Assessment of compliance with SMS measures against COVID-19 in Kathmandu Valley

Wash your hands

Use an alcohol-based hand sanitizer

Wear a face mask

MAINTAIN SOCIAL DISTANCING

6 FEET

HELP TO SLOW THE SPREAD OF COVID-19

ACKNOWLEDGEMENT

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ACRONYMS

NPI — Non-Pharmaceutical Interventions

COVID-19 — Corona virus Disease 2019

CDC — Centers for Disease Control and Prevention

SARS — Severe Acute Respiratory Syndrome

SMS — Social distancing, use of mask and use of sanitizer and soap

WHO — World Health Organization

UNICEF — United Nations Children's Fund

IEC — Information Education and Communication

ERB — Ethical Review Board

NHRC — Nepal Health Research Council

Executive Summary

WHO had strongly recommended the general public to use of medical mask and fabric mask with three layers with appropriate technique, wash hand frequently with sanitizer or soap and maintain the social distance. Government of Nepal has also urged public to adapt SMS (Social distancing, mask and sanitizer) measures to slow down the transmission rate of COVID-19. In this post lock down situation, all these mitigating measures against COVID -19 is important to prevent and control spread of respiratory droplets release by COVID infected persons. Use of face masks, maintaining social distance, use of sanitizer and soap once visiting busy, closed areas, like grocery stores, shopping centers, public transport can primarily serve as a means of source control in this COVID -19 pandemic. Therefore, this study aims to assess the compliance of SMS measures at individual as well as institutional level.

Non probability sampling method with the use of observation checklist was used in 23 public places of the Kathmandu valley to collect the data at the individual level and intuitional level. Data were collected on 5th and 6th August2020. Mostly data were collected at a time of respective business hour. Total of 4502 individuals were observed for compliance on the study.

This study concludes that during this pandemic more than one quarter of the participants didn't use the mask and among the mask users also more than one quarter did not follow the appropriate technique of using mask (28%). Maintaining social distance was less followed by the people in the public places, hospitals, public vehicles and only 37.5% institution had set the marking of the social distance. Availability of hand washing facilities with soap or sanitizer was found less in the public places. By and large, the parameters of SMS (social distancing, use of mask, sanitizer and use of soap) issued by the Government of Nepal against COVID-19 were not properly followed. In order to enhance the level of compliance of people, regular monitoring on public places is essential. Responsible institutions should implement these criteria strongly.

INTRODUCTION

Background of study

COVID-19 is having a dramatic impact on health care systems in even the most developed countries. In the absence of a vaccine for COVID-19, the disease control and prevention measures are non-pharmaceutical interventions (NPIs) such as use of sanitizer, mask use and social distancing (1). When we have no any access to the effective vaccine so the only solution that can be effective for the COVID- 19 is to break the transmission link (2). The Centers for Disease Control and Prevention (CDC) recommends washing hands often, social distancing, and wearing a face mask as ways to protect and prevent oneself from the spread of corona virus disease 2019 (COVID-19) (4).

The COVID-19 pandemic in Nepal is part of the global pandemic of corona virus disease 2019 as a result of severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) (5). The outbreak was first detected in Wuhan, China in December 2019 (6). The virus is transmitted via direct touch with breathing droplets of an infected person (generated via coughing and sneezing). Individuals also can be infected from and touching surfaces contaminated with the virus and touching their face (e.g., eyes, nose, and mouth) (7).

Therefore, in the case of COVID- 19 pandemic the country relies on SMS measures (Social distancing, use of mask and use of sanitizer and soap). The use of face masks in public places like groceries, temples, restaurants, hotels, public transport, shopping malls can additionally serve as a means of source control and to reduce the spread of the infection of COVID-19 in the community by lessening the droplets of respiration from the individuals who are infected (8). It should also practice the good hand hygiene before wearing and after removing the mask. Wearing a mask is not enough unless it is worn properly. So when we put on our mask on, we have to be sure that it covers the most vulnerable spots of our face: nose and mouth. Also the mask has to fit from the bridge of the nose towards the chin. Also, when taking off the mask we have to remove it from the behind and have to avoid touching front side (9). People in our country are also trying to manufacture the mask in the country amidst the shortage of mask (10).

Likewise, social distancing is the primary strategy used to prevent the spread of the virus that causes COVID-19. As the name suggests, it calls for people to increase the space between one another and to avoid gatherings and crowds (11). Avoiding public places like restaurants, temples, grocery store, public transport as much as possible helps to reduce COVID-19 transmission and avoiding these types of gatherings are good in order to protect yourself and our community. For the social distancing, we have to try to stay at least 2 meters away from other people (12).

Only use of mask and social distancing are not enough but hand hygiene; washing the hands with soap or using alcohol based sanitizer are also essential to curtail the current COVID-19 pandemic and future waves. Despite knowing about the importance of hand hygiene for the prevention of infection with the COVID-19 virus is high, still the access to hand hygiene facilities that comprise of alcohol based hand rubs as well as soap and water is often minimal in our community especially in low and middle income countries like ours. According to WHO and UNICEF estimation, 3 billion people lack hand hygiene facilities at home and two out of five health care facilities lack hygiene at the points of care (13). In order to stay safe from this pandemic, we have to wash our hands with alcohol-based hand rub or soap and water as frequently as possible as contaminated hands can transfer the virus to our body in many ways via eyes, nose or mouth. As hands can touch surfaces & can pick up viruses so the hand needs to be thoroughly washed with soap water or sanitizer (14). The alcohol-based sanitizers have been highly recommended for use against SARS-CoV-2. Consistent evidence shows that the alcohol based sanitizers are remarkably effective at reducing the risk of COVID-19 transmission (15).

This COVID-19 pandemic has brought new level of personal responsibility for all of us. Therefore, to slowdown the spread of the coronavirus and to protect our health in the communities, we must have to remain committed in maintaining SMS measures (Social distancing, using the mask in the public places and necessarily maintain hand hygiene by washing hands with 60% alcohol based sanitizer or soap).

Rationale

COVID-19 pandemic has created a state of alarm worldwide. With the easing of the lockdown's regulations and the growing wide variety of cases, it has grown to be greater essential than ever for human beings to undertake precautionary protection measures to decrease the unfold of the virus (16). Various studies have shown that more than 40 percent of people infected with COVID-19 are asymptomatic which means they do not have the symptoms associated with the infection, but they can still infect other people (17). But on a positive note the weakness that has been exposed can be taken as lessons to learn. Government of Nepal has urged public to adapt SMS (Social distancing, mask and sanitizer) measures more prominently after lockdown via audiovisual aid, radio jingle, distribution of Information Education and Communication (IEC) materials, etc. to slow down the transmission rate of Covid-19.

By considering public health urgency, this study aims to assess the compliance of SMS measures at individual as well as institutional level. SMS (Social distancing, mask and sanitizer) are the most effective tools we have to slow down the spread of Covid-19. Wearing a mask is so important because the virus is transmitted via the droplets we release when we cough, sneeze and speak. The mask not only protects yourself from contracting the virus but also protects other people from you. Wearing a mask is a moral responsibility that we should all strictly adhere to(17). Similarly, social distancing is crucial for preventing the spread of contagious illnesses such as COVID-19 (coronavirus). COVID-19 can spread through coughing, sneezing and close contact. By minimizing the amount of close contact we have with others, we reduce our chances of catching the virus and spreading it to our loved ones and within our community (18). In this COVID 19 pandemic, the most convenient measure is to wash our hands with alcohol-based hand rub or soap and water as frequently as possible as hands are the most used parts of our body (14). In addition, hand sanitizer can provide a quick simple alternative and can be effective against this pandemic(19).WHO had also strongly recommended the general public to apply the surgical mask with appropriate technique, to clean the hand frequently with alcohol based hand rub or wash regularly with water and soap and hold the social distance to combat the spread of COVID -19. To reduce the transmission of the COVID-19, the study of the compliance of SMS measure would be very helpful. Hence, this study might yield to reduce the transmission of COVID19 pandemic and help the public to adapt the SMS measures easily.

Objectives

General Objective:

To assess the compliance of SMS measures against COVID19 in Nepal.

Specific Objective:

- To assess the compliance of SMS measures in individual level.
- To examine the practice of using face mask in the public places.
- To examine the practice of proper hand hygiene with the use of sanitizer or soap.
- To examine the practice of social distancing measures in public places.

METHODOLOGY

Study Design:

This was a descriptive cross sectional study with the aim of assessing practice of using face mask, proper hand hygiene practice and social distancing measures against COVID-19. Information was collected from two levels:

• **Individual level**: Use of mask, its types and using techniques

• **Institutional level**: Practice of social distancing, use of mask and use of sanitizer in public places like banks, hospitals, vegetable markets, shopping malls, temples, restaurants and public buses.

Study Site and its Justification:

Individual level study was done on the public bus, shopping mall /Bhatbhateni supermarket and vegetable markets within the Kathmandu valley while institutional level study was done in the vegetable market, shopping mall, hospitals, public bus, bank, temples and restaurants.

Table 1: Study sites for the compliance of SMS measures

Places	No of places
Vegetable market	2
Mall	4
Hospital	4
Public buses	3 places (30 vehicles)
Bank including *Malpot Karlaya*	6
Temples	2
Restaurant	2
Total	23

Study population:

Study population was general population of Kathmandu Valley.

Sample size:

People visiting the selected public places of Kathmandu valley at the time of data collection (Total 4502 individuals were observed).

Sampling technique:

Non-Probability sampling method was used to collect the data. Probability sampling was not feasible because sampling frame was not available. Therefore, convenience sampling was used to collect the data.

Data collection tools and techniques:

Observation techniques with use of checklist were adopted. Data were collected on 5th and 6th August 2020. Mostly data were collected at a time of respective business hour. For the individual level component, data were collected in the public places like public buses, vegetable markets and shopping malls throughout the Kathmandu valley. With the observation at an individual level for data collection, whether masks were used or not, the types of mask worn and the ways or techniques of using mask were also observed.

For the Institutional level component, data were conducted on public places like: Vegetable markets, Shopping malls/Bhatbhateni, Temples, Buses, Restaurant/Hotels, Hospitals throughout the Kathmandu valley. Enumerators observed the compliance of SMS in the 23 public places / buses of the Kathmandu valley.

Validity

 To obtain validity of the Observation check list consultation with experts were made.

Data Analysis:

Descriptive statistics was used to describe people's practice and technique of using face mask, sanitize/ soap and social distancing. For individual level, enumerator observed number of participants using mask types and techniques by sitting in the entry point for one hour in public places.

Ethical consideration:

Ethical approval was obtained from the Ethical Review Board (ERB) of Nepal Health Research Council (NHRC)

FINDINGS

Frequency of using mask

It was depicted that out of the 4502 participants observed at the individual level, most of the participants (72.1%) were found to wear the mask while more than one quarter (27.9%) of the participants were not wearing the mask.

Mask used(%) n=4502

27.9%

72.1%

- Wearing mask

- Not wearing mask
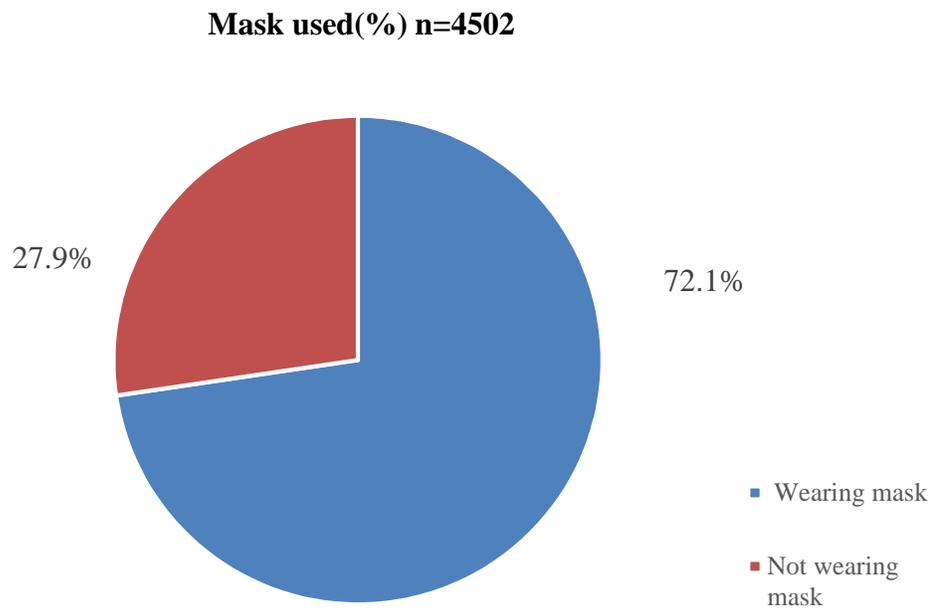
Figure 1: Frequency of using mask

Types of mask used

Out of entire mask users (3244), more than half of them were found to have used surgical masks which accounted for 56.7 %, followed by 22.5% with KN95/N95 (with filter) masks, 16.6 % with masks made of cloth, and 4.02% with KN95/N95 (without filter).
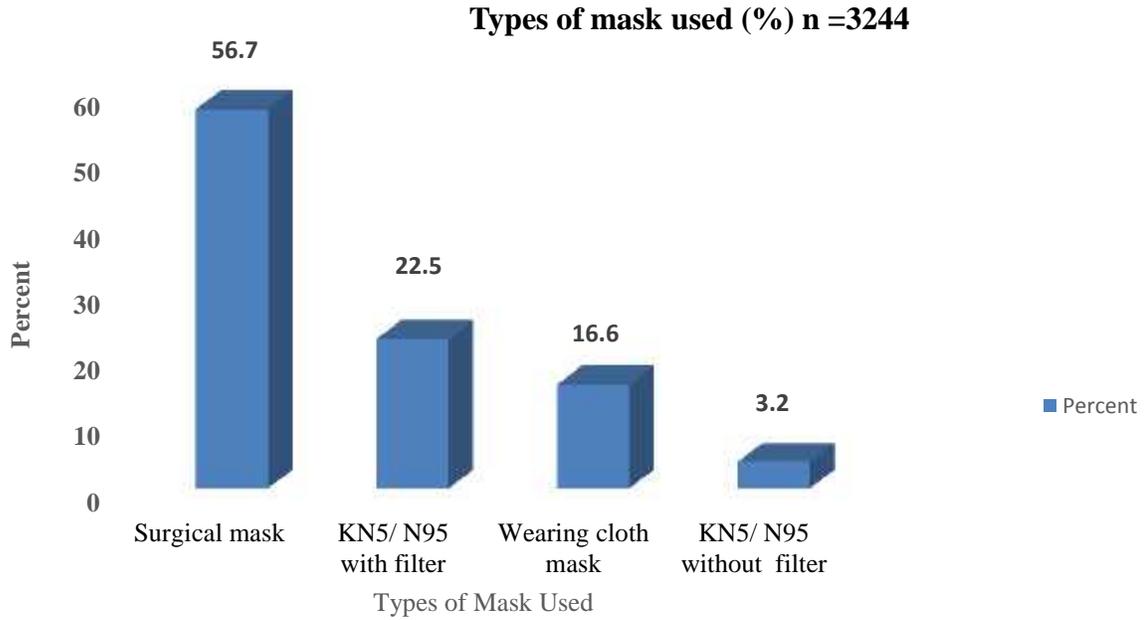
Figure 2: Types of mask used

Way of using mask

Out of 2703 people observed at public places, 72.66 % were found to have used the masks appropriately while the rest of the observed participants, 27.34 % were found to have used the masks inappropriately particularly wearing mask on the chin or below the nose, hanging mask on the neck and hand, and people wearing mask without pressing the strips of the mask with the shape of the nose.

Way of using mask n=2703

27.34%

72.66%

■ Appropriate use

■ Inappropriate use
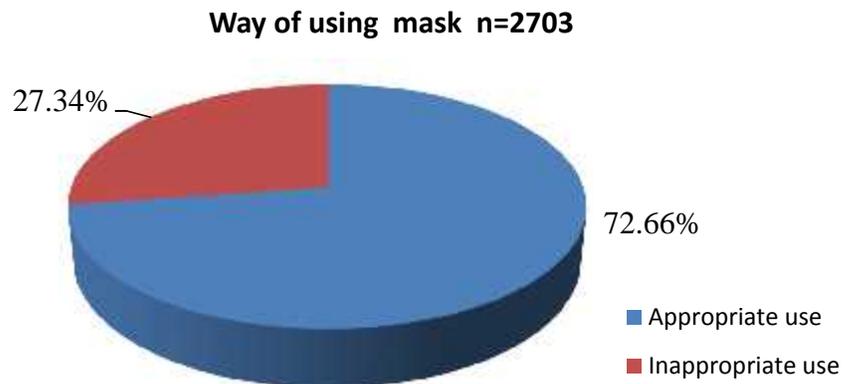
Figure 3: Way of using mask

SMS measures in various institutions level

The grid further explicit that while observing at institutional level like vegetable markets, shopping malls, banks, *Maalpot kaaryalaya*, temples and hotels, only few places were found to set marking for the social distancing of two meters. Despite the places with marking, more than one quarter (31.25 %) places followed the rules of social distancing. Likewise, soapy water and sanitizer were available half (50%) of the places.

Table 2: SMS measures in various institutions

Banks, Temples, Vegetable markets, Restaurants and Malls (n=16)	Yes(%)
Set marking for social distance (2meter)	37.5
Followed the rule of social distance (2 meter)	31.25
Most staffs wearing mask(surgical mask / N95 with filter)	81.25
Most customers wearing mask(surgical mask / N95 with filter)	100
Availability of the sanitizer or Soap	50

SMS measures in hospital

This table depicts that out of 5 private and government hospital, the marking for social distancing was observed in front of OPD, pharmacy and ticket counter. Whereas, such provisions were completely out of practice in canteen areas. In addition to it, only 20% of the hospital was found to have maintained the provision of social distancing and only 80% of the hospital had arranged the soap or sanitizer in their surroundings.

Table 3: SMS measures in hospital

Hospital (Government and Private) n=5	Yes (%)
Set marking for social distance (2meter) in front of OPD	80
Set marking for social distance (2meter) in front of Pharmacy	40
Set marking for social distance (2meter) in front of Ticket counter	20
Set marking for social distance (2meter) in canteen	0
Followed the rule of social distance	20
Most hospital staffs wearing mask (surgical mask / N95 with filter)	100
Most clients wearing mask(surgical mask / N95 with filter)	100
Availability of the sanitizer or Soap	80

Use of sanitizer and soap water in groceries and shopping malls

The above table illustrates that the use of sanitizers or washing the hands with soap at the time of selling goods to customers was observed in more than one quarter (33.33%) of the participants in the shopping malls while it was not observed in any participant of the vegetable market.

Table 4: Use of sanitizer and soap water

Use sanitizers or wash their hands with soap at the time of selling goods to customers n=6	
Vegetable market	0%
Shopping malls	33.33%

SMS measures on public bus

Out of 30 public vehicles observed, it was revealed that less than half of those vehicles (43.3%) were found to have arranged seats for one person in a row and the passengers in the seat interval. Also, the provision of sanitizer was made available for less than half (46.6%) of the passengers.

Table 5: SMS measures on public bus

Public Buses n=30	Yes(%)
Arrangement made to seat only one person in one seat and the rule of leaving only one seat and sitting in the other seat has been followed	43.3
Sanitizer provided while entering the bus	46.6
Most bus drivers and co-drivers use masks (Surgical mask or N95 with filter)	96.6
Most passengers use a mask (Surgical mask or N95 with filter)	86.6

CONCLUSION AND RECOMMENDATION

Conclusion

This study revealed that, during this pandemic more than one quarter of the participants didn't use the mask and among the mask users also more than one quarter did not use mask following the appropriate technique. Maintaining social distance was less followed by the people in the public places, hospitals, public vehicles and only few institutions had set the marking of the social distance. There was unavailability of hand washing facilities with soap or sanitizer in the public places. So, an effort from government as well as from responsible authority is required to enhance the proper practice of using face mask, hand hygiene and for the maintaining social distance.

Recommendations

- The use of face masks in the community should be considered only as a complementary measure and not as a replacement for established preventive measures like social distancing, and hand washing with soap. So public should be made more responsible in coordination of civil societies for use of face mask, maintain social distance in the community should be made in the places like busy visiting places, closed spaces, such as grocery stores, shopping centers, using public transport etc.
- Regular monitoring of proper use of facemask and other measures especially on public places in coordination with civil societies and local authority should be encouraged.
- To increase the public's general concern in the value of using face mask, social distancing and hand hygiene, people feeling of false sense of full security on the use facemask only by avoiding social distancing and hand hygiene must be clear by more awareness program through pamphlets, poster, radio and TV program.
- The government should develop policies that can enhance the proper use of face mask. A policy requiring all clinics, hospitals and even public areas to provide free face masks and accessible hand hygiene facilities to visitors can increase public compliance with the proper practice.
- Manufacturers should redesign the package of face masks and incorporate instructions regarding the proper practice and correct technique of using face mask.

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ANNEX I:

Data for individual level according to observation conducted

1. Types of mask used in Public Bus

Public bus (Types of mask used) n (255)	Yes (%)
Surgical mask	55.2
Cloth mask	23.6
KN5/ N95 without filter	2.3
KN5/ N95 with filter	12.6
Not wearing mask	6.3

1. Types of mask used in Vegetables market

Vegetable market n (2698)	Yes (%)
Surgical mask	31.3
Cloth mask	12.6
KN5/ N95 without filter	2.1
KN5/ N95 with filter	11
Not wearing mask	43

1. Types of mask used in Supermarket / Mall

Mall (1549)	yes (%)
Surgical mask	54.6
Cloth mask	9.1
KN5/ N95 without filter	4.9
KN5/ N95 with filter	26.1
Not wearing mask	4.5

ANNEX II

Questionnaire

Observation checklist for individual

 Name of the enumerator: ……………………………………….

Phone no: ……………………………………………………

		सर्जिकल मास्क संख्या	मास्क संख्या	फिल्टर न N संख्या	फिल्टर N संख्या	जम्मा संख्या
बैंक						
(entry point)						
(entry point)						
माइक्रो भित्र						
(entry point)						

Name of the enumerator: …………………………………………….

 Phone No: ………………………………………………………….

मास्क   तरि   संख्या

		मास्क संख्या	मास्क संख्या	मास्क संख्या (Airtight seal)	मास्क झुण्डयाउने कोसंख्या	मास्कको (strip) संख्या	मास्क झुण्डयाउने संख्या	जम्मा संख्या
(entry point)								
(entry point)								
माइक्रोभित्र								
(entry point)								

Observation checklist for institution:

Name of enumerator:
Phone No: ………………………………………

/		
मार्किङ		
(above 50%) मानिसहरुले ( )		
(above 50%) बिक्रेताहरुले मास्कको प्रयोग (Surgical mask or N95)		
(above 50%)ग्राहकहरुले मास्कको प्रयोग (Surgical mask or N95)		
(above 50%) बिक्रेताहरुले ग्राहकहरुलाई स बिक्रि गर्दा स्यानीटाईजरको प्रयोग		
व्यवस्था		

बैंक		
मार्किङ		
(above 50%) मानिसहरुले ( )		

प्रयोग (above 50%) कर्मचारीहरुले मास्कको (Surgical mask or N95)		
प्रयोग (above 50%) ग्राहीले मास्कको (Surgical mask or N95)		
व्यवस्था		

हस्पिटल		
OPD मार्किङ		
Pharmacy मार्किङ		
Ticket counter मार्किङ		
Canteen मार्किङ		
प्रयोग (above 50%) हस्पिटलको कर्मचारीहरुले मास्कको (Surgical mask or N95 filter)		
प्रयोग (above 50%) सेवाग्राहीले मास्कको (Surgical mask or N95 with filter)		
व्यवस		

सार्वजनिक ( )		
मात्र बस्ने व्यवस्थ अर्को मात्र यात्रु बस्ने		
चड्दा स्यानीटाईजर व्यवस्था		

(above 50%) - मास्कको प्रयोग (Surgical mask or N95)		
(above 50%) यात्रुहरुले मास्कको प्रयोग (Surgical mask or N95)		

मन्दिर		
मार्किङ		
( )		
पुजारीहरुले मास्कको प्रयोग (Surgical mask or N95)		
(above 50%) भक्तजनहरुं मास्कको प्रयोग (Surgical mask or N95)		
व्यवस्था		

मार्किङ		
ग्राहकहरु कर्मचारीले ( )		
(above 50%) ग्राहकहरुले मास्कको प्रयोग (Surgical mask or N95)		
(above 50%) कर्मचारीले मास्कको प्रयोग (Surgical mask or N95)		
स्यानीटाईजर व्यवस्था		