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Survey article

Potential risk factors of COVID-19 associated with the people working with groceries during lock down period in Kathmandu, Nepal

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Abstract

The major cause of Coronavirus disease (COVID-19) is Severe Acute Respiratory Syndrome- Corona Virus2 (SARS-COV2) which has led to a large global outbreak emerging from Wuhan city, China. The world is now in the ocean of this disease with increasing mortality and morbidity rate. The rampant of Coronavirus is creating a great threat in public. This nature of transmission of virus has led to isolation of patients that might last more than a month. Extensive measures are taken by different countries to prevent the transmission of this virus based on their ability, infrastructure, medical facilities and so on. In this paper we highlight the major risk factors of being contaminated with noble coronavirus in Kathmandu, Nepal, especially to those who are working to serve groceries to the people living around. As controlling infection through the use of protective measures to prevent the spread is the primary intervention being used. The findings of the research have shown that due to low penetration of online shopping in Nepal, the vulnerability of being contaminated with COVID-19 is high.

Introduction

COVID-19 infection symptoms start to appear after an incubation period of approximately 5-6 days [1]. Recent research results have depicted the symptoms onset of COVID-19 to death ranges from 6-41 days with a median of 14 days depending on various aspects of patients like age, immune systems, environment, pregnancy, comorbidity etc [2][3].

According to WHO, COVID-19 rapidly gets spread from man-to-man, which takes during incubation period or pre- symptomatic period i.e. 5-6 days from the contact of SARS-CoV-2. However, some studies depict that more infectious period is immediately before the symptoms onset when the viral overload is highest, nevertheless, the transmission in the presymptomatic phase is unknown [4][5]. Due to which the general public like shopkeepers may not have exact idea when they are getting in contact with the virus. So, protective measures as an initial intervention can be uptaken or used.



Figure 1: Invasion with coronavirus in human body

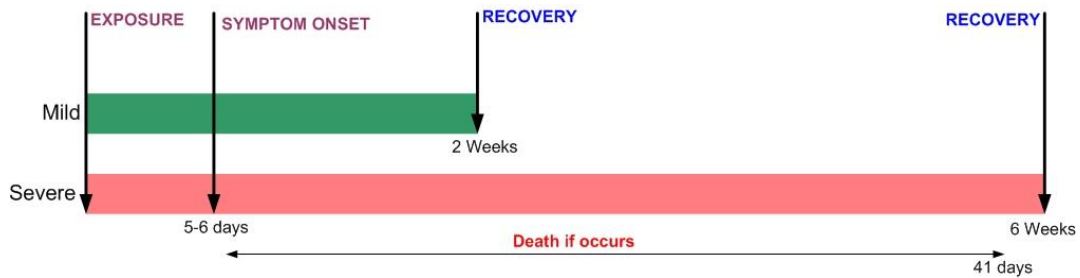


Figure 2: Timeline review of disease progression

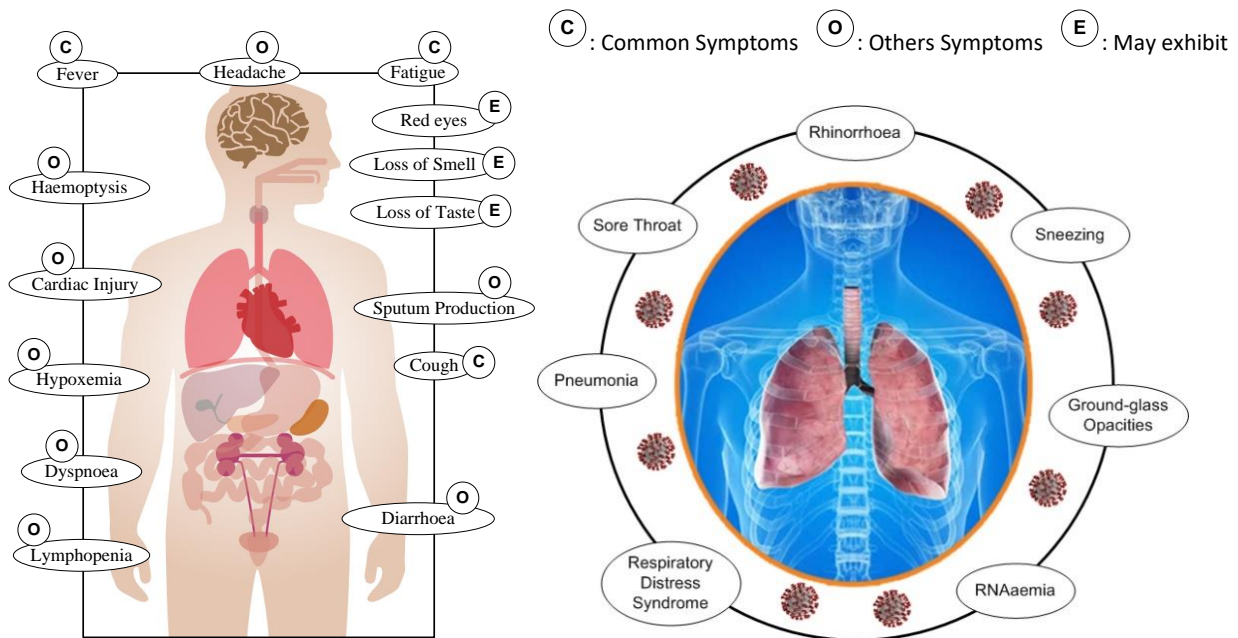


Figure 3: Systemic disorder caused by COVID-19

Figure 4: COVID-19 respiratory disorder (Unique Features)

SARS-CoV-2 transmission from an infected person occurs directly through droplet infections that includes coughing, sneezing and speaking closer less than 1 meter/ 3 feet to a healthy person [2]. Infection can also occur when a healthy person touches a surface or object that has the virus on it, then touches their eyes, nose or mouth. COVID-19 however is much less frequent in children than adults; and children tend to have milder disease [6] and higher mortality rate is seen in older patients [7]. As per study on the infected pregnant woman who were confirmed at third trimester, the transmission from mother to child was not evident. However, all the cases underwent lower segment cesarean section. Also, the evidence shows that there is no virus seen in amniotic fluid and breast milk [8]. However, there is still no evidence of COVID-19 transmission via the fecal/oral route, some studies have shown contamination of toilets with viral RNA from the COVID-19 virus

and viral RNA has been detected in feces; however, to date, there have not been reports of fecal-oral transmission of COVID-19 [1]. Also, there is no evidence to date, on survival of the COVID-19 virus in water or sewage [2].

Many studies have shown that the best protective way is hand hygiene (frequent handwashing) and respiratory hygiene (Cover nose and mouth with disposable tissue), avoid close contact (<3ft) and touching the facial surface [9].

Covering with only 600 km², population of Kathmandu in 2019 (3.46% increase from 2018) was 1,376,000, which is proportionately quite high [10]. The major population of the Kathmandu Valley is a constituent of the local people and people coming from outside of valley for several reasons. In 2020, March 18th due to the pandemic outbreak of noble corona virus, the country had gone to lock down state. It caused many of the population to return back home out of the valley. Still those people who are working with groceries sectors are providing their service to the local residents.

The concern of general public to meet daily essentials during lock down is of a great complexity for which the public has to go to the local grocery stores, shops, carts etc. At the same time the general public and government is not aware of online shopping. Nevertheless, there are very trivial online portals that serve groceries in Kathmandu and other cities of Nepal are not an exception. Hence, the local people are forced to approach the grocery shops as per the government notice (during only morning or evening hours) which introduces high density of the people in the shop at the same time. This can be one of the causes of spreading coronavirus in Kathmandu. Though the lock down is for the welfare of the people, the shopkeepers who are delivering essential goods are more vulnerable to risk of getting into COVID-19.

Unfortunately, if the shopkeeper has been in contact with someone or customer with COVID-19, self-isolation is very essential even if mild symptoms occurs. But, If the shopkeeper's exposure is unknown and develop symptoms, then self-isolation and monitoring oneself is also very important for at least 14 days even if the symptoms disappeared as a precautionary measure. As transmission to other people is more likely to occur in the early stages of this disease. Furthermore, disseminating knowledge to reduce the spread of infection can also be done by the government.

Survey on import of groceries

According to a survey conducted on 23rd May 2020 regarding the import of fruits and vegetables shows that, abundant groceries are still being imported through India and/or via India without any security seal [11]. The survey has also shown that import of such groceries worth approximately 5,187,546.00 USD/week from a single port only during lock down [11]. There are 22 such ports that links India and Nepal. As people are enforced to condense pervasiveness of coronavirus through lockdown.

On this whim neither the supplies are being securely delivered, nor the government has up taken the facility of the vehicle, its disinfection, Personnel Protective Equipment (PPE) for the suppliers, drivers and shopkeepers. Due to poor availability of online shopping domestic product is going to waste and at the same time there is more probability of the transmission of coronavirus in Kathmandu.

The current time is not same as before because the whole world is surrounded by the pandemic, COVID-19. Several security checks and seals are very essential before importing. The protective equipment should be used to ensure the goods and the person involved in transporting and selling are less prone to coronavirus. The scenario of Nepal when it comes to people dealing with groceries are still not self-aware. There are hardly very few stores with the protective environment. The open area for vegetable and fruits seller who also provides door-to-door service do not use proper protective equipment. It is seen that they may use mask but do not dispose for weeks, gloves which should be used very cautiously are a source of infection as it touches to surfaces. In a very short period, the store keeper and shop keeper faces lot of people to deal with, who are at high risk to virus transmission. in such period, there is no such facility provided by the government of Nepal to reduce the potential risk of COVID-19 to the people dealing with groceries items.

A telephone survey conducted on the top 6 online stores near-by Kathmandu valley shows that they are not functioning well to efficiently supply the groceries as depicted in table 1.

Online Shopping portal	Service Provided during lock down	
	Yes	No
organiconline.com.np		✓
kathmanduorganics.com	✓ (With reservations)	
metrotarkari.com		✓
khetibazaar.com		✓
thulo.com		✓
okdam.com		✓

Table 1: Status of service provided by online shopping portals available in Kathmandu

Findings

As the mortality and morbidity is booming up in the world, still in Nepal there are not more than 500+ cases. However, the chances for spreading of infection are more susceptible to those people working directly at the field, like people working for ISPs, Televisions, News portals, Armed Police Force (APF) Traffic police, and groceries shop. Among which the people working on grocery shop deal with many people with closed in a day. The vegetables, fruits and other grocery items are still being imported and delivered to several cities of Nepal via India. Proper protective measures are not effectively applied by the service providers which are the biggest threat to get invaded by coronavirus and subsequently can act as a source to the customers. In this scenario the online shopping could be near to the best solution to reduce the spreading of COVID-19.

Conclusion

The risk of getting contaminated with COVID-19 are more with the people working with groceries. The domestic products are not getting markets in Nepal and the import is still continuing. In turn the chances of transmitting the coronavirus becomes more susceptible. Despite of this lockdown situation people are not aware and even use of minimum protective measures are not taken in considerations.

Recommendation

The survey on several online stores that supply groceries shows that, none of the online stores are providing efficient services during lockdown period thereby, increasing the chances to raise the vulnerability of the coronavirus to get transmitted from person-to-person while they purchase directly from the shop during peak hours. It is therefore recommended to make more usage of online shopping in this pandemic.

The protective measures as shown in figure 5 can be followed to lessen the risk of getting contaminated with COVID-19. Online shopping which delivers sealed versions of groceries can be safer in this pandemic however, the precautions should be taken by the people who work for online shopping stores as well.



Figure 5: protective measures to people working for groceries

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