



Behavioral Changes Among Community After Covid 19 Pandemic

Mezoun Al-Muhaimeed, Heba Alissa, Dina Alomaim, Razan Alhussain, Nourah Alsubaie, Alhasan AlKaud, Aliaa Alam, Marwa Azaben and Mostafa Kofi*

Family Medicine Consultant, Riyadh, Saudi Arabia

***Corresponding Author:** Mostafa Kofi, Family Medicine Consultant, Riyadh, Saudi Arabia.

DOI: 10.31080/ASMS.2024.07.1729

Received: December 04, 2023

Published: November 14, 2023

© All rights are reserved by **Mostafa Kofi, et al.**

Abstract

A cross sectional study Riyadh To determine Behavioral changes among community after covid 19 pandemic And possibility of these changes to persist for the future, a self-administered questionnaire with close-ended questions will be distributed. Aim of this study is to assess behavioral changes after pandemic among patients Riyadh, and to explore risk factors which can keep these changes in the future.

Keywords: Covid 19; Riyadh; Population

Background

Behavioral changes among population such mask wearing , social distancing. Washing hand was the first protective measuring protects community from spreading the infection but does this beneficial behavioral changes which is leading barrier against infectious viral diseases such URTI, seasonal flue , other viral infections can be persist ? our study aims to study behavioral changes among the population after pandemics and does the will keep these behaviors in case of sickness to protect the community from spreading infections

Project objectives

- Assess behavioral changes among the patients in Riyadh
- Explore factors which may keeps this changes in future.

Literature Survey

This section discusses the findings of previous studies and based on that the research gap of the study is identified. At first, the objective of behavioral changes among the patients in Riyadh is discussed, followed by the factors that keeps this change in future.

Behavioral changes among the patients in Riyadh

According to the study of Yousif and Bawhab (2023) [1] patients in Saudi Arabia's capital city of Riyadh have shown a marked shift in behavior, which is indicative of the country's rapidly changing healthcare system and shifting social dynamics. In Riyadh, the conventional view of health and illness has changed, leading to a more sophisticated comprehension of patient behavior patterns. The greater understanding and acceptance of mental health concerns is one important feature. Mental health issues were historically stigmatized, but they are now more widely recognized, which has increased patients' willingness to get treatment and participate in therapeutic activities (Dixon, *et al.* 2016) [2]. Furthermore, Riyadh's quick modernization and urbanization have changed people's lifestyles and influenced their physical health-related habits. According to the study of Artinian, *et al.* (2010) [3] patients' increased awareness of their lifestyles is leading to a change in behavior toward healthy practices, such as an increase in interest in stress reduction techniques, food changes, and physical activity.

In addition, social variables are also important in determining how patients in Riyadh alter their behavior. An increasing number of people are living alone or in nuclear families, which is changing the traditional family structure (Lodhi, *et al.* 2021) [4]. This change affects the patient support network that is provided. Patients' coping mechanisms and navigation of the healthcare system are impacted by their growing reliance on professional healthcare providers and support networks as familial relationships become less strong.

The need of behavioral modifications has been further highlighted by the growth of chronic diseases in Riyadh. Nowadays, patients take a more proactive approach to maintaining their health, realizing the impact of lifestyle decisions on both preventing and treating chronic illnesses. This has raised the need for individualized treatment plans and health education initiatives that provide people the tools they need to take charge of their health (Mittler, *et al.* 2013) [5]. Free, *et al.* (2013) [6] stated that in Riyadh, the widespread use of technology has also had an impact on patient behavior. People are now more knowledgeable and proactive about their health thanks to the internet and mobile applications that provide access to health information. More and more patients are adopting digital tools to keep an eye on their health, connect with medical experts, and use telemedicine services. In addition to changing how patients engage with the healthcare system, this digital revolution is also having an impact on their expectations and preferences. But problems still exist. Especially in conservative groups, the long-standing cultural norms and expectations in Riyadh can occasionally operate as obstacles to changing one's conduct (Harb, 2015) [7]. By incorporating cultural competency into patient treatment and making sure that interventions are in line with regional values and beliefs, the healthcare system is adjusting to these cultural quirks.

A complex interaction of cultural, social, and technological elements is reflected in the behavioral changes among patients in Riyadh. According to the findings of Borkowski and Meese (2020) [8] comprehending these behavioral changes is crucial for providing efficient and culturally aware healthcare services as the healthcare environment keeps changing. Accepting these changes can help the dynamic and quickly changing city of Riyadh achieve better health results and a more all-encompassing approach to patient care.

Explore factors which may keep behavioral changes in future

Patients in Saudi Arabia's capital city of Riyadh have shown a marked shift in behavior, which is indicative of the country's rapidly changing healthcare system and shifting social dynamics. In Riyadh, the conventional view of health and illness has changed, leading to a more sophisticated comprehension of patient behavior patterns (Kvarnström, *et al.* 2021) [9]. The greater understanding and acceptance of mental health concerns is one important feature. Mental health issues were historically stigmatized, but they are now more widely recognized, which has increased patients' willingness to get treatment and participate in therapeutic activities.

Furthermore, according to Alsubaie (2010) [10], it is assessed that Riyadh's quick modernization and urbanization have changed people's lifestyles and influenced their physical health-related habits. The growth in illnesses like obesity and diabetes can be attributed to the sedentary character of many modern employment as well as the widespread use of technology. Patients' increased awareness of their lifestyles is leading to a change in behavior toward healthy practices, such as an increase in interest in stress reduction techniques, food changes, and physical activity. In addition, social variables are also important in determining how patients in Riyadh alter their behavior. An increasing number of people are living alone or in nuclear families, which is changing the traditional family structure. This change affects the patient support network that is provided. Patients' coping mechanisms and navigation of the healthcare system are impacted by their growing reliance on professional healthcare providers and support networks as familial relationships become less strong (Ciccone, *et al.* 2010) [11].

The need of behavioral modifications has been further highlighted by the growth of chronic diseases in Riyadh. Nowadays, patients take a more proactive approach to maintaining their health, realizing the impact of lifestyle decisions on both preventing and treating chronic illnesses. This has raised the need for individualized treatment plans and health education initiatives that provide people the tools they need to take charge of their health (Mittler, *et al.* 2013) [12]. In Riyadh, the widespread use of technology has also had an impact on patient behavior. People are now more knowledgeable and proactive about their health thanks to the internet and mobile applications that provide access to health

information. More and more patients are adopting digital tools to keep an eye on their health, connect with medical experts, and use telemedicine services. In addition to changing how patients engage with the healthcare system, this digital revolution is also having an impact on their expectations and preferences (Socha-Dietrich, 2021) [13].

But problems still exist. Especially in conservative groups, the long-standing cultural norms and expectations in Riyadh can occasionally operate as obstacles to changing one's conduct. By incorporating cultural competency into patient treatment and making sure that interventions are in line with regional values and beliefs, the healthcare system is adjusting to these cultural quirks (Shepherd., *et al.* 2019) [14]. A complex interaction of cultural, social, and technological elements is reflected in the behavioral changes among patients in Riyadh. Comprehending these behavioral changes is crucial for providing efficient and culturally aware healthcare services as the healthcare environment keeps changing. Accepting these changes can help the dynamic and quickly changing city of Riyadh achieve better health results and a more all-encompassing approach to patient care (Shepherd., *et al.* 2019) [14].

Theoretical underpinnings

Global communities have been profoundly impacted by the Covid-19 pandemic, leading to behavioral shifts that need to be examined via a variety of theoretical frameworks. The Social Cognitive Theory (SCT) and the Health Belief Model (HBM) are two well-known theories that can be used to analyze and interpret these behavioral changes.

According to the HBM, people are more inclined to adopt health-related activities if they think they are vulnerable to a certain health threat, think the threat will have serious repercussions, and think the suggested conduct will help lessen the threat. When this concept is applied to post-pandemic behavioral changes, it implies that those who believe there is a persistent danger of infection or that the virus would have serious effects may be more likely to follow preventive measures like mask-wearing and social distancing (Leach., *et al.* 2021) [15]. The HBM is useful for evaluating changes in behavior related to public health policies because it highlights the importance of perceived benefits and barriers.

However, Albert Bandura's SCT places a strong emphasis on the role that social influence, self-efficacy, and observational learning play in determining behavior. Within the framework of post-pandemic behavioral shifts, people could watch how others behave in their community and adjust their own activities accordingly. According to SCT, interactions between environmental, personal, and behavioral elements all have an impact on an individual's behavior (Govindaraju, 2021) [16]. For example, when prominent individuals in a community serve as role models and promote specific preventative practices, this can help the community as a whole adopt those behaviors more widely.

Research design

Cross-sectional study, a questionnaire will be distributed to the patients who visited WHC to determine the behavioral changes among them after pandemic.

Methods

Study population

patients who visited in Wazarat health care center in Prince Sultan Military Medical City in Riyadh.

Study area

Wazarat health care centre in Prince Sultan Military Medical City in Riyadh.

Sample size

- Use of tables of sample size
- For confidence level=95%
- P value = 0.05
- Target population=50000
- Needed sample is 500 patients

Statistical analysis

Data will analyze by using Statistical Package for Social Studies (SPSS 22; IBM Corp., New York, NY, USA). Categorical variables were expressed as percentages. Chi square test and Fisher's exact test were used for categorical variables. Univariate and multivariate logistic regression will use to assess Behavioral changes among community members after COVID 19 pandemic A p-value <0.05 was considered statistically significant.

Data were analyzed by using Statistical Package for Social Studies (SPSS 22; IBM Corp., New York, NY, USA). Continuous variables were expressed as mean ± standard deviation and categorical variables were expressed as percentages. Mann-Whitney test and Kruskal-Wallis test were used for continuous variables without normal distribution. Normality was assessed by

used Shapiro-Wilk test. The Cronbach’s alpha was used to assess the reliability the questionnaire. Univariate logistic regression was used to assess the associated factors with low level of behavioral changes among community members after COVID 19. A p-value <0.05 was considered statistically significant.

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach’s Alpha if Item Deleted
Do you think that touching the face and eyes may be a vector of any kind of infection?	22.814	20.861	.328	.719
Do you think that just leaving enough distance will be among the future precautions?	23.158	20.418	.255	.727
Do you get the flu shot every year?	23.524	19.392	.381	.712
Will you avoid mixing with people if you have flu symptoms?	22.894	20.436	.331	.718
Will you follow remote work in the future?	23.292	20.700	.249	.726
Will you follow the well-known home remedies for minor diseases and reduce hospital visits to necessity?	22.810	21.797	.124	.736
Do you think that vaccinations are useful?	23.024	20.224	.360	.715
Will you stick to sports?	23.046	20.846	.253	.725
Has your medical and health culture increased?	22.826	20.429	.384	.713
Do you have increased anxiety from diseases?	23.662	20.316	.210	.736
Do you think that sterilization of multi-use objects by everyone is important?	22.758	20.184	.476	.706
Do you prefer the continuation of methods of sterilization of ready-made foods from restaurants?	22.884	20.844	.242	.727
Will you avoid unnecessary crowded places in the future?	22.980	19.695	.402	.710
Will you continue to take health precautions after taking the Corona virus vaccine?	22.836	19.813	.493	.703
Will you follow health prevention methods for travel?	22.744	20.107	.492	.705
Will you continue to wash and sanitize your hands?	22.698	20.977	.418	.714

Supplementary Table 1: Reliability analysis of the questionnaire.

		Number	%
Age	16-20	149	28.3
	>20-30	126	23.9
	>30-40	58	11.0
	>40-50	112	21.3
	>50-60	82	15.6

Gender	Male	327	62.2
	Female	199	37.8
Education	Primary	26	4.9
	Intermediate	18	3.4
	Secondary	170	32.3
	Post-University	312	59.3
Position	No work	235	44.8
	Temporary work	44	8.4
	Permanent work	245	46.8
Marital status	Single	251	48.0
	Married	258	49.3
	Separate	14	2.7

Table 1: Demographic characteristics for the participants (n = 527).

Reliability of the questionnaire

The Cronbach’s alpha for the questionnaire was 0.731 which reflects good reliability.

Table 1 shows the demographic characteristics for the participants. It is clear that more than half of the participants have

age from 10 years to 30 years. Almost two third of the participants were male (62.2%). According the educational level (59.3%) of the participants have post-University. (46.8%) of the participants have Permanent work and (44.8%) of them not working. The percentage of single and married were (48%, 49.3%) respectively.

		Number	%
Do you think that touching the face and eyes may be a vector of any kind of infection?	No	27	5.1
	May be	92	17.5
	Yes	407	77.4
Do you think that just leaving enough distance will be among the future precautions?	No	98	18.7
	May be	130	24.8
	Yes	297	56.6
Do you get the flu shot every year?	No	175	33.6
	May be	163	31.3
	Yes	183	35.1
Will you avoid mixing with people if you have flu symptoms?	No	55	10.5
	May be	84	16.0
	Yes	387	73.6
Will you follow remote work in the future?	No	86	16.3
	May be	222	42.2
	Yes	218	41.4
Will you follow the well-known home remedies for minor diseases and use virtual clinic insteadly ?	No	44	8.4
	May be	64	12.2
	Yes	418	79.5

Do you think that vaccinations are useful?	No	53	10.1
	May be	152	29.0
	Yes	320	61.0
Will you stick to sports?	No	53	10.1
	May be	166	31.6
	Yes	307	58.4
Has your medical and health culture increased?	No	41	7.8
	May be	79	15.1
	Yes	403	77.1
Do you have increased anxiety from diseases?	No	252	47.9
	May be	89	16.9
	Yes	185	35.2
Do you think that sterilization of multi-use objects by everyone is important?	No	33	6.3
	May be	54	10.3
	Yes	435	83.3
Do you prefer the continuation of methods of sterilization of ready-made foods from restaurants?	No	62	11.9
	May be	55	10.5
	Yes	406	77.6
Will you avoid unnecessary crowded places in the future?	No	77	14.7
	May be	84	16.0
	Yes	364	69.3
Will you continue to take health precautions after taking the Corona virus vaccine?	No	40	7.6
	May be	79	15.0
	Yes	406	77.3
Will you follow health prevention methods for travel?	No	35	6.7
	May be	40	7.6
	Yes	448	85.7
Will you continue to wash and sanitize your hands?	No	15	2.9
	May be	59	11.3
	Yes	447	85.8

Table 2: Answers about questions of behavioral changes among community members after COVID 19 pandemic (n = 527).

Table 2 shows the answers about questions of behavioral changes among community members after COVID 19 pandemic.

		Mean**	SD	P value
Age	10-20	22.48	5.21	< 0.001*
	>20-30	23.67	4.43	
	>30-40	26.03	4.49	
	>40-50	26.36	3.41	
	>50-60	25.62	4.75	

Gender	Male	24.62	5.01	0.150
	Female	24.20	4.40	
Education	Primary	26.04	5.70	< 0.001*
	Intermediate	24.82	5.70	
	Secondary	22.84	5.23	
	Post-University	25.20	4.16	
Position	No work	22.87	4.79	< 0.001*
	Temporary work	25.75	5.48	
	Permanent work	25.77	4.18	
Marital status	Single	22.95	4.92	< 0.001*
	Married	25.99	4.03	
	Separate	23.79	6.89	
Over all (out of 32)		24.47	4.78	

Table 3: Mean score of behavioral changes among community members after COVID 19 by the demographic characteristics of the participants.

* Significant p value.

** out of 32.

Likert scale was used with 3 points (No=0, May be=1, Yes=2) for 16 items of the questionnaire, The maximum score = 32 and the minimum score = 0.

High score indicates to high level of behavioral changes among community members after COVID 19.

Low score indicates to low level of behavioral changes among community members after COVID 19.

Table 3 shows the mean score of behavioral changes among community members after COVID 19 by the demographic characteristics of the participants. The Over all mean score was (24.47 ± 4.78). Age, Education, Position and marital status have significant difference of mean score of behavioral changes among community members after COVID 19 with p value (< 0.001) but gender have not significant difference p value (0.150).

		Odds ratio	95 % CI		P value
			Lower	Upper	
Age	10-20	3.64	2.05	6.45	< 0.001*
	>20-30	2.61	1.46	4.67	0.001*
	>30-40	0.97	0.47	2.00	0.933
	>40-50	0.69	0.37	1.31	0.257
	>50-60**	1.00			
Gender	Male	0.82	0.57	1.17	0.267
	Female**	1.00			
Education	Primary	0.49	0.19	1.25	0.133
	Intermediate	0.88	0.32	2.45	0.814
	Secondary	2.47	1.68	3.62	< 0.001*
	Post-University**	1.00			

Position	No work	3.12	2.14	4.54	< 0.001*
	Temporary work	1.37	0.70	2.65	0.358
	Permanent work**	1.00			
Marital status	Single	3.39	2.35	4.89	< 0.001*
	Married**	1.00			
	Separate	1.72	0.58	5.13	0.329

Table 4: Univariate logistic regression for the associated factors with low behavioral changes among community members after COVID 19.

* Significant p value

** Used as a reference

Table 4 shows the univariate logistic regression for the associated factors with low behavioral changes among community members after COVID 19. It is clear that the age group 10 to 20 and age group 20 to 30 have significant odds ratio OR (95 CI%) 3.64 (2.05 – 6.45) , 2.61 (1.46-4.67) respectively. Educational level of secondary have significant odds ratio OR (95 CI%) 2.47 (1.68-3.62). The position of no work have significant odds ratio OR (95 CI%) 3.12 (2.14-4.54). The single marital status have significant odds ratio OR (95 CI%) 3.39 (2.35-4.89). The male gender have not significant odds ratio OR (95 CI%) 0.82 (0.57-1.17).

Data collection tools

A structured questionnaire attached.

Discussion and Conclusion

The findings of Bavel., *et al.* (2020) [17] show that global societies have been profoundly impacted by the COVID-19 epidemic, necessitating extensive research to comprehend the behavioral shifts that have occurred within groups. In this regard, a cross-sectional study was carried out in Riyadh, Saudi Arabia, to examine the subtle behavioral changes that its citizens underwent following the pandemic. The study sought to provide insight on the effects of the epidemic on the community’s collective psyche by exploring a variety of everyday factors, from social interactions to healthcare practices.

According to the findings of Nanath., *et al.* (2022) [18] the change in social behavior was one noteworthy topic of study. People were forced to reconsider their social relationships as a result of the strict measures put in place during the pandemic, including as social separation and lockdowns. According to preliminary data, a sizable segment of the Riyadh population has reportedly become more circumspect and reticent when it comes to mingling. Virtual meetings have supplanted in-person events, suggesting a long-lasting influence on conventional forms of interpersonal connection. The long-term effects of this change on the social fabric of the community give rise to some fascinating questions. Following the pandemic, there has been a shift in the way people seek healthcare. Preventive measures and routine health check-ups are becoming more important due to the rising awareness of health concerns (Labeit., *et al.* 2013) [19]. There has been an increase in the adoption of better lifestyles and a stronger inclination towards health-related information, suggesting that the people of Riyadh are more aware of their own well-being. This change points to a

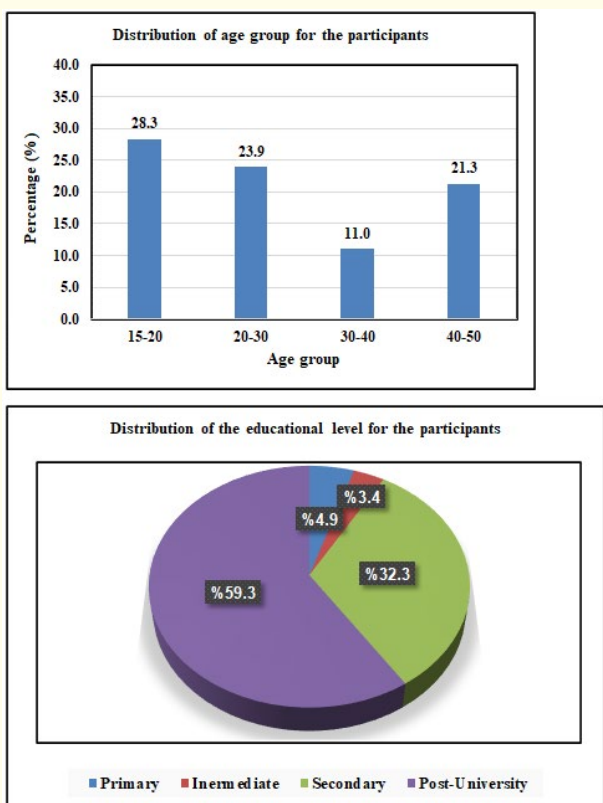


Figure 1

favorable result as people start taking more proactive measures to protect their health, which could lessen the effects of upcoming medical emergencies.

The study also looked at how the epidemic affected employment and education. Once made necessary by the pandemic, remote work and online education have become commonplace in the daily lives of many Riyadh residents. Traditional work and education models may undergo a paradigm shift as a result of the adoption and integration of these approaches (Younger, *et al.* 2022) [20]. But issues like the digital gap and the requirement for a supportive workplace continue to exist, calling for more research and action to guarantee fair access to opportunities. Changes in economic behavior and purchasing habits were also shown by the study. The economic fallout from the pandemic, like as job losses and shaky finances, has made people in Riyadh more frugal with their purchases. Concurrently, there is proof of an increasing dependence on online shopping sites, indicating a predilection for home delivery and contactless purchases (Wang, *et al.* 2021) [21]. The local economy may be significantly impacted by these changes, making adaptable solutions necessary to promote resilience and economic recovery. The study also examined the pandemic's psychological effects on the community. The widespread dread and uncertainty that accompanied the epidemic has had a lasting effect on people's mental health. Residents of Riyadh show indications of elevated stress and anxiety, highlighting the significance of mental health interventions and support throughout the post-pandemic phase. Building a resilient and psychologically sound community requires an understanding of these effects and taking appropriate action (Longstaff, *et al.* 2010) [22]. The growth in illnesses like obesity and diabetes can be attributed to the sedentary character of many modern employment as well as the widespread use of technology (Ameer Arsalan Hadi, 2021) [23]. The cross-sectional study carried out in Riyadh offers a thorough summary of the behavioral shifts that have occurred in the society since COVID-19. The study sheds light on the various ways in which the pandemic has affected people, including changes in social connections, healthcare practices, job dynamics, spending patterns, and psychological well-being. These insights are an invaluable tool for politicians, healthcare providers, and community leaders as they work to develop focused measures that promote resilience and improve the general well-being of the populace in Riyadh and comparable communities.

Bibliography

1. Yousif S and Bawhab O. "The healthcare system in Saudi Arabia: evolution, transformation and the COVID-19 experience". *Research Handbook on Public Leadership: Re-imagining Public Leadership in a Post-pandemic Paradigm* (2023): 154.
2. Dixon LB, *et al.* "Treatment engagement of individuals experiencing mental illness: review and update". *World Psychiatry* 15.1 (2016): 13-20.
3. Artinian NT, *et al.* "Interventions to promote physical activity and dietary lifestyle changes for cardiovascular risk factor reduction in adults: a scientific statement from the American Heart Association". *Circulation* 122 (2014): 406-441.
4. Lodhi FS, *et al.* "Factors associated with quality of life among joint and nuclear families: a population-based study". *BMC Health* 21.1 (2021): 1-12.
5. Mittler JN, *et al.* "Making sense of "consumer engagement" initiatives to improve health and health care: a conceptual framework to guide policy and practice". *The Milbank Quarterly* 91.1 (2013): 37-77.
6. Free C., *et al.* "The effectiveness of mobile-health technology-based health behaviour change or disease management interventions for health care consumers: a systematic review". *PLoS medicine* 10.1 (2013): e1001362.
7. Harb C. "The Arab region: Cultures, values, and identities". In *Handbook of Arab American psychology* (2015): 3-18.
8. Borkowski N and Meese KA. "Organizational behavior in health care". Jones and Bartlett Learning (2020).
9. Kvarnström K, *et al.* "Factors contributing to medication adherence in patients with a chronic condition: a scoping review of qualitative research". *Pharmaceutics* 13.7 (2021): 1100.
10. Alsubaie AS. "An epidemiological investigation of health-related behaviours among male high School adolescents in Riyadh, Saudi Arabia (Doctoral dissertation, Newcastle University)" (2010).
11. Ciccone MM, *et al.* "Feasibility and effectiveness of a disease and care management model in the primary health care system for patients with heart failure and diabetes (Project Leonardo)". *Vascular Health and Risk Management* (2010): 297-305.

12. Mittler JN., *et al.* "Making sense of "consumer engagement" initiatives to improve health and health care: a conceptual framework to guide policy and practice". *The Milbank Quarterly* 91.1 (2013): 37-77.
13. Socha-Dietrich K. "Empowering the health workforce to make the most of the digital revolution" (2021).
14. Shepherd SM., *et al.* "The challenge of cultural competence in the workplace: perspectives of healthcare providers". *BMC Health Services Research* 19.1 (2019): 1-11.
15. Leach M., *et al.* "Post-pandemic transformations: How and why COVID-19 requires us to rethink development". *World Development* 138 (2021): 105233.
16. Govindaraju V. "A review of social cognitive theory from the perspective of interpersonal communication". *Multicultural Education* 7.12 (2021): 1-5.
17. Bavel JVV., *et al.* "Using social and behavioural science to support COVID-19 pandemic response". *Nature Human Behaviour* 4.5 (2020): 460-471.
18. Nanath K., *et al.* "Developing a mental health index using a machine learning approach: Assessing the impact of mobility and lockdown during the COVID-19 pandemic". *Technological Forecasting and Social Change* 178 (2022): 121560.
19. Labeit A., *et al.* "Utilisation of preventative health check-ups in the UK: findings from individual-level repeated cross-sectional data from 1992 to 2008". *BMJ Open* 3.12 (2013): p.e003387.
20. Younger JM., *et al.* "A Paradigm Shift in Medical Education, Transitioning to Integrated Curriculum: A Faculty Point of View". *Journal of Research in Medical and Dental Science* 10.9 (2022): 251-257.
21. Wang X., *et al.* "A push-pull-mooring view on technology-dependent shopping under social distancing: When technology needs meet health concerns". *Technological Forecasting and Social Change* 173 (2021): 121109.
22. Longstaff PH., *et al.* "Building resilient communities: A preliminary framework for assessment". *Homeland Security Affairs* 6.3 (2010): 1-23.
23. Ameer Arsalan Hadi P. "Nutritional status and sedentary lifestyle of individuals a review". *International Journal of Modern Agriculture* 10.2 (2021).