

Rapid Assessment of Socioeconomic Effect and Fear of COVID-19 Lockdown in Mugu District of Nepal

Prabina Makai, Manish Baidya, Ganesh Shrestha, Gerda Pohl, Jiban Karki, and Kishor Atreya*

Practical Health Achieving Self Empowerment (PHASE) Nepal, Suryabinayak 4, Bhaktapur

*Corresponding Author: Kishor Atreya, email: k.atreya@gmail.com

ABSTRACT



Background: The COVID-19 pandemic has created a unique crisis—psychological problems like fear and disruption in the household economy. Poor households are particularly affected as their livelihoods are already fragile. The objective of this study was to understand rural people's perception, fear levels, and the associated behavioural and socio-economic impacts of the COVID-19 lockdown.

Methods: The study rapidly interviewed 109 respondents from two rural municipalities in Mugu. Being rapid in design, this study interviewed those respondents (18 years or above providing consent) who visited one of the out-reach clinics for health care services. Data were collected through mobile and preventive measures were ensured during data collection process. This study is a sub-part of a research study in Mugu (Nepal Health Research Council Reg. no. 354/2020) as an immediate project management requirement for the same study in Mugu.

Results: We did not find any gender wise differences in fear, both males and females were equally afraid of getting infected or dying from COVID-19. Almost all respondents had a mask, but there was a significant gap of 11% ($P < 0.05$) in mask access when compared gender wise. The one-way ANOVA showed that people who were extremely afraid of the COVID-19 pandemic had higher percentage loss of household income ($p < 0.05$). On average, household monthly earnings, compared to pre-pandemic levels, were reduced. The loss was further intensified by the presence of vulnerable members.

Conclusion: The COVID-19 pandemic and the lockdown have intensified fear, reduced household earnings and economic activities, and disrupted access to markets and food consumption. Nevertheless, the preventive safe hygiene behaviours that are practiced during this pandemic shall be capitalized for sustainable better health effects.

Keywords: COVID-19, Fear, Household income, Lockdown, Mugu

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INTRODUCTION

The first case of the coronavirus disease 19 (COVID-19) was officially announced on 23rd January.^{1,2} To control the spread of coronavirus – the first nationwide lockdown was imposed in 24th March 2020, which was lifted approximately after 4 months in midnight of 21st July 2020. Earlier, the majority of cases were found in districts near to Indian border. The COVID-19 pandemic and nationwide lockdown have created a unique crisis –first, psychological problems like fear and anxiety and second, disruption in the household economy, livelihoods and food security⁹⁻¹³ –not only in the urban areas but also in the rural areas of Nepal. The crisis has caused disruptions in the food supply systems¹⁰ and has weakened households' earnings¹⁴– leading to loss of household income and inadequate food consumption.¹³ The COVID-19 pandemic and its consequences has led to unprecedented levels of stress, fear of dying, worries, and anxiety.^{7,8} Since the lockdown, an increase in the suicide rate has been reported in Nepal.³

The association between fear and fear related health behaviours is complex, however assessing fear is important for decision makers to designing prevention programs – gaging fear levels and assessing health communication and/ or health education needs among different groups, across different socio-demographics.⁴ Studies on people's perception of the COVID-19 crisis and various effects on the rural households – fear, economic loss, food insecurity and their interaction - are limited in remote parts of Nepal. The present study was conducted as a rapid survey on the COVID-19 crisis in Mugu district of Nepal, to understand rural people's perception of the coronavirus, fear of the virus, and the associated economic impact of the

crisis on their livelihoods, and their relationships. In this paper, first, we analyse the fear level due to COVID-19 among the community people, and the status of safe behaviours in this pandemic. Second, we analysed the economic impact of the lockdown at household level – monthly earnings and livelihood activities; and finally, we assessed the association between fear and economic loss.

MATERIALS AND METHODS

Data were collected from ward no. 7 of Soru rural municipality and ward no. 13 and 14 of Chhayanath Rara municipality of Mugu district, Karnali province (see Figure 1). Recent municipality statistics reported a total of 3,662 households and population of 13,888 in Soru, and 4,983 households with a population of 23,569 in Chhayanath. The figures specific to the study Wards are 285 households (7.8% of the municipality households) and 1,353 individuals (9.7% of the municipality population) for Ward 7 in Soru; and 903 households (18.1% of the municipality households) and 4,445 individuals (18.8% of the municipality population) in Wards 13 & 14 in Chhayanath. In both municipalities, along with government offices, other developmental organizations are also actively working with these communities in providing services on health, education, and livelihood improvement. A high demand of local labour in the construction of Mugu-Humla link road is an additional source of income for people of Chhayanath 13 and 14, for the last 2 years. On average, 2-3 members from each family were involved in the road construction through wage labour before the lockdown. The availability of government offices and private service providers as well as economic activities is higher in Chhayanath, compared to Soru.

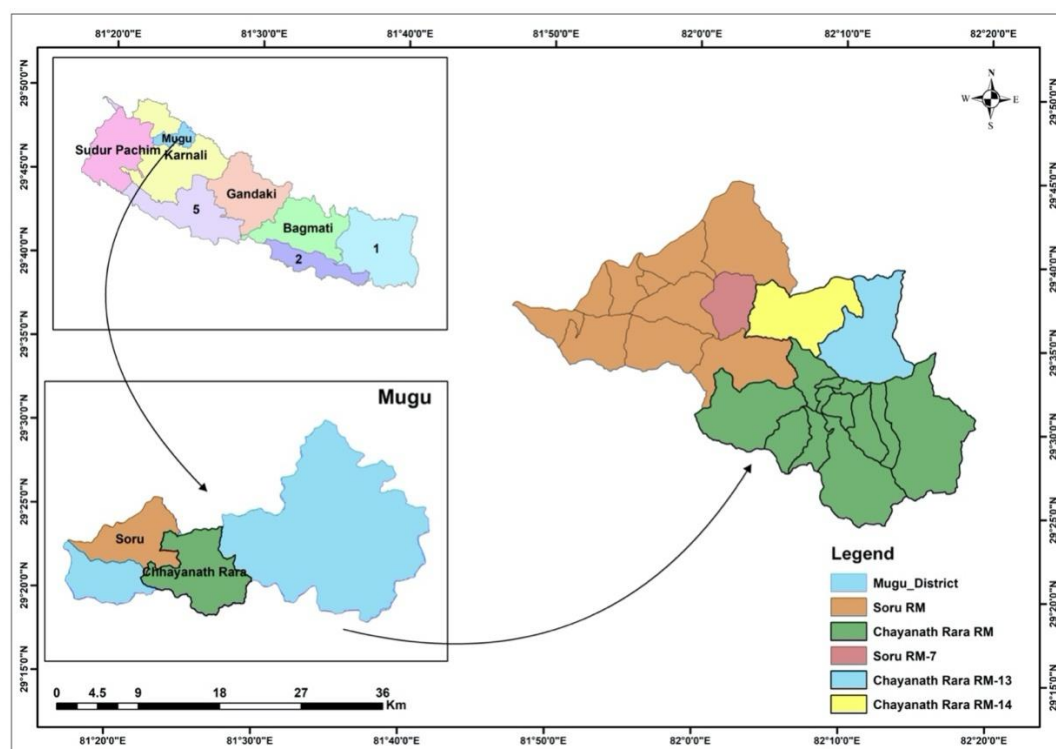


Figure 1: Location of the study area

We interviewed 109 household from Chhayanth and Soru municipalities: 79 households from Ward 12 and 13 in Chhayanth and 31 households from Ward 7 in Soru between 17 and 19 June 2020. Respondents were above 18 years of age. Interviews were conducted at the respondents' homes. Some households with vulnerable individuals (eg. elderly, pregnant women, lactating mother, single women and people living with disabilities) were selected purposefully for interview. Local project staff working for non-governmental organisation were mobilized for data collection. During data collection, COVID-19 preventive measures were ensured by strictly maintaining physical distance and using masks and hand sanitizers. Data were collected through mobile-based KoBo Toolbox and written consent was taken from the respondents before interviews. Ethical approval was sought from Nepal Health Research Council (Reg. no.354/2020) for the assessment of health systems in Nepal, including Mugu district. In

addition to the rapid survey, we also collected data on activities carried out by the municipalities in response to the pandemic. A timeline of the responses, specifically the activities carried out in the studied wards, was prepared.

We used SPSS 24 (Mac version) for data analysis. We used Chi-square test at the 0.05 significance level for understanding associations between variables and locations. The assumption of the Chi-square test is that the observed value in each cell should be greater than 5, in case of violation of this assumption, 'not-applicable' (NA) is evident in the Tables. We also assessed the effect of psychological problems (fear categories) on the household income loss through one-way analysis of variance (ANOVA). We assumed that the effect of this pandemic and lockdown may not be comparable in different municipalities, which is affected by a number of factors, specifically the contextual factors.

RESULTS

Respondent and household characteristics

Among 109 participants, 62% were male participants (Chhayanath = 62%, Soru=61%). Vulnerable family members (elderly, people with disability, single women, lactating women, pregnant women) -were higher in numbers ($p=0.001$) in Soru rural municipality (see Table 1). Number of anecdotal news reports that individuals from the urban areas are returning back to their respective village during this pandemic. Such internal migration

from urban to rural areas may have implications in the household food and nutritional security as well as fear arousal. A variation in the family size, mainly because of the male members arrivals, was observed for the sampled households. Although non-significant, we observed an increase of total population by 3.1% during the survey time, mainly because of male family members arrival. Specific to male returnees, it was approximately 5% of the pre-pandemic male population in Chhayanath, and 12% in Soru.

Table 1: Respondent and household characteristics [n (% of household)]

SN	Characteristics		Rural Municipality		Statistical analysis	
			Chhayanath	Soru	X ²	p value
1	Gender	Male	49(62.8%)	19(61.3%)	0.022	0.882
		Female	29(37.2%)	12(38.7%)		
2	Ethnicity	BCT	64(82.1%)	20(64.5%)	NA	NA
		Dalit	13(16.7%)	11(35.5%)		
		Other	1(1.3%)	0(0%)		
3	Household with at least one vulnerable family member	Yes	29(37.2%)	26(83.9%)	19.346	0.001
		No	49(62.8%)	5(16.1%)		
4	Elderly (>70 yrs. old)	Yes	18(23.1%)	15(48.4%)	6.732	0.009
		No	60(76.9%)	16(51.6%)		
5	Lactating women	Yes	15(19.2%)	18(58.1%)	15.848	0.001
		No	63(80.8%)	13(41.9%)		

Level of fear of COVID-19 pandemic

Data suggest that a higher number of returnees was kept in quarantine in Soru municipality than in Chhayanath: two-thirds of the respondents in Soru stated that people from their village were held in quarantine. Because of a variety of factors, including some stated above, it seems that the community of Soru municipality were more afraid of the pandemic (22.6% extremely afraid), compared to the community of Chhayanath (7.7%

extremely afraid). In our study, the reported level of fear showed no significant correlation with a higher number of returning family members. Self-reported understanding of COVID-19 was significantly lower in Chhayanath (48.7%) compared to Soru (71%) ($p=0.035$). Men were more confident (82.4%) than women (68.3%) to protect themselves from the infection. We didn't find any gender wise differences in fear: both men and women were equally afraid of getting infected or dying from COVID-19.

Status of Safe Behaviour in pandemic

Most of the respondents had access to water (85% in Chhayanath, and 74% in Soru) for hand washing, and 92% had access to soap /hand sanitizer (97% in Chhayanath and 77% in Soru). Almost all respondents in both municipalities reported having a mask to keep themselves safe. However, significant gap of 11% was observed for mask's access - men with better access ($p < 0.05$). There have been numerous media reports of health seeking behaviour changing during the pandemic, as people fear health facilities as potential sources of infection. However, in our study, 25 households reported of having health-related problems over the last 3 months (Soru7, Chhayanath18) and of them, 23 had accessed healthcare facilities.

Monthly earnings and livelihood activities in pandemic

The COVID-19 pandemic and lockdown significantly affected household monthly earnings. On average, household monthly earnings, compared to pre-pandemic levels, were reduced. The presence of vulnerable family member (s) further intensified the household's income loss. For example, households with a member with disabilities had lost 71% of their monthly income in Chhayanath, and 93% in Soru (Table 2). A significant reduction in household income was probably due to mobility restriction by the nationwide lockdown which has prevented households from actively participating in economic and livelihood activities including labour migration, daily wage labour, household chores, and small-scale business; exclusion from these activities may have caused such a sharp decline in earnings.

Table 2: Income change and the vulnerability

Households categories		Chhayanath			Soru		
		Pre-Pandemic	During pandemic	% change	Pre-Pandemic	During pandemic	% change
Average monthly income (NRs)		36,154	16,064	55.5	17,081	4,123	75.8
Household with a member with elderly (>70 years old)	No	36,450	16,150	53.6	22,813	6,078	76.9
	Yes	35,167	15,778	57.1	10,967	2,037	81.3
Household with a member with disabilities	No	36,067	16,240	53.8	18,250	4,493	77.5
	Yes	38,333	11,667	70.8	6,167	667	93.3
Households with a member with a single woman	No	36,467	16,400	53.7	17,685	4,437	77.6
	Yes	28,333	7,667	73.0	13,000	2,000	88.8

One-third of the respondents reported disruption of their day-to-day livelihood activities. Location has a significant effect on the household's access to markets. The effects of the lockdown due to the COVID-19 crisis on households' market access can thus not be

generalized. Their market access could be affected by many localised effects such as, restricted movement (reported by 49% of households), limited food stock in the market (4.4%), lack of money to buy products (15%), concerns about the leaving the house due to

fear of infection (22%), and market itself being at a greater distance (10%).

Most respondents (98%) reported that prices of food commodities, both cereals and fresh items, have increased significantly after the lockdown. Because of the food price hike (or possibly predictable future hike) and likely constraints in the access to markets, respondents had changed their shopping behaviour compared to normal situations. About half of the respondents (43%) changed their shopping behaviour compared to normal times –they bought cheaper and less preferred food items (26%), at smaller quantity (38%), or, in some cases, at larger quantity for storage because of unpredictable future markets. People had to change their eating behaviours because of food unavailability: nearly half of the respondents in Soru and 7% in Chhayanath did not eat enough food ($p=0.001$) in the past 7 days during the lockdown. Some of them ate less preferred foods, and others skipped

meals. About 23% of the sampled households in Soru had no food stock at the time of the survey.

Fear and Economic loss in pandemic

This study observed an association between fear arousal and the household's income loss. The one-way ANOVA (Table 3) showed statistically significant association between the fear of coronavirus and household monthly income loss ($p=0.028$). People who were extremely/really afraid of the COVID-19 pandemic had higher percentage of loss of household monthly earnings, however the exact causation is unknown, and the association may be bidirectional. The fear of the COVID-19 pandemic and the loss of income may further intensify food insecurity of the households: food supply chains were affected, depleting stocks at the markets, in addition to reduced buying power because of loss of earnings.

Table 3: Loss of income and level of fear (as %reduction of the pre-pandemic monthly income)

Level of fear	Frequency	Mean (%)	SD	F-test	p value
Extremely afraid	13	73.9 ^a	25.28	2.84	0.028
Really afraid	21	71.9 ^a	19.56		
Anxious/nervous but not much afraid	28	53.9 ^b	19.65		
A little more afraid	38	56.8 ^b	28.90		
Not much afraid	9	61.5 ^{ab}	24.70		

a, b, ab: letters denote significant differences among fear levels

DISCUSSION

The COVID-19 pandemic and the lockdown have intensified fear, weakened household earnings and economic activities, and disrupted access to markets and food consumption. The rapid assessment also showed that fear aroused by the COVID-19

pandemic (psychology) and household earnings (economy) is relatively interlinked, however the causation is yet to be established. The finding of above average health seeking behaviour in this crisis, in this very remote part of Nepal, is encouraging. We observed a higher level of fear in the Soru community who

had a better self-reported understanding of COVID-19. The higher level of fear impact in Soru could be related to multitude of factors like: more vulnerable individuals in family, more family members returning from abroad, presence of people in community quarantine etc. These factors not only made Soru community better aware of the COVID crisis, but also made them more afraid of the likely infection. Those regular and inevitable interventions (e.g., responses by municipality on the pandemic) in the study site (and during study period), which may have influence on study findings (e.g., fear, income etc.) is depicted in Figure 2.

At the municipality level as of 16th June 2020 (a day before household survey), a total of 172 individuals in Soru and 60 individuals in Chhayanath returned from India and other countries. They all were kept in 14-days quarantine. Despite remoteness and weak structures, both municipalities managed to tackle the COVID-19 pandemic situation satisfactorily. Individuals arriving from outside were quarantined immediately; health check-up desks were promptly established at the very beginning of the pandemic, and protective kits and relief packages were distributed in a timely manner. Further, endorsement of contingency plans for COVID-19 crisis in Chhayanath and collection of throat swabs for PCR testing enhanced the pandemic response – however, the delay in starting these activities may have intensified fears.

Fear and Safety behaviours in pandemic

Despite the study site being extremely remote and deprived, evidence suggests that safe and preventive public health behaviours were impressive during the pandemic. Contribution of social norms on hand washing and mask use

have some effect. The current preventive public health behaviour in the population is impressive, however it may not be sustained as fear appeals are generally more effective for one-off behaviours than for recurring activities.¹⁹ We see an opportunity to establish hand hygiene and mask use through effective health communication messages ranging from risk exacerbation to risk reduction. This situation could be capitalized on as an opportunity to encourage continuing those common safe and preventive public hygiene behaviours, not only for the pandemic but also for other range of public health (e.g., diarrheal disease). The study population were more engaged in preventive behaviours (hand hygiene and mask use) as the perceived threat of COVID-19 was severe, acting as a motivational factor to perform preventive behaviours in the pandemic.¹⁷ The current preventive behaviour echoes the theory of health belief model^{25,30}, where perceived risk of COVID-19 infection is a key predictor of both motivation for protective actions and healthy behaviours (soap/hand sanitizer, mask use) geared at alleviating the threat (infection).²⁵ Fear reactions, fear risk behaviours, and risk perception, all vary based on the nature of the threat and the access to knowledge and availability of behavioural options.^{25,27} The fear related behaviours depend upon the type, magnitude, and consequences of the threat the population encounters.²⁷ Similar evidence was found in the H1N1 swine flu pandemic in 2009, where fear of infection increased preventive actions like hand washing and physical distancing.²⁶ However, such fear aroused preventive behaviours may not be linear, it depends on the level of analysis.³¹

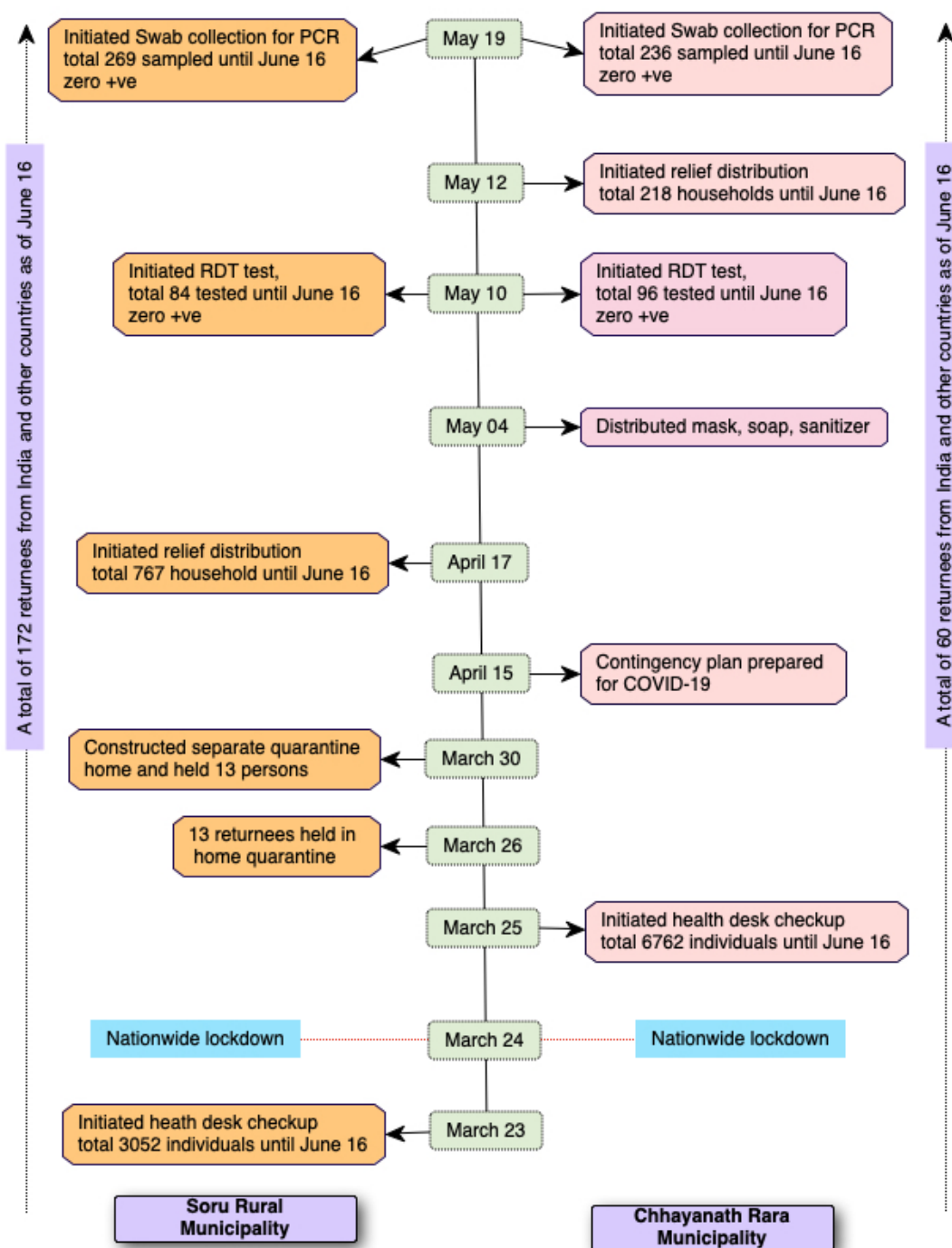


Figure 2: Municipalities response to the COVID-19 pandemic

The development and health communications arena widely discusses the role of "Fear Arousal/ appeal", for changing or even promoting health behaviours, when combined with self-efficacy.^{4,15-17,19,25,26} It is widely argued that risk perception is a key concept in many

health behaviour theories^{19,25} and fear appeals have been used to change people's attitude and behaviour on a wide variety of topics.⁴ Health communication during the pandemic must influence attitudes of the population (making the infection threat understandable),

and behaviour (effective protection – e.g., hand hygiene and mask use). The feeling of exposure risk and understanding the gravity of the pandemic is important to comprehend fear. With the migrant's influx and daily rate of infection – both risk exposure and understanding were significant in our study site – especially in Soru. It is easier to adapt to the situation when the population perceives the threat as understandable and manageable. To sustain fear aroused behaviour requires the population to be convinced that it can carry out the necessary measures (positive response expectation i.e. affordability, availability, acceptability, and adaptability) and that these measures will protect them (positive outcome expectation).²⁶ It is also important to understand the target group – communicating risk to women and among collective groups has been reported to be more effective, as those groups are more prevention focused.¹⁹ However, in our study there were disparities in mask availability among men and women with women having less access.

Fear and Economic loss of rural households in pandemic

In addition, due to the lockdown, people have lost jobs and income, which may have increased their stress and anxiety. There is some evidence to suggest that people are more afraid due to the economic uncertainty rather than the disease itself and that there has been an increase in people taking their lives during the pandemic.³ There is a possibility for bidirectional relationship between fear and household income loss, however further research is needed. We observed reduction of monthly income in all (100%) households, which varied by municipality, by the presence of vulnerable members in the households, and the fear intensity. Soru had a significantly

higher reduction on monthly household income, most of the respondents of Soru reported insufficient food intake and disruption of daily activities – which might have an association with higher fear amongst people of Soru.

Although the current levels of fear and loss of livelihood may be temporary, this study clearly showed the catastrophic impact that the COVID-19 pandemic and associated government measures have had on the study population. Though we identify a potentially positive opportunity to embed safe infection prevention behaviours in the population, the economic impact currently seems to be the bigger threat to public health, particularly in absence of governmental economic relief packages in these remote rural communities which have been dependent on migrant labour and daily wage labour.³²

Finally, a few limitations of the study should be noted. The study included only a small number of households, and those households were further located in and around the local health post, where data collectors were situated, as their movement to other more distant areas was restricted. (It is likely that the data hence underestimate the effect of the lockdown, but may overestimate the prevalence of knowledge and safety behaviours). Further, the COVID-19 pandemic is very dynamic in nature, not only the infection severity, but also the effect it produces, including on fear and livelihoods – which all depend on spatial and temporal context – and it is therefore reasonable to assume that by the time this paper is published the situation may be different than the findings presented here.

CONCLUSION

The impact of any disaster like the COVID-19 global pandemic is partially determined by contextual factors and the associated response. Understanding of risk and severity of COVID-19 infection caused fear amongst study population which may have contributed to enhanced preventive behaviours like hand hygiene and mask use. The COVID-19 pandemic and the lockdown also caused significant deprivation through a negative impact on livelihood enhancing economic activities, resulting in a significant decline in earnings. Fear arousal and the loss of household income earnings are inter-related. However, further studies on the relationships and causality between fear arousal, risk behaviour and livelihoods are recommended.

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AUTHOR'S CONTRIBUTION

PM: designed survey questionnaire, checked data validity, drafted manuscript; **MB:** designed survey questionnaire, conceived research idea, drafted manuscript; **GS:** collected data, monitored field survey; **GP:** reviewed manuscript, English edit and proofread; **JK:** reviewed manuscript; **KA:** conceived research idea, analysed data, drafted and finalized manuscript. All authors have significant contribution to complete this study.

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