment in catastrophe (Adeoya, 2022) [11].

UNICEF emphasized Stunting and wasting are caused by inadequate nutrition during pregnancy, inadequate nutrient intake throughout early childhood, as well as illness and disease. Stunting affects children's ability to grow linearly and develop cognitively, which affects how ready they are for school, how well they learn, and how many possibilities they have in life. Children who are wasting have weakened immune systems and are more susceptible to illness and death (UNICEF, 2020, p. 14) [12]. In 2017, the prevalence of undernutrition was 10.9% worldwide, 20.4% in Africa, 11.4% in Asia (South Asia was 14.8%), 6.1% in Latin America and the Caribbean, 7% in Oceania, and 2.5% in North America and Europe (FAO, 2018, p. 22) [13].

The human health is at risk due to climate change. Despite the fact that dangers affect the entire community, the urban poor are the hardest hit. The high mortality during floods and epidemical epidemics after floods demonstrate the need for stronger interventions (Medimorec, 2013, p. 5) [14].

The CIFRC focused the primary health risks associated with climate change include direct mortality from natural disasters (particularly landslides and floods) and the spread of vector-borne diseases into formerly asymptomatic highland areas as temperatures rise. Increasing food instability, malnutrition, and water contamination, as well as the related water-borne diseases, are other effects (CIFRC, 2021, p. 27) [15].

Agabiirwe, C. N. et al. summarised the review noted stunting as the most frequently reported significant form of undernutrition in food-affected areas. Severe and recurrent foods showed the greatest impact on undernutrition (Agabiirwe et al., 2022 p. 1) [16].

Children from low-income families do not have significantly higher rates of poor health at birth in nations similar to Australia, such as the UK; rather, the impact of growing up in a low-income family creates the family income-child health gradient (Moore, T., 2015 p. 8) [17].

In the flood-affected areas of Pakistan, attention should be given to the risk factors for underweight, such as child age, maternal age, family type, mother's education, water quality, and restroom accessibility. Floods frequently have long-term effects on marginalized populations living in hard-hit areas and developing countries. Such catastrophes typically have social, economic, and health effects on victims as well as government authorities (Haq ul, Ijaz, 2022 p. 1) [18].

Children's undernutrition, particularly the chronic kind, is likely to be made worse in the wake of the current Kerala floods, according to Muttarak, R., and Dimitrova, A. It's still not too late to take steps to stop this harmful flood-related effect on your health. Interventions in nutrition, water, and sanitation should focus in particular on households with expectant mothers and infants, poor and middle-class households, and mothers who lack literacy (Muttarak, R, and Dimitrova, A. p.3) [19].

Floods result in significant bank erosion, which threatens to destroy settlements and agricultural land, as noted by ADB in several locations. Floods in the Terai region destroy farmland, crops, and livestock, which is crucial for rural, underdeveloped populations' ability to support their families. Roads, communications networks, electricity supplies, and other crucial infrastructure are all adversely affected (ADB, 2019 p. 24) [20].

Monsoons typically begin in the second week of June and last for about 120 days. In terms of the number of fatalities, injuries, displaced people, and property losses during monsoons cloudbursts, landslides, and floods are the worst natural disasters. Short bursts of torrential rain during the monsoon season cause landslides, flash floods, inundation, and urban flooding, which result in fatalities and substantial financial damage. Every year, the monsoon season's flooding and landslides have a detrimental effect on Nepal's nutrition status. The emergency has a detrimental impact on adequate maternal, baby, and young child feeding habits and care, which can result in maternal, infant, and young child malnutrition. It also causes disease epidemics (ADB, 2021 p. 21) [21].

Summary of the Nepal Demographic and Health Survey (NDHS) A lot of times, anthropometry is utilized to gauge a child's nutritional state. Using anthropometric measurements, child growth indicators are reported. The WHO Child Growth Standards reference population was used to compare the distribution of height and weight among kids under the age of five (NDHS, 2022 p. 273) [1].

Chemjong, B., and KC, Y. claim that this fast-expanding population is causing a shortage of land resources and reduced land productivity. The main causes of food insecurity in Nepal include low production, inadequate distribution, limited access to food in distant places, and low income. The various reports state that stunted and wasted children under the age of five indicate the severity of chronic and acute undernutrition, respectively. Rural areas have 12% more people who are extremely food insecure than urban ones do (9%) (Chemjong, B. and KC, Y. p. 41) [22]. According to Shrestha et al.'s research, vitamin D insufficiency is very common among pregnant mothers and their newborn children in Nepal. To better understand the potential causes of vitamin D insufficiency, larger research is required. During pregnancy, calcium and vitamin D supplements must be taken regularly and in sufficient amounts (Shrestha et al., 2019 p. 5) [23]. Socioeconomic position, women's empowerment, and nutrition education were controllable risk factors that should be taken into account as targets for programs to enhance women's health during pregnancy, according to a summary by Shrestha et al. (Shrestha et al., 2021 p. 1) [24]. The NPC, which is housed under the Prime Minister's Office and approves each line ministry's yearly plans, has the convening power to facilitate multisectoral

collaboration within the government, according to a study by Chitekwe, S. et al. The ability to develop the vital systems that have the greatest influence on mother and child nutrition—health, food, social protection, and water and sanitation—results from combining various sectors with numerous stakeholder groups. Research on implementation will help Nepal and the global nutrition community understand the hurdles, facilitators, and paths to multisystem action for better diets, behaviours, and access to nutrition services in the context of the new federalist governance structure (Chitekwe, S. et al. (2022). [25]).

Particularly in Terai, the nutritional health of women of reproductive age is still poor, and an adequate diet is not being followed. It promotes enhancing dietary consumption, particularly of meat, fruits, and vegetables, with a focus on reproductive-aged women (Bhandari et al., (2016). [26]).

2. STATEMENT OF PROBLEMS :

The adverse impact of the flood on communities with widespread of destruction of homes, infrastructure and livelihood. Among the most vulnerable groups affected by floods are children, pregnant women's and elders particularly in the flood-affected areas. Early Childhood Development (ECD) is a critical period for cognitive, physical and socio-economic development and during this phase can have long-lasting consequences on a child's overall well-being and future potential. The problem at hand is to understand and address the unique challenges faced by 3-5 years ages children in flood affected area, these are following: Health and well-being: The problem is suffering from contaminated water resources, lack of proper sanitation facilities, and limited access to health care services which are factors impact the health and well-being of ECD children in the affected area. Nutrition and food security: Flood loss crops, food security, and disrupted supply chains, resulting in malnutrition and inadequate diets for small children, its impacts show in children health. Access to education and early learning opportunities: Flood affected damages their schools, road and furniture. It affects the children in their education and socio-emotional development.

3. OBJECTIVES :

The research aims to access and compare the child nourishment with and without flood affected community based on perception.

4. METHODOLOGY :

4.1 Research Philosophy:

This research is an ex-post facto research to analyses the impact of flood on children nutrition status due to flood by comparing the affected and non-affected children's. It is pragmatic philosophy-based research. Flooding is an evidence-based empirical issue in Nepal. Every flood is different, but one consequence is a basic need, particularly food. In this review, the researcher attempts to recommend a pragmatic solution for the time being through the systematic literature. That is why the research may be considered pragmatic, philosophy-based research. The researcher uses deductive logic reasoning at large during the review; however, the observation experience of the researcher is arranged as inductive logic reasoning during inference confined to adductive in a single sense for the completeness of the objective. In-depth archival analysis followed by an intensive review would be strategies adopted during the scientific review. The review was systematically conducted through the collection of research papers along with reports and data's (Ghimire, M., Mishra, A. K.; Aithal, P.S, 2023, p. 116) [5]. Used mixed methods (qualitative and quantitative methods) to understand the impact of floods on ECD children. review of literature related to flood-affected children and effects of natural flood (disaster). Define the target population consider ethical considerations and obtain informed consent form the children's mother. Data was gathered through questionnaires from children's mothers. Data was analysed through SPSS and Ena (WHO software).

4.2 Study Area:

The study was carried out in Nepal, Lumbini Province of Bardiya district, Rajapur Municipality. The study was comparative cross-sectional study design. The study objective was to identify nutritional status of food affected and non-flood affected area. A survey questionnaire was developed, both closed and open-ended question. The gathered from flood-affected and non-flood-affected households 3-5

years children’s mothers or caregivers. The researcher’s target was 3-5 years children of food victims and non-flood victim households. The data was collected through face-to-face interviews with 3-5 years households. Data analysed based on WHO standards using SPPs.

5. RESULT AND DISCUSSION :

5.1 Status of Nourishment Affecting Factors :

The results of the study were analysed to compare perceptions of child nourishment in flood-affected and non-flood-affected areas. The data analysed and summarized significant differences between the two groups. The study discussed the impact of flooding on child nutrition.

The research findings contribute to the existing knowledge on child nutrition in disaster-prone areas. It helps policymakers (Palikas), NGOs, and public health organizations design and implement nutrition-related interventions to address the needs of children in flood-affected areas. The useful action of disaster preparedness and management in safeguarding child health and well-being during natural calamities like floods.

Pregnancy checked up of Flood affected Home:

Table 1: Count Pregnancy checked up of Flood affected Home

Flood Affected count			Pregnancy checked up		Total
			Yes	No	
Flood affected home	Yes	Count	105		105
		%	100.0%		100.0%
	No	Count	105		105
		%	100.0%		100.0%
Total		Count	210		210
		%	100.0%		100.0%

Table 1 show that pregnancy checked up were 100% from the both flood-affected and non-affected households of respondents. A categorically detailed report is given below.

Table 2 : Pregnancy Check-up Status

Frequency			Pregnancy check-up		Total
			Less than 4 times	More than 4 times	
Flood affected home	Yes	Count	12	93	105
		%	11.4%	88.6%	100.0%
	No	Count	15	90	105
		%	14.3%	85.7%	100.0%
Total		Count	27	183	210
		%	12.9%	87.1%	100.0%

Table 2 shows that the pregnancy check-ups of pregnant mothers in flood-affected and non-affected households were 210. Flood-affected households' 105, of which less than 4 times (minimum 4 times) check-up, yes, 12 (11.4%), and more than 4 times checked up, 93 (88.6%) were. Non-flood-affected households numbered 105, of which 15 (14.3%) had less than four check-ups (minimum four times) and 90 (85.7%) had more than four check-ups.

The ANC visit during the at least 4 times 80% according to NDHS report, but in the research area 87.1%, It was more than national ANC checkup data. The research area respondents visited the health post or hospital more than four times because the government provides subsidy to those pregnant mothers who have checked up a minimum of four times and gave birth in the health post with the help of health personnel. All the mothers check up on their pregnancy for the subsidy of Rs. 1800.00 after delivery at the health post. Just now, the Nepal government's Ministry of Health and Population changed the rule from 2023 that pregnant mothers must check their health every month.

Table 3: Iron Tablet used during pregnancy Cross tabulation

Frequency			Iron Table use		Total
			Yes	No	
Flood_affected_home	Yes	Count	103	2	105
		%	98.1%	1.9%	100.0%
	No	Count	105	0	105
		%	100.0%	0.0%	100.0%
Total	Count	208	2	210	
	%	99.0%	1.0%	100.0%	

Table 3 shows that floods affected 105 households, of which 103 (98.1%) households' women used Iron tablets and 2 (1.9%) households' women respondents did not use iron tablets. Non-flooding affects 105 households, with 100% of them using Iron tablets.

The NDHS report for 2022 recorded that 13% of adolescent women used Iron and Folic Acid Supplements (IFA) in Terai, 22% in the hill zone, and 24% in the mountain zone, respectively. In the research area of western Terai, the iron tablets used recorded more than the NDHS report.

Table 4: Iron tabs used households during before and after delivery Cross tabulation

			If yes, Iron tablet used		Total
			Before delivery	Both (before & after delivery)	
Flood affected home	Yes	Count	95	10	105
		%	90.5%	9.5%	100.0%
	No	Count	51	54	105
		%	48.6%	51.4%	100.0%
Total	Count	146	64	210	
	%	69.5%	30.5%	100.0%	

Table 4 shows that flood-affected and non-flood households were 210, among them 105 flood-affected households. Before delivery time, 95 (90.5%) and after delivery time, 10 (9.5%) were used. Non-flood-affected households' respondents used 51 (48.6%) before delivery, and 54 (51.4%) respondents used both (before and after delivery).

NDHS focused, 96% of women took iron tablets during pregnancy, but in the research area, 99% of women used iron tablets during pregnancy. It has the more than results as a national percentage.

Table 5: Flood affected home Used special food during pregnancy Cross tabulation

Variable			During pregnancy time special food used (Green Vegetables & gedagudi, Milk)	Total
Flood affected home	Yes	Count	105	105
		%	100.0%	100.0%
	No	Count	105	105
		%	100.0%	100.0%
Total	Count	210	210	
	%	100.0%	100.0%	

Table 5 shows that both flood-affected and non-flood-affected households were 210, of which 105 were flood-affected and 105 were non-flood-affected. Both types of households used special foods during pregnancy used 100% respondents at pregnancy time. Respondents ate green vegetables, gedagudi (pea, horse gram, and black gram mixed), milk, meat (fish, chicken, buff, and goat), eggs, and fruits at pregnancy time.

Table 6: Flood affected home Delivery location Crosstabulation

Variable			Delivery in Health post/Hospital	Total
Flood affected home	Yes	Count	105	105
		%	100.0%	100.0%
	No	Count	105	105
		%	100.0%	100.0%
Total	Count	210	210	
	%	100.0%	100.0%	

According to Table 6, household mothers in both flood and non-flood affected respondents delivered 100% of their babies at a health post or hospital. Its main reason for delivery is government-provided remuneration for more than 4 ANC checkups and deliveries at health posts and hospitals 100%. A very good response was founded from respondents for this indicator.

According to the Nepal government Ministry of Health and Population, 94.3% of women deliver in health facilities with skilled attendance, but in the research area, 100% of women deliver in health posts with skilled attendance (Nurses and HA). The percentage is the same as the national figure.

The reports show that the level of ANC checkups and deliveries at health posts and hospitals of the Nepal government Ministry of Health and Population is 94.3%, but in the research area, it is 100%

founded. It was more than national data. Its reasons are delivery remuneration, awareness of ANC and PNC checkups, and safe delivery access in rural areas of Nepal.

Table 7: Colostrum feed Crosstabulation

Variable		Colostrum feed		Total
		Yes	No	
Flood affected home	Yes	Count	105	105
		%	100.0%	100.0%
	No	Count	105	105
		%	100.0%	100.0%
Total	Count	210	210	
	%	100.0%	100.0%	

Table 7 shows that both flood-affected and non-affected households' 100% respondents fed colostrum to their children within an hour. UNICEF and CBS reported a total of 98.7% (rural area: 99.3%) of mothers who first breastfed within one hour (41.7%). In the research area, all the mothers (100%) fed colostrum to their babies. It is same as the government's rural area report. All mothers' feed colostrum to their children within an hour because all mothers deliver in health posts or hospitals with the help of health personnel. Nurses support feeding colostrum (first milk) to their children because first mother's milk colostrum is an antibiotic for children or raises immunity.

Table 8: Checkup after delivery (child & self) Crosstabulation

Variable		After delivery where checkup		Total	
		Health post/hospital	No check up		
Flood affected home	Yes	Count	102	3	105
		%	97.1%	2.9%	100.0%
	No	Count	105	0	105
		%	100.0%	0.0%	100.0%
Total	Count	207	3	210	
	%	98.6%	1.4%	100.0%	

Table 8 shows that both flood-affected and non-affected households were 210, of which 105 were flood-affected households. Total respondents: 102 (97.1%) checked up after delivery in a health post or hospital, but only 3 (2.9%) did. 105 households were non-flood-affected households; they 100% checked up on their health at the health post or hospital.

In the UNICEF and CBS national survey report, 68.2% gave birth in a facility, and in the research area, 100% of respondents gave birth in a health post. The research area result is better than the national survey report.

Table 9: Breast feed within 12 hours(1day) Crosstabulation

Variable			Breast feed within 12 hours(1day)		Total
			less than 6 times	More than 6 times	
Flood affected home	Yes	Count	4	101	105
		%	3.8%	96.2%	100.0%
	No	Count	2	103	105
		%	1.9%	98.1%	100.0%
Total		Count	6	204	210
		%	2.9%	97.1%	100.0%

Table 9 shows that both flood-affected and non-affected households were 210, of which 105 were flood-affected households. Mothers who breastfed less than six times in flood-affected households were 4 (3.8%), while those who breastfed more than six times were 101 (96.25) in one day. Non-flood-affected households' respondents were 105, among whom 2 (1.95), less than 6 times 4 (1.9%), and more than 6 times fed 103 (98.1%) within 24 hours.

Table 10: Does flood affected breast feed time and duration Crosstabulation

Variable			Does flood affected breast feeding		Total
			Yes	Not	
Flood affected home	Yes	Count	105	0	105
		%	100.0%	0.0%	100.0%
	No	Count	0	105	105
		%	0.0%	100.0%	100.0%
Total		Count	105	105	210
		%	50.0%	50.0%	100.0%

Table 10 shows that flood-affected and non-affected households were 210, of which flood-affected households were 105. Flood-affected respondents mothers replied that breast-feeding affected them during the flooding time. Non-flood-affected households' respondents, 100% mothers, replied that breast feeding was not affected at flood time.

Table 11: Normal time breast feeding number and minute Crosstabulation

Variable			Flood time breast feeding No. and minute			Total
			4 times and 10 minutes	5 times and 10 minutes	6 times and 15 minutes	
Flood affected home	Yes	Count	96	7	2	105

		%	91.4%	6.7%	1.9%	100.0%
	No	Count	0	105	0	105
		%	0.0%	100.0%	0.0%	100.0%
Total		Count	96	112	2	210
		%	45.7%	53.3%	1.0%	100.0%

Table 11 shows that there were 210 flood-affected and non-affected households, of which 105 were flood-affected households. They feed their child the normal breast-feeding number and minute in 24 hours: 4 times and 10 minutes were 96 (91.4%), 5 times and 10 minutes were 7 (6.7%), and 6 times and 15 minutes were 2 (1.9%). Non-flood-affected households' respondents fed their children five times and for 10 minutes; 100% were.

Table 12: Duration of year breast feed to baby Crosstabulation

Variable		Breast feed duration to baby			Total	
		Three-year	Four -year	Five- year		
Flood affected home	Yes	Count	5	100	0	105
		%	4.8%	95.2%	0.0%	100.0%
	No	Count	83	16	5	104
		%	79.8%	15.4%	4.8%	100.0%
Total		Count	88	116	5	209
		%	42.1%	55.5%	2.4%	100.0%

Table 12 shows that flood-affected and non-flood-affected total households were 210, of which 105 were flood-affected households. The respondents in flood-affected households breastfed their babies for three years 5 (4.8%), and four years 100 (95.2%) non-flood-affected households' respondents breastfed their babies for three years 83 (79.8%), four years 16 (15.4%) and five years 5 (4.8%). The Nepal multiple indicator cluster survey summarized the median duration (in months) of any breastfeeding for 36 months. In the research area, the average breastfeed was 4 years; 3-5 years was the duration of breastfeed. The research area data was good than a national survey report.

Table 13: Bottle feed child Crosstabulation

Variable		Bottle feed to your child		Total
		Yes	Not	
Flood affected home	Yes	Count	105	105
		%	100.0%	100.0%
	No	Count	105	105
		%	100.0%	100.0%

Total	Count	210	210
	%	100.0%	100.0%

Table 13 shows that there were 210 flood-affected and non-flood-affected households, of which 105 were flood-affected and 105 were non-flood-affected. Both households' respondents were 100% against bottle-feeding. In this area, there is no practice of bottle-feeding children.

A national survey report summarised bottle feed is specially for the youngest ages 0-23 months. The research was conducted on the age of 3-5-year-old children, there is no bottle feeding in the research area.

Table 14: Full immunized baby according to age Crosstabulation

Variable			Full immunized to baby		Total
			Yes		
Flood affected home	Yes	Count	105	105	
		%	100.0%	100.0%	
	No	Count	105	105	
		%	100.0%	100.0%	
Total	Count		210	210	
	%		100.0%	100.0%	

Table 14 shows that flood-affected and non-flood-affected households were 210, of which flood-affected households were 50%. Both flood-affected and non-flood-affected households are fully immunized at 100% according to age. The mothers are sincere and interested in immunization for their children. A health post employee came into the village with a vaccine and took help from FCHVs for providing vaccinations according to age for under five-year-old children.

The government of Nepal's DoHS annual report for 2020–21 summarized the immunization dataset for FY 2077–78 was 90%. In the research area 100% of parents immunized their children. The data shows research area data is better than Nepal government survey records.

Table 15: Flood time immunization baby Crosstabulation

Variable			flood time immunization baby		Total
			yes or not		
			Not		
Flood affected home	Yes	Count	105	105	
		%	100.0%	100.0%	
	No	Count	105	105	
		%	100.0%	100.0%	
Total	Count		210	210	

	%	100.0%	100.0%
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Table 15 shows that both flood-affected and non-flood-affected total households are 210, among them 105 flood-affected households. 100% of households don't carry their children for vaccination at the health post and also don't come for vaccination during the flooding time. There is everything is closed at flooding time due to flood flowing it was not possible.

Table 16: Flood time Vitamin A feed, If yes Crosstabulation

Variable		Flood time vitamin A feed yes not		Total
		Not		
Flood affected home	Yes	Count	105	105
		%	100.0%	100.0%
	No	Count	105	105
		%	100.0%	100.0%
Total	Count	210	210	
	%	100.0%	100.0%	

Table 16 shows that the number of flood-affected and non-flood-affected households was 210, of which 105 were households. The respondents replied that 100% of mothers feed their children Vitamin A, but 100% of both respondents replied that they don't carry their children for vitamin A feeding during the flood time because all the government and other organizations could not work during the flooding time.

The NDHS, 2022 results showed that 85% of children age 6–59 months had received vitamin A supplements, but in the research area, 100% of mothers provided Vitamin A. It is more than the NDHS report. In the village area, FCHVs visited homes and fed Vitamin A; it was fed in Schools also.

Table 17: Child birth interval Crosstabulation

Variable		Child birth interval in years			Total	
		Two-year	3 years	5 years		
Flood affected home	Yes	Count	0	24	81	105
		%	0.0%	22.9%	77.1%	100.0%
	No	Count	3	36	66	105
		%	2.9%	34.3%	62.9%	100.0%
Total	Count	3	60	147	210	
	%	1.4%	28.6%	70.0%	100.0%	

Table 17 shows that the total number of flood-affected and non-flood affected households was 210; among them, 105 were flood-affected households. The flood affected child mothers asked birth interval: three years were 24 (22.9%) and five years were 81 (77.1%). Non-flood-affected households' children's birth order was 2 years 3 (2.9%), 3 years 36 (34.3%) and 5 years 66 (62.9%).

NDHS reports 2022 summarize that one in five women gives birth less than 22 months after the preceding birth, 13% between 18 and 23 months, and 7% between 7 and 17 months. Twenty-eight

percent of women give birth more than 59 months after the preceding birth. Research area records show that two-year intervals are 22.9%, three-year intervals are 34.3%, and five-year intervals are 62.9%. The results are better than the national record.

Table 18: Toilet used during the floods Crosstabulation

Variable			Toilet used during the floods		Total
			Open defecation	Toilet used	
Flood affected home	Yes	Count	25	80	105
		%	23.8%	76.2%	100.0%
	No	Count	0	105	105
		%	0.0%	100.0%	100.0%
Total		Count	25	185	210
		%	11.9%	88.1%	100.0%

Table 18 shows that the number of flood-affected and non-flood-affected households was 210, of which 105 were flood-affected households. The flood-affected households used the toilet during the flooding time: open defecation 25 (23.9%) and toilet (community building toilet and School toilet) 80 (76.2%). Non-flood-affected households were 105, and they 100% used their toilet.

The NDHS report for 2022 summarizes that 73% of the population has access to basic sanitation services, one-fifth of the population has access to limited sanitation services, one percent of the population uses an unimproved sanitation facility, and 9% in rural area uses open defecation. The research area results showed that 25% of people used open defecation. The result is 3 times more during the flooding time than the national survey report.

Table 19: Children use toilet and child faeces management during the flood Crosstabulation

Variable			Children use toilet and stools manage		Total
			Open	Toilet	
Flood affected home	Yes	Count	91	14	105
		%	86.7%	13.3%	100.0%
	No	Count	0	105	105
		%	0.0%	100.0%	100.0%
Total		Count	91	119	210
		%	43.3%	56.7%	100.0%

Table 19 shows that the total number of flood-affected and non-flood affected households was 210; among them, 105 were flood-affected households. The flood affected household's child used toilet and faeces manage at the flooding time, open (upland place) 91 (86.7%) and toilet (community building and school toilet) used 14 (13.3%) were. Non-flood affected households were 105, they 100% used their toilets for children and their own.

The NDHS report for 2022 summarizes that 50% of households practice open defecation. In the research area, during the flooding duration, there was 86.7% open defecation. The research results are worse

than the NDHS report. After stopping the flood, they are more vulnerable to fever, diarrhoea, cholera, etc.

Table 20: Hand wash before child feeding, and after toilet Crosstabulation

Variable			Hand wash before child feeding and after toilet use		Total
			Yes	Not	
Flood affected home	Yes	Count	105	0	105
		%	100.0%	0.0%	100.0%
	No	Count	0	105	105
		%	0.0%	100.0%	100.0%
Total		Count	105	105	210
		%	50.0%	50.0%	100.0%

Table 20 shows that the total number of flood-affected and non-flood-affected households was 210, of which 105 were flood-affected households. These households' respondents asked, have you hand washed before child feeding and after toilet use? 100% of respondents answered yes. Non-flood-affected 105 (100%) households also replied with the same answer: yes.

The NDHS 2022 report shows that 63% of the population has a basic handwashing facility, while 27% have a limited handwashing facility. In the research area, 100% of the participants washed their hands before eating and child feeding. The research result is better than the NDHS survey report.

Table 21: Hand wash by flood water and soap Crosstabulation

Variable			Hand wash by flood water and soap		Total
			Flood water and Soap use	Water and soap use	
Flood affected home	Yes	Count	18	87	105
		%	17.1%	82.9%	100.0%
	No	Count	0	105	105
		%	0.0%	100.0%	100.0%
Total		Count	18	192	210
		%	8.6%	91.4%	100.0%

Table 21 shows that the number of flood-affected and non-flood-affected households was 210, of which 105 were flood-affected. They have asked that hands be washed with flood water and soap; hands were washed with flood water and soap 18 (17.1%), and water and soap 87 (82.9%) were. Non-flood-affected households' respondents, 105 (100%), used water and soap because they were in a non-flood-affected area.

The NDHS 2022 report shows that 63% population with a basic handwashing facility in rural areas. The research report is 82.9%, it is better than NDHS survey report.

Table 12: Faced floods problem Crosstabulation

Variable			You or community faced floods problem		Total
			No	Yes	
Flood affected home	Yes	Count	0	105	105
		%	0.0%	100.0%	100.0%
	No	Count	105	0	105
		%	100.0%	0.0%	100.0%
Total		Count	105	105	210
		%	50.0%	50.0%	100.0%

Table 22 shows that the total number of flood-affected and non-flood-affected households was 210, of which 105 were flood-affected area households. Of these, 105 (100%) faced flood problems. 105 non-flood-affected area respondents did not face such a problem, or 100%. Flood-affected area respondents self-faced the flood problem, but non-flood-affected area respondents don't know how to bear such a problem. They were seen leaving home and staying in the flood victims refuse camp, community building, school, and Godam building.

Table 23: Flood faced since Crosstabulation

Variable			Flood faced since		Total
			Not faced	since 2013 1-3 times yearly	
Flood affected home	Yes	Count	0	105	105
		%	0.0%	100.0%	100.0%
	No	Count	105	0	105
		%	100.0%	0.0%	100.0%
Total		Count	105	105	210
		%	50.0%	50.0%	100.0%

Table 23 shows that the total number of flood-affected and non-flood-affected households was 210, of which 105 were flood-affected. Flood-affected households have faced such a problem since 2013, yearly 1-3 times according to precipitation in the Himalaya and Hills regions. But non-flood-affected households have not faced such a flood problem because they are in flood-safe locations.

Table 24: Flood types (Glaciers landslide floods or Riverine) Crosstabulation

Variable			Types of floods Glaciers landslide or Riverine flood		Total
			Not affected	Riverine flood	
	Yes	Count	0	105	105

Flood affected home		%	0.0%	100.0%	100.0%
	No	Count	105	0	105
		%	100.0%	0.0%	100.0%
Total	Count	105	105	210	
	%	50.0%	50.0%	100.0%	

Table 24 shows that the total number of flood-affected and non-flood-affected households was 210; among them, 105 were flood-affected. The flood victim respondents asked what types of floods come to their location, and 100% replied Karnali River (Riverine flood). Non-flood affected also 100% replied Karnali river floods.

Table 25: Flood arrive time stay time (in home or outside) Crosstabulation

Variable			1 st time floods time are you in home		Total
			No	yes	
Flood affected home	Yes	Count	0	105	105
		%	0.0%	100.0%	100.0%
	No	Count	105	0	105
		%	100.0%	0.0%	100.0%
Total	Count	105	105	210	
	%	50.0%	50.0%	100.0%	

Table 25 shows that the total number of flood-affected and non-flood-affected households was 210, of which 105 were flood-affected. They have asked, Is your home flood-affected? time, and 100% of respondents replied yes. Non-flood-affected households' respondents were also at home, but they didn't feel a flood problem.

Table 26: Feeling 1st flood seeing Crosstabulation

Variable			feeling 1st flood seeing		Total
			Not seeing	Afraid	
Flood affected home	Yes	Count	0	105	105
		%	0.0%	100.0%	100.0%
	No	Count	105	0	105
		%	100.0%	0.0%	100.0%
Total	Count	105	105	210	
	%	50.0%	50.0%	100.0%	

Table 26 shows that the total number of flood-affected and non-flood-affected households was 210; among them, 105 were flood-affected, and in all flood-affected households, 100% of respondents were afraid of floods. Non-flood-affected area respondents don't know about any types of fleeing because they are in a safe location.

Table 27: Floods damage (home, food, good, crops) Crosstabulation

Variable		Damage home, foods, good, crops			Total
Flood affected home	Yes	Count	No	Yes	Total
		%	0.0%	100.0%	100.0%
	No	Count	105	0	105
		%	100.0%	0.0%	100.0%
Total	Count	105	105	210	
	%	50.0%	50.0%	100.0%	

Table 27 shows that the total number of flood-affected and non-flood-affected households was 210; among them, 105 were flood-affected. Those houses were damaged 100%, including homes, food, goods, and paddy crops, but the non-flood affected 100% of households without any damage.

The total number of flood-affected and non-flood-affected households was 210; among them, 105 were flood-affected. They have asked who is more vulnerable during floods: pregnant mothers, children, and elders 99 (94.3%) and all home members 6 (5.7%) were. The non-flood-affected households were 100% unvulnerable during the flood.

The total number of flood-affected and non-flood-affected households was 210; among them, 105 were flood-affected. They have highly needed support in flood refuse residential, foods, cloth, water, and Toilet 105 (100%) But the non-flood-affected 105 (100%) households' respondents have not needed any other support because they were staying in their own homes.

The total number of flood-affected and non-flood-affected households was 210; among them, 105 were flood-affected. Health problems were faced by 103 (98.1%) and 2 (1.9%) not cause any problems. Non-flood-affected households have no problem during the flooding because they are staying in their own safe homes.

Table 28: Sick child losses of weight during the floods Crosstabulation

Variable		Sick child losses of weight during the floods		Total	
		No	yes		
Flood affected home	Yes	Count	2	103	105
		%	1.9%	98.1%	100.0%
	No	Count	105	0	105
		%	100.0%	0.0%	100.0%
Total	Count	107	103	210	
	%	51.0%	49.0%	100.0%	

Table 28 shows that the total number of flood-affected and non-flood-affected households was 210; among them, 105 were flood-affected. They have asked sick children if they lost weight, and yes, 103 (98.1%) did, but not if they lost weight; say, 2 (1.9%) did. Non-flood-affected 105 (100%) households have no problem with their children because they are staying in their own residence.

UNICEF [4] wrote in their survey report that drinking water may be contaminated with human or animal faeces containing pathogens or with chemical and physical contaminants with harmful effects on child health and development. It is not possible in the flood camp. Children come out and play in flooding water, so that child becomes sick and loses weight. The flooding time the sources of water are contaminated may be the flood E. coli enter in handpump through pump head, respondents use such water sources, they have not good environment for playing and movement from one place to another, not timely and nutritious food available, not comfortable bed for sleep, etc. are main reasons for sick children and loss of weight due to the fever, diarrhoea, pneumonia, and worms' problem.

Table 29: Treated children during the flooding time Crosstabulation

Variable			treated your children during the floods			Total
			Not treatment during flood	Health post or hospital	Both Health post and Dhami/Jhakkari/Guruwa	
Flood affected home	Yes	Count	0	4	101	105
		%	0.0%	3.8%	96.2%	100.0%
	No	Count	105	0	0	105
		%	100.0%	0.0%	0.0%	100.0%
Total	Count	105	4	101	210	
	%	50.0%	1.9%	48.1%	100.0%	

Table 29 shows that the flood-affected and non-flood-affected households were 210; among them, 105 were flood-affected; they treated their sick children at health posts and hospitals; only 4 (3.8%) health posts or hospitals, and Dhami, Jhhakri, and Guruwa 101 (96.2%) were. Non-flood-affected households receive no treatment because they stay in their homes and do not need treatment.

5.2 Analysis of Cases:

Case 1:

My son's name is Mahi Tharu. I live in a non-flood-affected village in Rajapur Municipality Ward No. 4, Anantapur. He is 3 years (36 Months) old. I gave birth to him at Rajapur Health Post. I have checked the ANC more than four times. When my son was born at 7 months of pregnancy, he was only 1.5 kg at birth. His weight was underweighting during his birth. I fed whole colostrum (1st milk) within one hour. I have breastfed more than six times in one day (12 hours). After 6 months, I have fed him eggs, milk, green vegetables, jaulo, and litto. However, he could not raise his weight. Now his weight is only 6 kg.

Case 2:

My name is Usha Chaudhary, and I am FCHV of Bardiay, Rajapur Ward No. 3, Gangapur (Nangapur) flood-affected area. I am 35 years old. For the past ten years, I have worked as an FCHV. During the flooding season in this village, children become more ill. Because of the flooding, there is black water with soil and a bad Odor. It makes everything polluted. Polluted water also enters our toilets. Storage Urine and faeces leakage is mixed with flood water and flows into polluted floods. The flood water is very harmful and polluted. We could not control our children for 24 hours; they played with polluted water and became sick. When the floods stop, maintain and reuse the toilet again. Flooding time: in the flood-affected households' area.

Case 3:

My name is Sita Rani Chaudhary. I live in Rajapur Municipality Ward No. 3, Utter Teriya Tole. I am 37 years old. I have been doing FCHVs since 2011. My village is in a non-flood-affected area. In this village, more children became ill during the flooding. They cause diarrhoea, fever, and typhoid during the flooding. There are more Hindus and fewer Christians. When a child becomes ill in the reach area, 90% of mothers prioritize traditional treatment. They call the Guruwa home and do traditional treatment. 98% of mothers go to the health post and hospital for child treatment after Guruwa treatment. Still, at village level, the first priority is traditional treatment rather than going to a health post-checkup.

Case 4:

My name is Riya Chaudhary. I live in the flood-affected area of Rajapur, Municipality Ward No. 3, Tighra Tole. I came here after my marriage. I arrived here for the first time in 2013. This is my first big flood and the first time I've seen a riverine flood here. Our village is only 1 km away from the Karnali River, the 3rd largest river in Nepal. All the village people (60–70 households) of Tharus migrated 1 km from the residential area. But here is also not safe from the Karnali River flood. Now we have no other measures because we have not gone to another safe location. According to heavy rain, 1-3 times a year, floods come and disturb us. At flood duration, we all go to community buildings, school buildings, and Godam buildings and stay as refuse. We all stay in such a condition for one week to four weeks (7–30 days). When the rainy season started, "we all were very worried about what would happen in this year's rainy season".

Flood seems significant so in our building code, we should introduce flood resistance features as we have provisions for fire safety, earthquake safety, materials standards, occupational safety and many more [27-32]. This research is an opening for many upcoming research.

6. CONCLUSIONS AND SUGGESTION :

Analysis of cases and survey data cross-tabulation confirms the nutrition status among children during flood in comparison to non-flood affected. Both areas found malnutrition, but the flood-affected area was more affected than the non-flood area. Every year, the deepest river in Nepal, Karnali, is affected one to three times annually. Its impact on society is to stay in safe places like community centers, school buildings, and Godam for one to four weeks (7 days to 30 days) annually. The main problem was monsoon flooding from June to September. When the Karnali River floods, the level rises and reaches 11 meters. In the riverbank area, residential people leave their homes and stay as refugees. The applications for understanding flood-affected children's adaptations for overcoming nutrition challenges Highlight adaptive strategies and practices. Support for disaster resilience, child development, and community support programs in flood-prone regions Adopt preparedness measures, education, health care, and community support. The research results are worse than the NDHS report. After stopping the flood, they are more vulnerable to fever, diarrhoea, cholera and water burn disease. 100% of the participants washed their hands before eating and child feeding. The research result is better than the NDHS survey report. The flooding time the sources of water are contaminated may be the flood E. coli enter in handpump through the pump head, respondents use such water sources, they do have not good environment for playing and movement from one place to another, but not timely and nutritious food available, not comfortable bed for sleep are main reasons for sick children and loss of weight due to the fever, diarrhoea, pneumonia, and worms' problem.

Mitigate the impact of flooding on nutrition and ensure the well-being of vulnerable children during and after flood events. Prepared and used Early warning systems during the flooding period. Give priority to children's, pregnant mothers, and elders' people. Provide emergency foods, water, medicine, health care, hygiene, a torch, and camp sitting time.

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8. REFERENCES :

- [1] Ministry of Health and Population. (2022). Nepal Demographic and Health Survey. <http://www.newera.com.np>
- [2] USAID. (2022). Nepal Demographic and Health Survey. <http://www.newera.com.np>

- [3] DoHS. (2020/2021). Annual report. www.DoHS, Annual Report 2077/78 (2020/21)
- [4] UNICEF and CBS. (2019). Multiple Indicator Cluster Survey (MICS). mics.unicef.org, [Google Scholar](#)
- [5] Ghimire, M., Mishra, A. K., & Aithal, P. S. (2023). Review on Effect of Nutrition during Flood on Children. *International Journal of Health Sciences and Pharmacy (IJHSP)*, 7(1), 114-127. [Google Scholar](#)
- [6] Lamsal, K. P., Parajuli, K. R., Pun, B. K., Adhikari, R. P., Bashyal, M., Dangol, B., & Cunningham, K. (2021). Accuracy of using mid-upper arm circumference to detect wasting among children aged 6–59 months in Nepal. *Global Health: Science and Practice*, 9(4), 881-889. [Google Scholar](#)
- [7] Ninno, del Carlo et al. (1998). The 1998 Flood in Bangladesh: Disaster impacts, Household coping strategies and response. [Google Scholar](#)
- [8] Scheelbeek, Pauline F. D. et al. (2021). The effects on public health of climate change adaptation responses: a systematic review of evidence from low- and middle-income countries. 16, IOP, [Google Scholar](#)
- [9] Rodriguez-Llanes, J. M. et al. (2016). Flood-Exposure Is Associated with Higher Prevalence of Child Undernutrition in Rural Eastern India. *Environmental Research and Public Health*, 13(210), 1-20. [Google Scholar](#)
- [10] Dimitrova A, Bora JK. (2020). Monsoon weather and early childhood health in India. *PLoS ONE*, 15(4), e0231479. [Google Scholar](#)
- [11] Adeoya, AA et al. (2022). Child Nutrition in Disaster. *The Tohoku*, 256(2), 103-118. [Google Scholar](#)
- [12] UNICEF. (2020). UNICEF Nutrition Strategy 2020–2030. UNICEF, 1-110. [Google Scholar](#)
- [13] FAO. (2018). The State of Food Security and Nutrition in the World. FAO, [Google Scholar](#)
- [14] Medimorec N. (2013). Health Risks through Flooding and Coping Strategies for Citizens of Dhaka. *J Geogr Nat Disast*, 3(2). [Google Scholar](#)
- [15] IFRC. (2021). Climate Change Impacts on Health and Livelihood: Nepal Assessment. IFRC, 1-51. [Google Scholar](#)
- [16] Agabiirwe et al. (2022). Impact of foods on undernutrition among children under five years of age in low and middle-income countries: a systematic review. *Environmental Health*, 21(1), 98, [Google Scholar](#)
- [17] Moore, T. (2015). Early childhood development and the social determinants of health inequities: A review of the evidence. www.rch.org.au/ccch
- [18] Haq ul, Ijaz. (2022). Preparedness to Combat Determinants of Underweight-Based Child Malnutrition in Flood-Affected Areas of Pakistan. *Hindawi BioMed Research International*, Article ID 6464901, 1-10. [Google Scholar](#)
- [19] Muttarak R, Dimitrova A. (2019). Climate change and seasonal floods: potential long-term nutritional consequences for children in Kerala, India. *BMJ Glob Health*, 4(1), e001215, 1-4. [Google Scholar](#)
- [20] ADB. (2019). Nepal: Flood Risk Sector Assessment Report. www.landell-mills.com
- [21] ADB. (2021). Nepal Monsoon Emergency Response Preparedness Plan 2021. United Nations Nepal, 1-3.
- [22] Hemjong, B., & KC, Y. (2020). Food Security in Nepal: A Review. *Rupantaran A Multidisciplinary Journal*, 4(1), 31-43. [Google Scholar](#)
- [23] Shrestha et al. (2019). Prevalence of vitamin D deficiency in pregnant women and their babies in Bhaktapur, Nepal. *BMC Nutrition*, 5(31), 1-6. [Google Scholar](#)

- [24] Shrestha et al. (2021). Factors associated with dietary diversity among pregnant women in the western hill region of Nepal: A community-based cross-sectional study. *PLOS ONE*, 16(4), e0247085. [Google Scholar](#)
- [25] Chitekwe, S., Torlesse, H., & Aguayo, V. M. (2022). Nutrition in Nepal: Three decades of commitment to children and women. *Maternal & Child Nutrition*, 18(S1), e13229, 1-8. [Google Scholar](#)
- [26] Bhandari et al. (2016). Dietary intake patterns and nutritional status of women of reproductive age in Nepal: findings from a health survey. *Archives of Public Health*, 74(2), 1-11. [Google Scholar](#)
- [27] Mishra, A.K. (2019). Development of Building Bye-Laws in Nepal. *Journal of Advanced Research in Construction, Urban, and Architecture*, 4(3&4), 17-29. [Google Scholar](#)
- [28] Mishra, A. K., Shrestha, A. (2017). Assessment of exit requirements for fire safety of commercial buildings, Kathmandu, Nepal. *International Journal of Emerging Technologies and Innovative Research*, 4(10), 248-255. [Google Scholar](#)
- [29] Mishra, A., & Aithal, P. (2021). Tecno-Legal Provisions for Safer High-rise Apartment Construction in Nepal. *Journal Of Advanced Research In Geo Sciences & Remote Sensing*, 8(1), 16-46. [Google Scholar](#)
- [30] Mishra, A. K., & Chaudhary, U. (2018). Assessment of Cement Handling Behaviour for Selected Construction Sites of Bhatbhateni Supermarket. *Journal of Advanced Research in Construction & Urban Architecture*, 3(3), 1-11. [Google Scholar](#)
- [31] Mishra, A. K., & Chaudhary, U. (2018). Cost Effectiveness Assessment of Different Nepalese Cement Brands for Selected Sites of Supermarket. *Journal of Advanced Research in Construction & Urban Architecture*, 3(3), 12-33. [Google Scholar](#)
- [32] Mishra, A. K., & Aithal, P. S. (2021). Job Safety Analysis during Tunnel Construction. *International Journal of Applied Engineering and Management Letters (IJAEML)*, 5(1), 80-96. [Google Scholar](#)
