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Research Article

COMPARATIVE STUDY OF AVAILABILITY OF FACE MASK BEFORE, DURING AND AFTER COVID-19 PANDEMIC

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Abstract:
A surgical mask is a one-time use, loose-fitting mask that serves as a physical shield between the wearer's mouth and nose and any external pollutants. Surgical masks are available in different thicknesses and provide different degrees of protection from liquid contact. An N95 respirator is a respiratory protective device designed to achieve a very close facial fit and very efficient filtration of airborne particles. Note that the edges of the respirator are designed to form a seal around the nose and mouth. Surgical N95 Respirators are commonly used in healthcare settings. In our study demonstrated that 20 pharmacies are selected randomly from the accessible distance in Neyyattinkara and the information's are collected and analyzed.

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INTRODUCTION:

One of the most divisive issues during the 2020 COVID-19 pandemic has been the requirement for face mask use. At the beginning of the pandemic, opinions on the universal requirement to wear face masks varied greatly between nations and might fluctuate even within them. During the later stages of the COVID-19 pandemic, face mask rules became more standardised and widely adopted in response to modifications in WHO recommendations and additional research demonstrating the efficacy of masks.

In nations without rules, it might indicate being paranoid or putting oneself in danger, whereas in others it might mean being a "good citizen."

TYPES OF FACE MASK

Government and the WHO advise wearing masks during the COVID-19 pandemic to prevent the spread of SARS-CoV-2.

The use of masks has been governed by several government and community health organisation guidelines.

Masks are approved by the World Health Organization (WHO) and other public health organizations to prevent the spread of respiratory viral illnesses, particularly in cases of COVID-19

These types are mentioned as below:
1. Cloth face masks
2. Medical or surgical masks
3. Respirators:
   (i) Filtering face piece respirator
   (ii) Full-length face shield
   (iii) Self-contained breathing apparatus (SCBA)

1. CLOTH FACE MASK

A cloth face mask covers the lips and nose and is a cheap mask made of regular cotton fabric.

When medical masks are not readily available, many health authorities are directed to use these fabric masks as a protective measure.

It is composed of various types of fabric.

The user is protected from air pollutants such as dust particles and pollens by it. As a result, in the event of a pandemic, limited approval was granted.

MEDICAL OR SURGICAL MASK

Surgical masks contain three layers: an internal tender absorbent sheet, a central polypropylene obstacle, and an exterior hydrophobic surface.

This face mask delivers protection from droplets in a clinical setting.

The design of the surgical masks relies on the mode; usually, the masks are three-ply (three layers) and 4 ply (four layers).

This three-ply fabric is composed of a melt blown polymer, most generally polypropylene, placed between the non-woven fabrics.

It has 3 layers, the external layer repels water droplets, the middle layer serves as a filter and the interior layer absorbs moisture.

2. RESPIRATOR

Seal-tested respirators such as FFP 1/2/3 or NIOSH respirators, among others, can safeguard healthcare personnel, particularly those who have direct patient contact. This device has twisted fibers with filters that obstruct the area surrounding the mouth and nose.
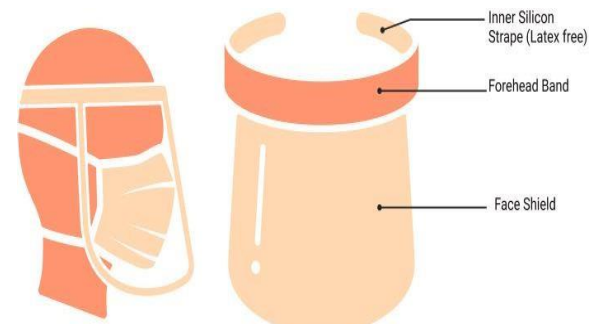
(i) Filtering Face-piece Respirators:
The term "filtering face piece" (FFP) refers to

screening masks with good performance. Electrostatic rates and a range of intricate polypropylene microfibers are used in filtration. It is borrowed to remove infectious pathogens, dust, and vapours. The majority of borrowing occurs in more polluted workplaces. Its advantages include air purification and a reduction in wearer contamination risk. These mechanical filter respirators guard against aerosols, droplets, and dust particles that may be inhaled.

(ii) Full-length face shield:
It is made out of elastic headbands and a clear polycarbonate shield that runs across the face.
It prohibits the wearer from splashes of coughing and other liquid droplets.
It had the advantage of being light and cost-effective.
It is primarily used in a clinical area.
Full-length face shields come through different structures, but all deliver a plastic boundary for the face to protect against droplets and virus particles.
The faceguard coverings will ensure that it reaches the chin and that there is no gap between the forehead and the face-shield guard

(iii) Self-contained breathing apparatus (SCBA)
It comprises a face piece that is connected to an allowance of liquid air or liquid oxygen.
A hose and a regulator are used to keep the SCBA in place.
It primarily gives protect against airborne pollutants, making it easy for those working in a smoky environment.
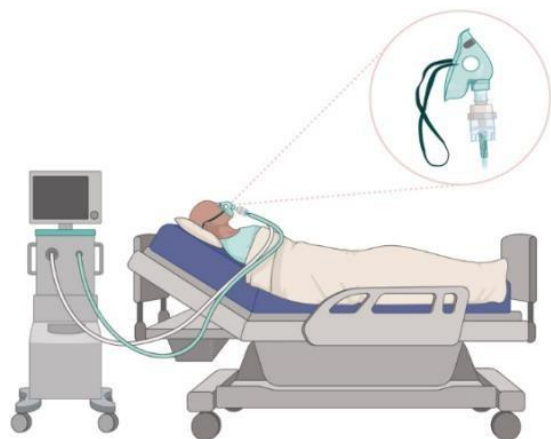
AIM AND OBJECTIVES
AIM:
To study the availability, storage and sales of mask in before, during and after COVID-19 pandemic at Neyyattinkara community pharmacy.
OBJECTIVES:
❖ To assess the availability of mask in community pharmacy.
❖ To assess the storage of mask in community pharmacy.
❖ To assess the sales of mask in community pharmacy.

PLAN OF WORK

PHASE 1
➢ Literature survey
➢ Preparation of study protocol
PHASE 2
➢ Design of survey form
➢ Data collection through survey form
PHASE 3
➢ Statistical analysis
➢ Report submission
STUDY PROJECT:
METHODOLOGY

The duration of study is for 6 months.

STUDY SITE:
It is the study conducted in community pharmacies in and around Neyyattinkara.

STUDY DESIGN:
This is a community based prospective observational study.

SAMPLE SIZE:
The research question is the facilities of the pharmacy in the Neyyattinkara. The preparation of the facility available in the pharmacy is 80% and the level of signification is 5% and power of the study is 80%. The acceptable error is 15%.

Sample size (N) is calculated by the formula given by,
Formula

$$N = \frac{Z^2 \alpha\, P\, (1-p)}{d^2}$$

Where,
Zα = Value of 5% level of significance N = sample size
d = margin of error
Acceptable level of significance 5% = 1.96
Power of the study 80% = 0.84 The margin of error of 15% = 0.15 Sample Size, (n) = (1.96)2 ×80×20 (0.15)2 = 27
Sample Size (n) = 27
DATA COLLECTION:
One time survey was conducted in the community pharmacies that are randomly selected from

Neyyattinkara. Then the data were collected and analyzed accordingly.

STUDY PROCEDURE:
survey form was prepared to collect information from the availability pharmacies in and around Neyyattinkara.

The availability of mask in various pharmacies was collected via the survey form. At the end the overall analysis of the collected data was carried out.

DATA ANALYSIS:
Data were entered in Microsoft excel. Data were separately analyzed for different community

pharmacies in and around Neyyattinkara.
Availability of mask in various community pharmacies was determined. Data were analyzed using Microsoft excel.

OBSERVATION AND RESULT

From community pharmacy, as per the study criteria 20 reports selected randomly in and around Neyyattinkara. This study aimed to analyze the availability and storage of mask from community pharmacy.

DATA COLLECTION FROM SURVEY

NUMBER OF PHARMACIES	BEFORE COVID -19				DURING COVID -19				AFTER COVID -19			
	Surgical Mask		N95 mask		Surgical mask		N95 mask		Surgical mask		N95 mask	
	Stocks	Sales	Stocks	Sales	Stocks	Sales	Stocks	Sales	Stocks	Sales	Stocks	Sales
1	2400	1440	480	240	42000	38500	7000	6300	3600	1800	480	240
2	2400	1200	240	120	70000	70000	5250	5250	4800	2400	240	120
3	2400	1200	480	240	35000	35000	3500	3500	2400	1200	600	180
4	2400	1920	240	120	52500	52500	3500	3500	2400	1800	240	120
5	4800	1800	2400	2400	28000	28000	7000	5250	3600	1200	600	300
6	2400	2400	125	125	28000	28000	8750	8750	3000	1200	600	120
7	7200	3600	240	240	35000	35000	28000	28000	1200	600	600	240
8	7200	3600	480	360	10500	7000	70000	35000	2400	1200	1200	600
9	7200	2400	240	240	35000	35000	70000	63000	3600	1200	12000	6600
10	2400	1200	360	120	45500	7000	35000	24500	4800	1800	2400	600
11	2400	2400	720	720	10500	7000	1750	1750	3600	1200	360	360
12	4800	3600	360	72	17500	14000	3500	1400	3600	2400	300	120
13	2400	480	360	240	70000	70000	35000	35000	2400	1200	120	36
14	2400	2400	480	480	24500	22750	3500	3500	7200	6600	600	480
15	7200	4800	480	480	10500	10500	7000	3500	2400	1200	1200	600
16	2400	1200	1200	600	10500	10500	3500	3500	1200	360	600	240
17	2400	2400	120	105	17500	14000	3500	3500	2400	1200	1200	600
18	2400	2400	720	720	10500	5250	7000	3500	18000	14400	600	120
19	2400	2400	240	240	21000	21000	7000	1500	12000	8400	600	540
20	2400	1200	720	480	35000	35000	7000	1500	9600	9600	300	120

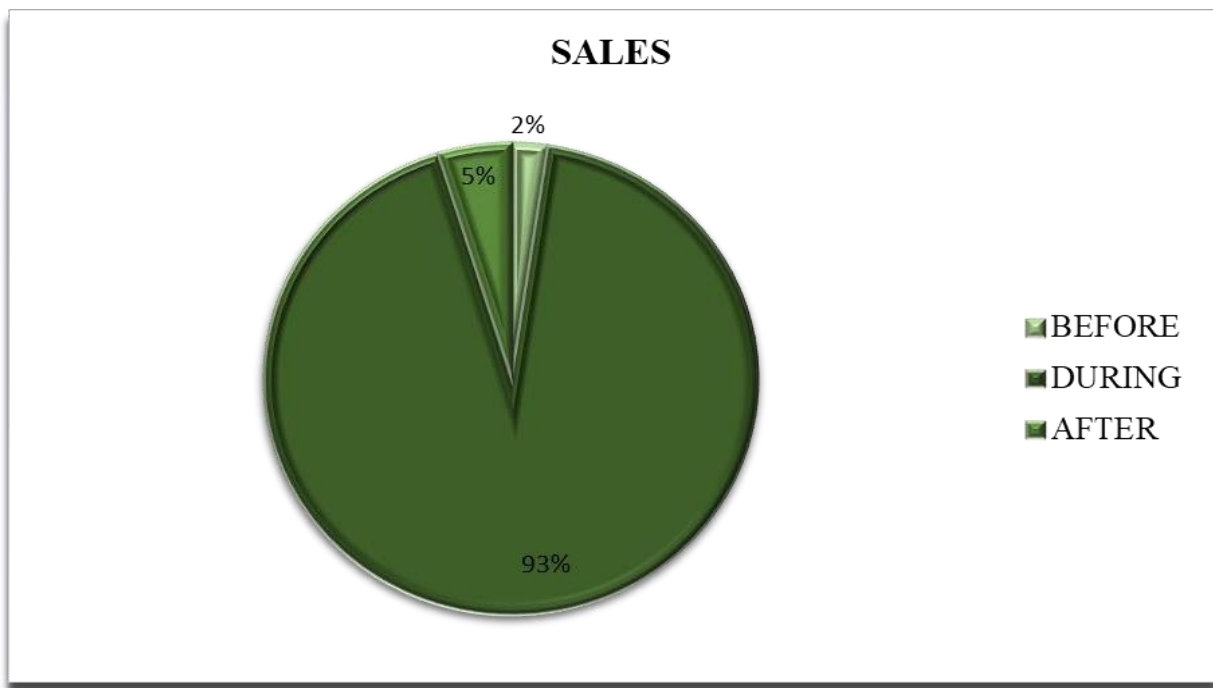**STOCK VOLUME OF SURGICAL MASK ON BEFORE, DURING AND AFTER COVID-19**
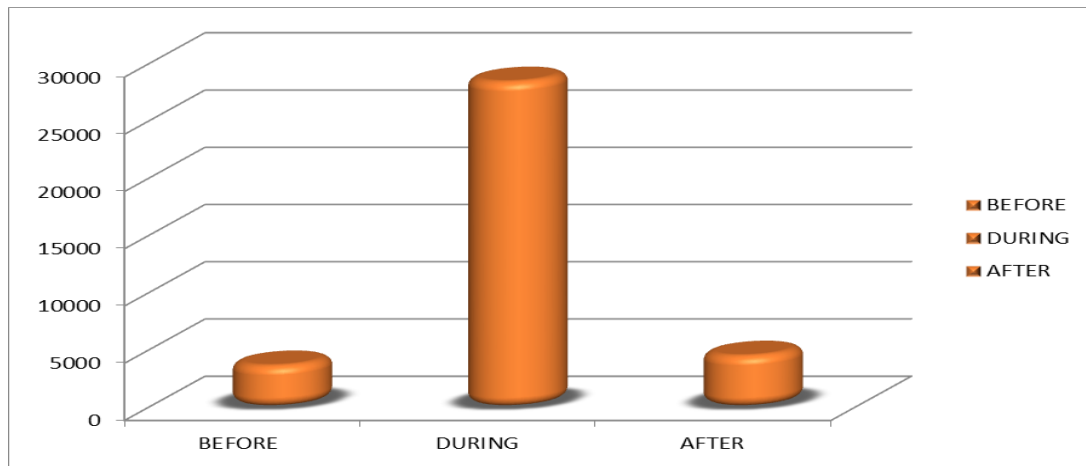
Stock volume of surgical mask on before,
during and after COVID-19

SALES VOLUME OF SURGICAL MASK ON BEFORE, DURING AND AFTER COVID-19
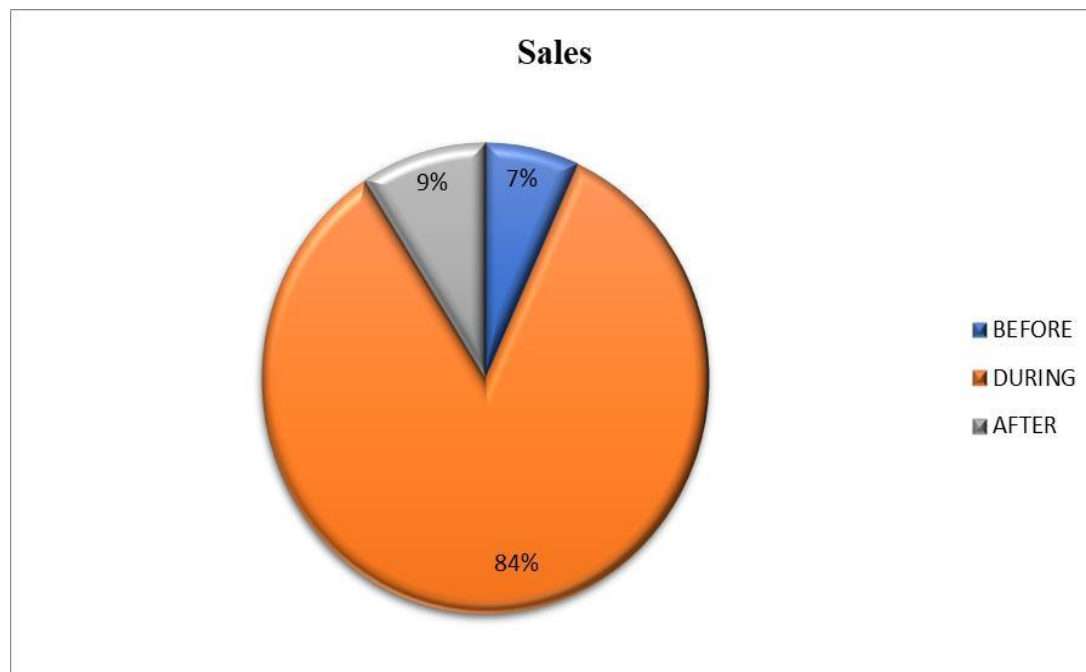
Sales volume of surgical mask on Before, During And
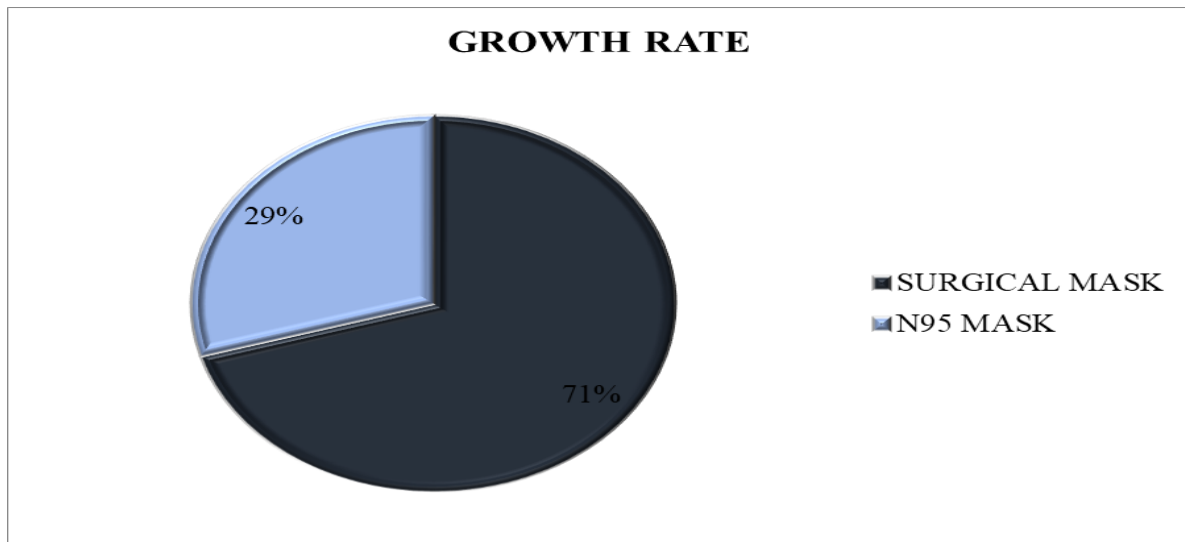After COVID19

STOCK VOLUME OF N95 MASK ON BEFORE, DURING AND AFTER COVID-19
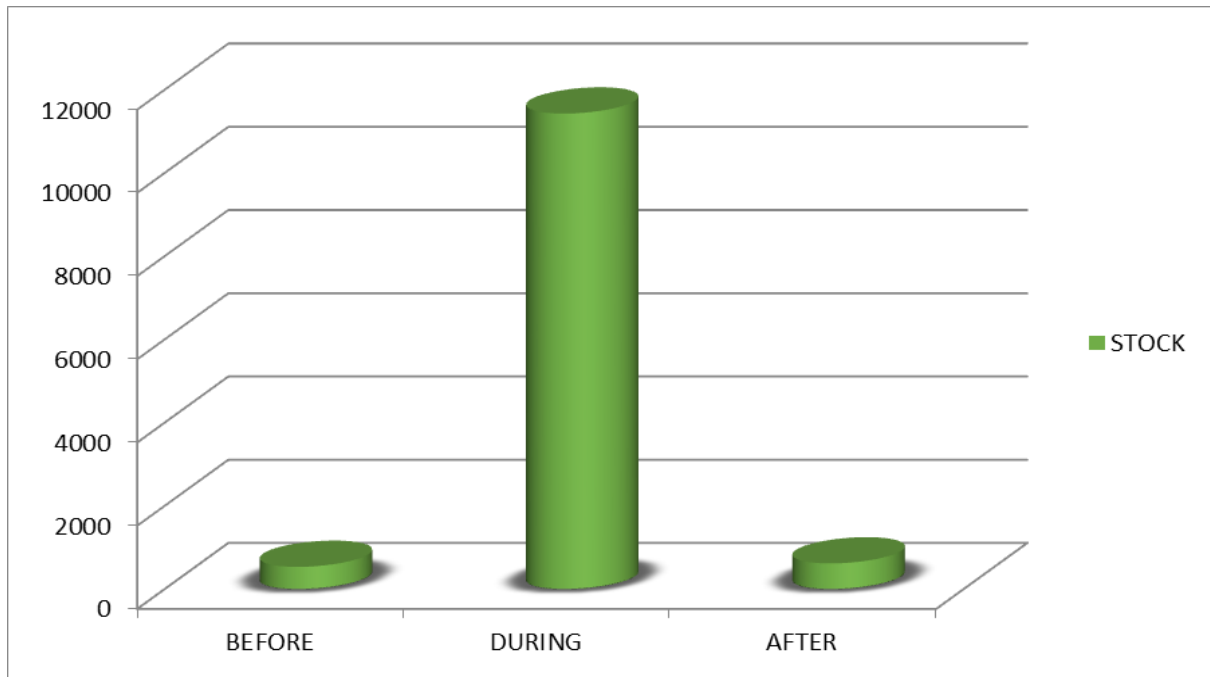
Stock volume of N95 mask on before, during and after COVID-19

SALES VOLUME OF N95 MASK ON BEFORE, DURING AND AFTER COVID-19

Sales volume of N95 on before, during, after and COVID-19

GROWTH RATE OF SURGICALAND N95 MASK

GROWTH RATE OF SURGICAL AND N95 MASK

CONCLUSION:

A surgical mask is a one-time use, loose-fitting mask that serves as a physical shield between the wearer's mouth and nose and any external pollutants. Surgical masks are available in different thicknesses and provide different degrees of protection from liquid contact.

An N95 respirator is a respiratory protective device designed to achieve a very close facial fit and very efficient filtration of airborne particles. Note that the edges of the respirator are designed to form a seal around the nose and mouth. Surgical N95 Respirators are commonly used in healthcare settings.

In our study demonstrated that 20 pharmacies are selected randomly from the accessible distance in Neyyattinkara and the information's are collected and analyzed.

- The stocks volume of surgical mask before COVID-19 was 10% and sales volume is 7% (2017-2019). The stocks volume of N95 mask on before COVID-19 was 4% and sales volume is 2 %(2017-2019).
- The stocks volume of surgical mask during COVID-19 was 78% and sales volume is 84% (2020-2022). The stocks volume of N95 mask on during COVID-19 was 91% and sales volume is 93%(2020-2022).
- The stocks volume of surgical mask after COVID-19 was 12% and sales volume is 9% (2023-2024). The stocks volume of N95 mask on after COVID-19 was 5% and sales volume is 5 %(2023-2024).

- Comparative study of facemask shown increased use especially surgical mask observed during COVID-19 study finding provide added insight into the dynamics of facemask use. Mask mandatory supported the pharmaceutical marketing to increase production of facemask usage rate during COVID-19 pandemic.

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