

# Essentials to prevent and live with COVID-19: An Explanatory Mixed Method Study at Bisha, Kingdom of Saudi Arabia

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## Abstract

**Background:** The COVID-19 outbreak was declared a pandemic in early 2020. Since then, the world has been facing repeated waves of the COVID-19 pandemic. Although the vaccine against COVID-19 has been in action since December 2020, the time testing, effective coverage, and cross-immunity against various antigenicity are waiting for answers.

**Aim of Study:** To determine the knowledge and understanding of the concepts of social distancing and personal protective equipment (PPE), and its adherence among the owners and managers of supermarkets and major shops, which could be the main places for community acquired infection in Bisha City, Kingdom of Saudi Arabia (KSA), during the COVID-19 Pandemic.

**Methods:** An explanatory mixed method study was conducted among 45 participants (owners, managers and supervisors of super-markets and major shops) along with a qualitative technique Key Informant Interview that was carried out among 9 purposively selected managers and supervisors to further explore the factors influencing adherence to social distancing and PPE use in Bisha City, KSA. Demographic profile, knowledge, attitude and adherence on social distancing and appropriate PPE use were elicited by questionnaire. Several themes emerged with the Key Informant in-depth interview.

**Results:** The action taken by the government to provide education on COVID-19 has reached the people evenly and equally. Owners were less understanding than other cadres on social distancing and use of PPE. There was a significant correlation between participants' knowledge and their adherence level. The in-depth interviews revealed remarkable outcomes with several facilitating and hindering factors on social distancing and use of PPE.

**Conclusions:** Actions taken by the government to provide education regarding COVID-19 spread and prevention have reached the target population evenly and equally. However, there is chance for improvement to prevent cross infection in the community work-place settings with stringent implementation of the norms of social distancing and scientific use of PPE.

**Key Words:** COVID-19, Social Distancing, PPE Use, Explanatory mixed method, Qualitative technique, Key Informant Interview

## Introduction

Since 2020, the world has been facing repeated waves of COVID-19 pandemic, and the COVID-19 outbreak was declared a pandemic, [1] in which a coronavirus has been identified as the cause of an outbreak of a respiratory illness. It was first detected in Wuhan, China [2]. As of August 10th, 2021, almost 205 million confirmed cases of COVID-19, including more than 4 million deaths have been reported globally. Many accomplishments on COVID-19, including virus information, clinical features, and diagnosis, have been achieved. However, no effective treatment is available yet [3].

Although the vaccines against COVID-19 have been in action since December 2020, time testing, effective coverage, and cross-immunity against various antigenicity of the same virus are still waiting for clear answers.

To curb the spread of the virus, governments have enacted policies aimed at regulating peoples' behavior and social habits. In particular, citizens across the globe are intensely encouraged to engage in "social distancing" (also referred to as "physical distancing") [4 – 6]. A recent rapid review of the psychological impact of quarantine found that longer quarantine duration, infection fears, frustration and boredom, inadequate supplies, inadequate information, financial loss and stigma were among the major stressors for the general public [7].

Social distancing is an effective means for containing the spread of COVID-19 [8]. However, notable variation is observed, suggesting that some individuals are far less compliant than others. [9].

Personal Protective Equipment (PPE) is the clothing or equipment designed to protect workers from physical hazards at the worksite. Attempts to control workplace risks and hazards should always be addressed first [10]. PPE Safety checklists are necessary by safety officials and supervisors to help identify tasks that require a particular type of PPE to ensure that staff are using the right equipment to reduce overall harm from COVID-19 exposure. The fundamental principle is that PPE should only be used as a last resort, and collective protective measures covering numbers of employees in a workplace must have priority over protective measures applying to individual employees. However, theoretical levels of protection considering PPE are seldom reached in practice. Some studies indicate that the psychological effect of PPE may be such that the individual wearing the PPE feels more protected than he/she actually is [11].

In addition, special care should be taken where persons suffer from certain medical conditions, e.g. certain types of respiratory protective equipment (RPE), may not be suitable for employees with asthma, bronchitis or heart disease. Where situations such as these occur, the employer should seek medical advice as to whether the employee can tolerate the use of PPE [11].

As the world is facing the COVID-19 pandemic, where the real time definitive treatment still remains a hope, and primary prevention with an effective-time-tested vaccine is still in the process of establishing solid evidence-based conclusions, the mainstay to combat the disease is grounded in the knowledge and understanding about the disease and attitude toward a conscious and focused behavior by the general population to live with COVID-19 pandemic without getting infected. Therefore, the main focus will remain on prevention of such respiratory diseases' pandemics in the present and future with social distancing and appropriate use of PPE [11].

Thus, the aim of this study was to determine the knowledge and understanding of the concepts of social distancing and PPE, and adherence of owners and managers of supermarkets and major shops (which could be the main places for community-acquired infection) in Bisha City, KSA, during the COVID-19 pandemic.

## Subjects and methods

During the period from October 2020 to December 2020, owners, managers and supervisors of super-markets, departmental stores and shops in Bisha City, KSA, were interviewed by the researcher, using a validated and structured questionnaire, which covered participants' demographic profile, knowledge, attitude and adherence to social distancing and appropriate PPE use. Moreover, in-depth interviews were done among the key informants to further explore the factors influencing their adherence to social distancing and PPE use during the COVID-19 pandemic.

### Study Design

An explanatory mixed research method was followed. A qualitative technique, key informant interview was done among nine purposively selected managers and supervisors to further explore the factors influencing adherence to social distancing and PPE use.

### Study Area

The study area was Bisha, a city within Aseer Region, situated in the south-western part of Saudi Arabia. The Health services are administered under the supervision of Aseer General Directorate of Health.

### Study Population

Figure 1 shows that the total population of eligible participants (i.e., owners, managers and supervisors of supermarkets, departmental stores, and major shops in Bisha City, KSA) are 283.

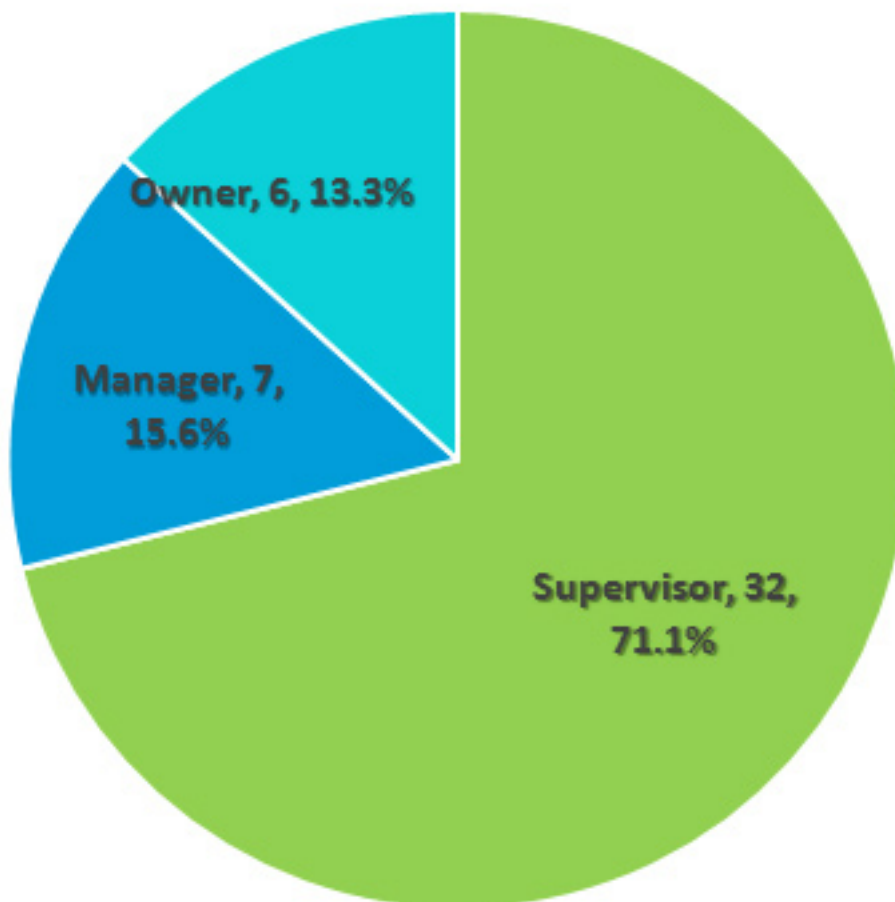
### Sample size

A total of 48 participants were selected by a purposive sampling technique, among whom 45 agreed to take part in the study. Participants were selected from the shops and markets by cluster sampling technique from all the major markets, shops, and stores. Figure (2) shows that 32 participants (71.1%) were supervisors, 7 (15.6%) were managers and 6 (13.3%) were owners of various markets and shops.

Figure 1: Total number of owners, managers and supervisors of supermarkets, departmental stores, and major shops in Bisha City, KSA



Figure 2: Percentage of participants' positions



### Data Collection

A qualitative technique key informant interview was done with 9 purposively selected managers and supervisors. Several themes emerged during the key informant in-depth interview.

### Data Analysis

The collected data were primarily analysed using Mann-Whitney and Kruskal-Wallis Tests. Spearman's rank correlation coefficient was used to assess the association between knowledge, understanding and adherence to social distancing and appropriate PPE use. The statistical analysis was done using the Statistical Package for Social Sciences (IBM, SPSS version 23).

## Results

Table (1) shows that most participants (26.7%) belonged to clothes stores, while 2.2% worked at watch shops, and others worked at dessert shops, gold shops, mobile stores, supermarkets, house stuff stores, perfume shops, cafés and restaurants. Age of most participants (80%) was 18 – 35 years, 93.3% lived in urban areas and 71.1% belonged to the supervisory job cadre. The educational level of participants ranged from intermediate (2.2%) to secondary (48.9%) and university graduates (48.9%). Almost all participants (91.1%) did not have any chronic diseases. The monthly family income ranged from less than 3,000 SAR (42.2%) to 10,000-15000 SAR (8.9%). Only two participants (4.4%) stated that they know someone who has been infected with COVID-19.

Table 1: Characteristics of study sample

Demographic variables		No.	%
Types of Shop	Dessert shops	3	6.7
	Gold shops	2	4.4
	Clothes stores	12	26.7
	Mobile stores	7	15.6
	Super Market	6	13.3
	House stuff stores	7	15.6
	Perfume Shops	3	6.7
	Café & Restaurant	4	8.9
	Watch shops	1	2.2
Age (in years)	18 – 25	14	31.1
	26 – 35	22	48.9
	36 – 45	5	11.1
	46 – 55	4	8.9
Residence	Urban	42	93.3
	Rural	3	6.7
Marital status	Single	18	40
	Married	27	60
Job type	Supervisor	32	71.1
	Owner	6	13.3
	Manager	7	15.6
Educational Level	Intermediate	1	2.2
	Secondary	22	48.9
	University	22	48.9
Monthly income (SAR)	< 3000	19	42.2
	3000 – 4999	15	33.3
	5000 – 9999	7	15.6
	10,000 - 15000	4	8.9
Chronic Disease	Yes	4	91.1
	No	41	9.9
Types of Chronic Disease	Nil	41	91.1
	Hypertension	1	2.2
	Asthma	2	4.4
	Rheumatoid Arthritis	1	2.2
Knows anyone infected with COVID-19	Yes	2	4.4
	No	43	95.6

Table 2 shows that none of the participants' demographic variables is significantly associated with their knowledge on spread of COVID-19 and its prevention, i.e., importance of social distancing and appropriate use of PPE.

**Table 2: Participants' knowledge according to their personal characteristics**

Participants' personal characteristics		No.	Knowledge score			Mean Rank	P value‡
			Mean	Median	IQR		
Type of shop	Dessert shops	3	11.33	11	6-11	21.67	0.854
	Gold shops	2	11	11	7-8	23.5	
	Clothes stores	12	11.17	11	6.5-9	24.25	
	Mobile stores	7	10.71	11	6-8	17	
	Super Market	6	11.5	11	7-9	29	
	House stuff stores	7	11.43	11	7-8	21.57	
	Perfume Shops	3	11.33	11	7-8	21	
	Café & Restaurant	4	11.5	12	7.5-8	27.25	
	Watch shops	1	15	15	7-7	16	
Age (in years)	18 – 25	14	11	11	7-8	20.36	0.207
	26 – 35	22	11.5	11	7-9	26.82	
	36 – 45	5	11.4	11	6-7	15.5	
	46 – 55	4	11.25	11	6.5-8	20.62	
Job cadre	Supervisor	32	11.38	11	7-8	24.41	0.217
	Owner	6	11	11	6-7	14.67	
	Manager	7	11.29	11	7-8	23.71	
Educational level	Intermediate	1	10	10	7-7	16	0.163
	Secondary	22	11.05	11	7-8	19.7	
	University	22	11.64	11	7-9	26.61	
Monthly income (SAR)	< 3000	19	11.53	11	7-9	24.84	0.728
	3000 – 4999	15	11	11	7-8	20.07	
	5000 – 9999	7	11.14	11	7-8	24.36	
	10,000 - 15000	4	11.75	11.5	6.5-8.5	22.88	
Chronic Disease	None	41	11.34	11	7-8	23.23	0.349
	Hypertension	1	12	12	6-6	4.5	
	Asthma	2	10.5	10.5	8-8	31	
	Rheumatoid arthritis	1	11	11	7-7	16	
Residence	Urban	42	11.31	11	7-8	22.79	0.715
	Rural	3	11.33	11	7-8	26	
Marital Status	Single	18	11.17	11	7-9	25.72	0.236
	Married	27	11.41	11	7-8	21.19	
Chronic Disease	Yes	4	11	11	6.5-8	20.62	0.715
	No	41	11.34	11	7-8	23.23	
Knows one with COVID-19	Yes	2	12.5	12.5	7-7	16	0.485
	No	43	11.26	11	7, 8	23.33	

IQR: Interquartile range ‡Mann-Whitney test

Table 3 shows that job cadre was significantly associated with participants' knowledge score about importance of social distancing and use of PPE. Other demographic variables were not significantly associated with their understanding of social distance and use of PPE.

**Table 3: Association between Knowledge of COVID-19 Prevention and Control and demographic profile**

Participants' Particulars		No.	Knowledge score			Mean Rank	P value‡
			Mean	Median	IQR		
Type of Shop	Dessert Shops	3	11.33	11	12-14	26	0.147
	Gold Shops	2	11	11	13-14	34	
	Clothes Stores	12	11.17	11	11.5-14	24.54	
	Mobile Stores	7	10.71	11	10-12	12	
	Super Market	6	11.5	11	11-14	23.58	
	House Stuff Stores	7	11.43	11	13-14	28.21	
	Perfume Shops	3	11.33	11	11-14	26.5	
	Café & Restaurant	4	11.5	12	8.5-12.5	13.25	
	Watch Shops	1	15	15	14-14	39	
Age (in years)	18 – 25	14	11	11	10-13	19.64	0.576
	26 – 35	22	11.5	11	12-14	25.59	
	36 – 45	5	11.4	11	9-13	20.8	
	46 – 55	4	11.25	11	10-14	23.25	
Job Cadre	Supervisor	32	11.38	11	11-14	22.84	0.035†
	Owner	6	11	11	10-12	13.42	
	Manager	7	11.29	11	13-14	31.93	
Educational Level	Intermediate	1	10	10	13-13	29	0.603
	Secondary	22	11.05	11	11-13	21.14	
	University	22	11.64	11	11-14	24.59	
Monthly income (SAR)	< 3000	19	11.53	11	10-14	21.45	0.718
	3000 – 4999	15	11	11	11-14	26.1	
	5000 – 9999	7	11.14	11	11-13	22.07	
	10,000 – 15000	4	11.75	11.5	10.5-13	20.38	
Chronic Disease	None	41	11.34	11	11-14	23.84	0.534
	Hypertension	1	12	12	12-12	19.5	
	Asthma	2	10.5	10.5	10-12	13.25	
	Rheumatoid arthritis	1	11	11	11-11	11.5	
Residence	Urban	42	11.31	11	11-14	23.21	0.715
	Rural	3	11.33	11	11-13	20	
Marital Status	Single	18	11.17	11	11-13	22.39	0.795
	Married	27	11.41	11	11-14	23.41	
Chronic Disease	Yes	4	11	11	10.5-12	14.38	0.175
	No	41	11.34	11	11-14	23.84	
Knows one infected with COVID-19	Yes	2	12.5	12.5	13-14	34	0.267
	No	43	11.26	11	11-14	22.49	

IQR: Interquartile range ‡Mann-Whitney test

† statistically significant ( $p < 0.05$ )

Table 4 shows that none of the demographic variables were significantly associated with their adherence to social distancing and use of PPE. It depicts that despite categorical types of variations in the demographic characters the participants understand the importance of adherence to social distancing and use of PPE.

**Table 4: Association between Understanding and demographic profile**

Personal characteristics		No.	Knowledge score			Mean Rank	P value‡
			Mean	Median	IQR		
Type of Shop	Dessert shops	3	11.33	11	17-23	17.33	0.931
	Gold shops	2	11	11	20-23	24.25	
	Clothes stores	12	11.17	11	20-22	21.38	
	Mobile stores	7	10.71	11	18-23	22.5	
	Super Market	6	11.5	11	20-22	21.08	
	House stuff stores	7	11.43	11	20-24	26	
	Perfume Shops	3	11.33	11	22-23	32.5	
	Café & Restaurant	4	11.5	12	18-23.5	21.75	
	Watch shops	1	15	15	22-22	27.5	
Age (in years)	18 – 25	14	11	11	18-23	19	0.464
	26 – 35	22	11.5	11	20-23	25.8	
	36 – 45	5	11.4	11	19-23	24.1	
	46 – 55	4	11.25	11	20-22	20.25	
Job cadre	Supervisor	32	11.38	11	20-23	23.75	0.355
	Owner	6	11	11	18-23	16.08	
	Manager	7	11.29	11	20-23	25.5	
Educational Level	Intermediate	1	10	10	23-23	35	0.642
	Secondary	22	11.05	11	19-24	22.5	
	University	22	11.64	11	20-22	22.95	
Monthly income (SAR)	< 3000	19	11.53	11	20-22	22.08	0.769
	3000 – 4999	15	11	11	20-23	21.53	
	5000 – 9999	7	11.14	11	20-24	26.79	
	10,000 - 15000	4	11.75	11.5	19.5-24	26.25	
Chronic Disease	None	41	11.34	11	20-23	23.95	0.381
	Hypertension	1	12	12	18-18	5	
	Asthma	2	10.5	10.5	20-21	17.25	
	Rheumatoid arthritis	1	11	11	20-20	13.5	
Residence	Urban	42	11.31	11	20-23	22.48	0.344
	Rural	3	11.33	11	21-23	30.33	
Marital Status	Single	18	11.17	11	20-23	23.25	0.916
	Married	27	11.41	11	20-23	22.83	
Chronic Disease	Yes	4	11	11	19-20.5	13.25	0.128
	No	41	11.34	11	20-23	23.95	
Knows one with COVID-19	Yes	2	12.5	12.5	22-25	35.75	0.182
	No	43	11.26	11	20-23	22.41	

IQR: Interquartile range ‡Mann-Whitney test



Table 5 shows that there is a significant correlation between knowledge and their adherence level of social distancing and use of PPE which is an obvious reason for the Kingdom of Saudi Arabia being listed in number 24th among the world's highest contributors in COVID-19 cases.

**Table 5 : Correlation matrix between adherence to norms and policies and participants' knowledge, understanding and adherence**

Spearman's rho		Knows	Understands	Adheres
Knows	Correlation Coefficient	1		
	p-value	.		
Understands	Correlation Coefficient	0.046	1	
	p-value	0.767	.	
Adheres	Correlation Coefficient	0.305	0.226	1
	p-value	0.042†	0.136	.

† Statistically significant ( $p < 0.05$ )

### Themes that Emerged from Key Informants In-Depth Interview (Figure 3)

The in-depth interview on social distancing and PPE use among nine purposively selected study participants revealed several outcomes. Most participants had knowledge about the essentials of social distancing and appropriate use of PPE. The Facilitating factors for social distancing mentioned were "personal motivation", "adequate knowledge" about the fact, "availability of space" to arrange for social distancing and "enforcement by law and order". While some hindering factors which came out in the interview session were: "Lack of adequate space" counterfeiting the need of general population for essential commodities to provide for social distancing, "gap in knowledge" and "careless attitude" (from less than 10% of the participants). Similarly, of that for appropriate use of PPE among the study participants brought out that the facilitating factors were "no dearth of resources", "personal motivation" to use PPE, "adequate knowledge" and "legal enforcement". While the hindering factors were "knowledge Gap" and "Herd mentality" (adopting behavior as other people around them).

### Example from the theme of social distancing facilitating factors:

Personal Motivation - "I need to take care of my family, so I have to be healthy, work and earn for my family. The same applies for my friends too so I use to pass on all the required knowledge and updates about COVID-19 to all my close friends. We need to pass this phase of curse, we have to win against Corona" [from a 34 year old male manager of a supermarket]

Adequate knowledge – "We get all the information and updates from television, newspapers and messages, although it is frustrating to be cautious all the time but this information and knowledge can only help us protecting ourselves from the disease. Hoping to hear the invention of treatment of this disease soon" [a 28 year old male, supervisor of a clothes store].

### Example from the Theme of Social Distancing hindering factors:

Less Availability of space: "the space inside and outside our store is not that much to maintain the norms of social distancing among the customers, we can't help it, we have to run our business too, and also we can't disappoint our customers" [a 48 years old gold shop owner].

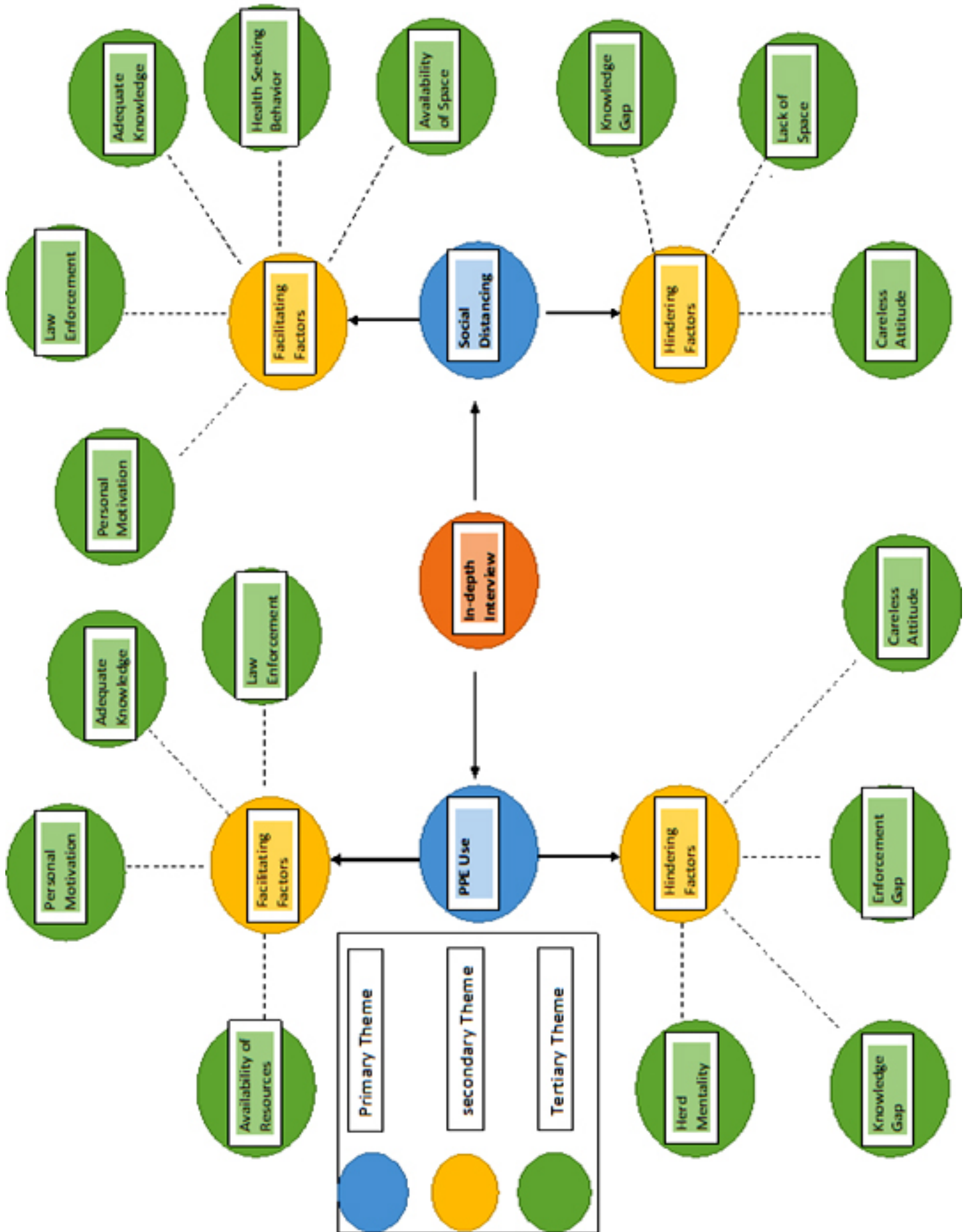
### Example from the Theme of PPE use facilitating factors:

Law enforcement – "we human beings tend to make mistakes and be unmindful, the enforcement of monetary fines and other punishment for non-adherence to the use of mask in public place is a very essential step by government" [from a 35 year old manager in a large super market].

### Example from the Theme of PPE use hindering factors:

Careless Attitude – "it has been so long and so stressful throughout, I really think the disease has got nothing to do with use of masks and other things, I have not been using it most of the time and neither I got the disease. The disease will go away by itself, it's all useless things" [from a 24 year old supervisor in a Perfume shop].

Figure 3: Themes that emerged from in-depth interview



## Discussion

An important function of shops and markets is to support customer-care, including handling and delivering of items, especially in the billing and delivery areas. This may increase the risk of community acquired infections similar to that of nosocomial infections. In such scenarios, the rate of transmission will be significantly increased [12].

Existing research on social distancing and isolation highlighted several challenges for public health policymakers, including lack of trust in the government, and concerns over strains on family resources [13]. Nevertheless, the present study showed that none of participants' personal characteristics was significantly associated with their knowledge about COVID-19 spread and its prevention. Only the section of job cadre was significantly associated with understanding score about the importance of social distancing and use of PPE, i.e., owners are less understanding than those with other cadres (i.e., supervisors and managers).

Moreover, this study showed that none of participants' demographic variables were significantly associated with their compliance to social distancing and wearing PPE. It depicts that despite categorical types of variations in the demographic characteristics, the participants understand the importance of adherence to social distancing and use of PPE. Although Moore et al. argued that, based on past epidemics, the effects of demographic variables is quite likely [14].

It is to be noted that, there is not much published qualitative evidence on public's perceptions and experiences of social distancing and social isolation, appropriate use of PPE and its relation to adherence – a gap that the present study addresses. A Stanford-led study [15] found that almost 4 out of 10 Americans were not complying with social distancing recommendations.

Although the most common reason for not following orders was work requirements for nonessential industries, other reasons included worries about mental and physical well-being, the belief that other precautions, such as hand-washing, are sufficient, a wish to continue everyday activities, and the belief that society is overreacting. These findings are in accordance with that reported by a Gallup Poll [16]. Moreover, Pedersen et al. noted that respondents generally expressed an intention to engage in strict social distancing. On a scale ranging from 0 to 100, where 0 indicates "no intention to socially distance" and 100 indicates "maximum social distancing," the average response was 87.8 [17].

The present study found a significant correlation between participants' knowledge and their adherence level to social distancing and use of PPE. This may reflect why The Kingdom of Saudi Arabia occupies the 42nd position on the list of Worldometer as regard the world's highest contributor during 2020-21 regarding spread of COVID-19 cases [18].

Based on the findings of the present study, there are several observations and suggestions.

**Having minimum possible staff manageable per shift is preferred:** For a given overall number of staff accessible to work in the markets and shops (staff pool), it is preferable to organize a smaller number of staff/workers per shift than a larger one. This may require the consolidation of certain function or sections. Having less staff at work reduces the opportunity of cross infection. If there is excess manpower, clerical and accounting staff can work from home given special facilities to meet the need.

**Frequent staff change is preferred:** Increasing the frequency of shift change by having staff work less hours per day (i.e., increasing the number of shifts per day). This will ensure reducing of staff contact.

**It is important to monitor the health of the staff:** This can be achieved by using temperature monitoring or asking the staff to self-report symptoms or illness, as recommended in the International Federation of Clinical Chemistry (IFCC), especially those most frequently associated with the initial stage of COVID-19 (cough, myalgia, headache, loss of smell and taste, gastrointestinal disturbances) [19]. Therefore, splitting the staff into mutually exclusive teams has similar effects as having a smaller number of staff working per shift. It limits the risk of workplace transmission to a smaller subgroup. However, split team arrangement often requires a larger buffer of manpower which is again an issue of resources and money to be considered.

Moreover, as regards the PPE, the WHO stated that the N95 face mask confers the highest protection against workplace transmission, but it is not often used/or available in the market/supply during the current COVID-19 pandemic. This is followed by gown, surgical masks, and gloves. Provision of all those PPE to the workers even though not in the hospital setting can definitely enhance the quality of disease prevention and transmission, but resource is again an issue to be thought and considered by the management of the shops and government [20].

The Billing and Delivery Section (BDS) is a very important section of most departmental stores or supermarkets or hypermarkets. Figure (4) describes how social distancing is maintained optimally or sub-optimally was in notable variation which become a potential area to liberate a chance of spreading infection. The distance between the consecutive customers forming the queue in the billing and delivery sections were as per norms and were monitored effectively though, in most of the departmental stores or supermarkets or hypermarkets, the counter of the billing did not have adequate distancing between the customers and the employees who handle the commodities for scanning and dispensing. This can be a potential site for community acquired infections due to cross handlings of items as well as sub-optimal social distancing. Most of the time it is also observed that the PPE, especially gloves, were not changed and disposed of frequently, as well there were no transparent screens between the customers

and the employers for prevention of the droplet infections transmission. This can be considered with stringent implementations of preventive measures in terms of strict and optimal social distancing and appropriate use of PPE [21].

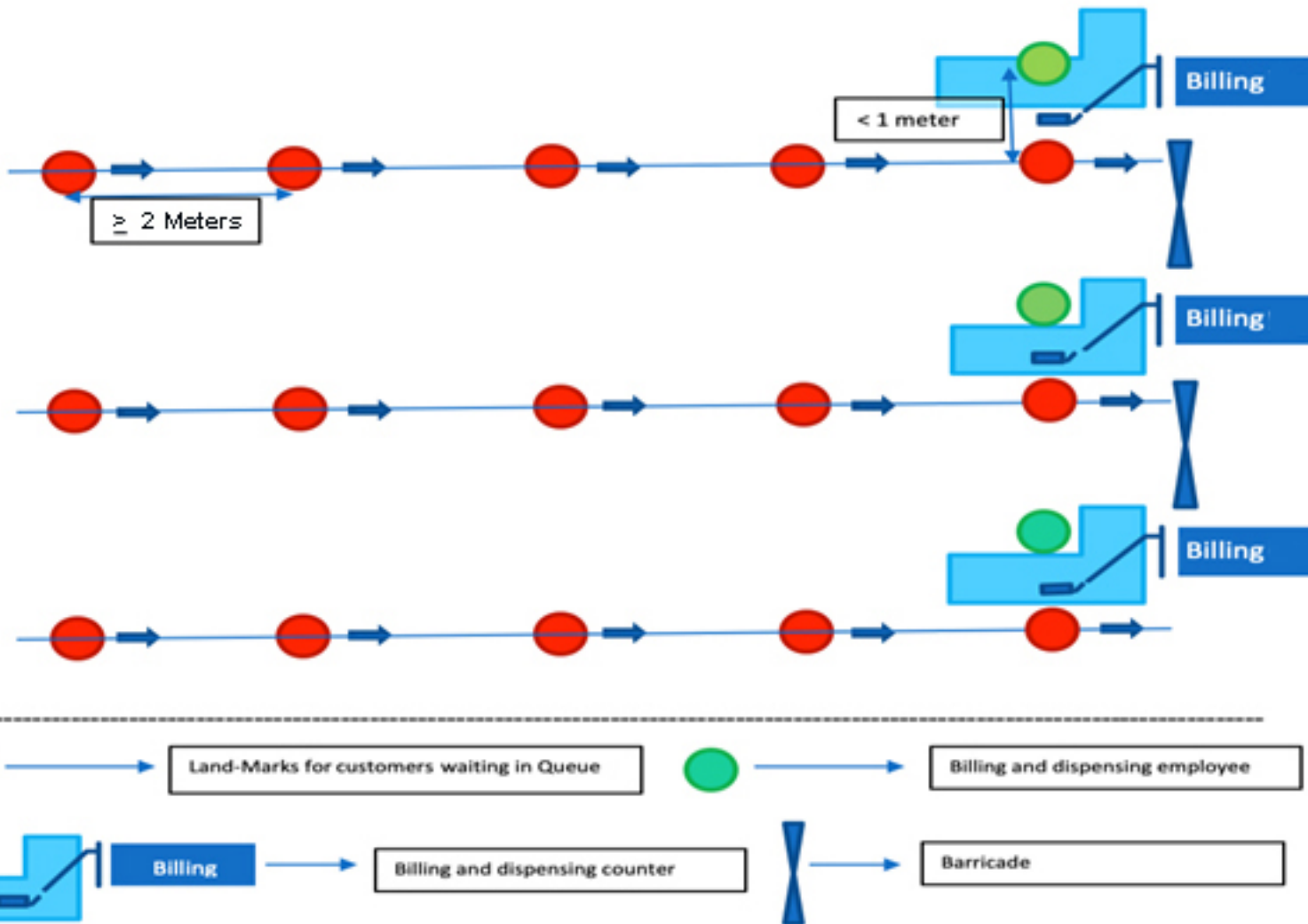
**Study limitations**

There are a few important limitations in this study. Because only owners, managers and supervisors were considered, the sample size couldn't have been more than 45. It considered only one state (work) for the staff. More states are expected to exist, for example, personal outing in the community, social gatherings, etc. Nevertheless, the risk of additional staff acquiring the infection from the community may be increased in communities where the infection is widespread, more for those with some important predisposing factors (i.e., age  $\geq 40$  years, male sex, overweight, chronic diseases, etc.) [12].

**Conclusion**

This study concludes that actions taken by the Saudi government to provide health education regarding COVID-19 spread and prevention have evenly reached the target population. However, there is still more chance for improvement to prevent cross-infections in the community and work-place settings with stringent implementation of the norms of social distancing and scientific use of PPE. Policy makers taking this into serious cognizance and acting upon it accordingly will prevent community transmission of any dreadful respiratory infection including COVID-19.

Figure 4



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