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RESEARCH ARTICLE

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Health seeking behaviour and its determinants in urban areas of developing countries: A primary survey in Kolkata city, India

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Summary

The aim of universal access to health care for most of the developing countries seems more challenging nowadays with rapid urbanization. We analyzed the health seeking behavior, as an indicator of the health access situation, its determinants and equitability among slum vs non-slum population in Kolkata. Public hospitals, found to be preferred by less-educated and uninsured people and provided cheaper service, although struggled with high indirect-costs and access barriers. People with high opportunity cost and higher social background were found to be more serious about treatment. However, the slum and non-slum people did not differ significantly in their health-seeking behaviour. A strengthened public health system with reduced access barrier is recommended.

KEYWORDS

health seeking behaviour, India, private vs public hospital, slum vs non-slum, urban health

1 | INTRODUCTION

For most of the developing countries, the declared aim of the universal access to health care[1] becomes more challenging with the rapid urbanization. Reports showed that 54% of world population in 2015 lived in urban areas[1] and 828 Million of slum population of the world lived in developing countries.[2] Moreover, health care access situation in urban area is more complex than, and different from, the rural one in many ways, and hence, the question arises

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whether the overtly concentrated huge population with different socioeconomic background (slum and non-slum dwelling people) of the urban area receive equitable health care access.

Despite the fact that all quality services with skilled manpower were concentrated in urban areas including best, super specialty, technologically developed hospitals,[2,3] studies found that the indicators of health like (MMR, CDR, IMR etc.) were worse in urban areas than its rural counterparts worldwide.[2,4] Although with highly concentrated facilities available, cities were overburdened due to three types of health hazard challenges, namely, (a) increasing infectious diseases due to a favourable environment for infections, (b) injury by road accidents and violence, (c) increase in non-communicable/life style diseases due to low physical activity, easy access to junk diet, etc. Rapidly increasing population, burden of people of suburban areas seeking better health service in cities and inequality in access by socioeconomic and political context are some other contributors to this burden.[2,5] This multiple type disease burden and increased population in cities has disrupted essential public services, including basic health care facility.[3,4,6] Unlike developed countries, the urbanization in regions of Asia and Africa, occurred without any required balanced infrastructural development as well.[7]

Data from two fastest growing economies of the world, namely, China and India, may be depicted as example. Studies show that China and India, top two populous developing countries in the world, are rapidly urbanizing. China and India may contribute 292 and 404 million people in their urban population, respectively, by the year 2050.[8] It has also been estimated that the expenditure for non-communicable diseases (NCD) during 2012-2030 to be US$ 27.8 trillion for China and US$ 6.2 trillion for India respectively.[9] In India, the changing lifestyle due to rapid urbanization leads to two fatal NCDs namely cardiovascular disease and cancer, which cause most deaths in urban areas.[10] As for communicable diseases, India ranked highest regarding burden of TB in the world.[11] The city of Mumbai, only recorded 2951 Multi-drug-resistant tuberculosis (MDR-TB) cases in 2014 which is over 12% of that of the country.[12] Reported road injury per. one million inhabitants in three mega cities of India, namely, Kolkata, Mumbai and New Delhi were 9.4, 3.2 and 9.1 respectively in 2015.[13]

However, poorly conceived social policies and programs with unjust economic and social arrangements led to health care access inequities worldwide.[2] In India, the public funding of health sector remains at a mere 1.2% of GDP in 2017-18 Union budget, and not only in India, developing countries, in general, neglected this issue, and continues to have a very low public health sector spending that public funding of health sector remains at a mere 1.2% of GDP in India 2017-18 Union budget.[14] "Quality health for all citizens" process can only occur with national and local policies with international attention. In order to follow up and monitor the urban health status worldwide, the "Global Forum on Urbanization and Health" was formed in 2010 and a joint report by WHO and UN Habitat was published[4] which provided a framework for comparing the health situation of cities across countries given their different socio-political contexts and levels of development. The health care system of a city does not depend on only healthcare sector policies, but also on the total urban environment and coordination with other social sectors. The Intersectional approach with different departments of the Government and political will can solve this problem.[15]

1.1 | Significance of the study

The above discussion definitely calls for locality specific analysis of health situations for urban areas which will help to develop specifically targeted policy to improve the health indicators of that particular area. Studies are increasingly using the health seeking behaviour of the inhabitants of a particular area to understand the health situation of the same. The health seeking and utilization behaviour of an area is a reflection of both demand side and supply side determinants of the health situation there. The supply side factors include the structure of the health care system, that is, Availability and accessibility of the health care services, whereas, the demand side factors comprise of the socio-economic-cultural background as well as demographic and disease pattern, Studies have also identified health seeking behaviour as one of the driving forces of the health care system policy direction. This paper analyzes the health seeking behaviour, as an indicator of the health access situation, identified its determinants and examined its

equitability among slum vs non-slum population in the urban area, based on a household survey in the Kolkata city of India.

1.2 | Health seeking behaviour: An indicator of the health access situation

Health seeking behaviour plays a vital role in health management of a community. Understanding human behaviour is a basic condition to change the behaviour and improve the health system. To understand the determinants of it is essential to provide consumer oriented improved service.[16]

Health seeking behaviour can be defined as an action performed by a person, who is under a morbid situation. Studies conducted on health seeking behaviour generally follow two approaches which are as follows: (i) The first approach emphasizes the output, that is, utilization of the health care system; (ii) The second one emphasizes the "process" that means illness response.[17] This study focused on the first approach.

This study used socioeconomic variables like household resources (Educational level, economic status, socioeconomic background), economic variable like cost of care (treatment, travel, time) and type and severity of illness, organizational variable like perceived quality (competence of Manpower, cleanliness, infrastructural facility). These variables were identified following the model proposed[18] that had been widely used for conceptualizing health care access.

1.3 | Health seeking behaviour in developing countries

The challenges regarding health care seeking behaviour in the developing countries have become an intriguing issue for the economists and social scientists in recent years.

Most of the studies aimed to explore and analyze the socioeconomic and cultural determinants of health seeking behaviour the people, especially in developing countries.[19] The socioeconomic predictors of health care seeking behaviour were found to be age, sex, occupation, marital status, level of education and income.[20-26] These predictors were also same even among HIV patients.[23] Among these predictors, economic factors were the most important as they influence the cost of treatment and its quality and affordability. The majority of these studies discussed above were found to be done on country-level or in rural areas.

In India, however, several studies are found regarding the determinants of health seeking behaviour of the common people in both rural and urban areas. These studies, however, were done on different segments of the population. Factors affecting maternal health care seeking behaviour in north eastern states represented that the choice set of publics vs home, women with higher number of living children, wealth quintile and living in urban areas were associated with greater odds of delivering at public health facility centers.[27] The health seeking behaviour of the mothers of children under five years in rural area of Gujarat was found to be significantly associated with their mass media exposure.[28] Poverty emerged as a major determinant of health seeking behaviour of senior citizens of Dharan.[29]

A study on the fishermen community of Ennore Creek found that age, gender, educational status, marital status, duration of illness, perceived severity of the illness, restriction in regular activity and loss of working days / wages were principal determinants of their health seeking behaviour.[30,31] Some studies identified that people who preferred public health facility was principally because it was free of cost, reported as. While on the other hand, the people who preferred private practitioners did the same due to better availability and good quality of care.[31-35] Another study found external determinants like level of education, caste, social status, culture, etc. and internal determinants like the person's inherited health, culture, family background, geography, etc. decided the health status of any person.[36]

Some other studies also identified people from lower income group seek either self-treatment of public health facility, whereas their higher income counterparts with insurance coverage prefer private health facilities.[37,38]

Socio-economic factors like family size, mass media exposure, gender differences, access to sanitation and safe water also found to influence the health seeking behaviour in some other studies.[39-41]

However, the majority of the studies were upon segmental population and on rural area, the study of health care seeking behaviour of the population across all strata in the city area was not given proper importance. Addressing this research gap is very important because, since, lack of universal health care access still persists in rapidly urbanized areas, the problem needs more in-depth study for policy recommendations.

1.4 | Specific research objective

This paper tries to explore and explain the health seeking behaviour of people of different socioeconomic backgrounds from both slum and non-slum area of the city and its determinants which can be useful for understanding both the demand side and the supply side access barrier that means challenges of the health system. To do so, the researchers assess two aspects of the health seeking behaviour, that is,

a. what are the determinants of choice of type of hospital (Public or Private)?
b. what are the determinants of seriousness about health care seeking (more or less)?

2 | MATERIALS AND METHODS

2.1 | Research design

It was a cross-sectional study and non -experimental factorial design was followed.

2.2 | Selection of study area

In this research primary data have been collected from Kolkata, one of the three largest mega cities in India. In India, 377.1 million people live in urban areas and the mega cities have maximum health care facilities available, while, on the other hand, they are crowded with the densest population along with a wider catchment area that includes other states of India and the adjacent countries as well.

Kolkata is the capital of West Bengal province of India. Kolkata has the highest population density (24 306 per square kilo meter), as well as, the highest percentage of BPL [Below Poverty Line of India] population (14.66%), among the mega cities in India.[42-44] The city also has a 31% of slum population, much higher than the national average of 21%.[45] According to the Urban Health Index (UHI) developed by WHO in 2014, the UHI score of Kolkata lies in the lowest range (0.369-0.509), whereas the scores for Mumbai and New Delhi fall in the range of 0.510-0.709.[45]

2.3 | Selection of sample

The Kolkata Municipal Corporation (KMC) area is comprised of one hundred forty-one (141) wards[46] and 10,07365 households. Probability sampling technique for the collection of desired number of samples from the target population was followed. Wards were selected by using a stratified sampling method. The entire area was subdivided into five zones, namely North, East, South, West and Central. For each zone, wards were stratified according to the percentage of slum households in the ward. Then, wards were randomly selected from the middle three strata, namely, having 15–30%, 30–45%, and 45–60% slum households, as the average percentage of slum population in the

District of Kolkata is 31% (which lies in the 30–45% stratum).[43] Then one ward was chosen at random from the selected Wards from each zone. Thus, five wards that were finally selected were, ward no. 4 from the Northern zone, ward no. 33 from the Western zone, ward no. 141 from the Eastern zone, ward no. 64 from the Central zone and ward no. 81 from the Southern zone.

The sample was selected with systematic random sampling method from those households that had had in-patient experience within the last 365 days at the time of interview from the selected wards.

Sample size is calculated with Cochran's formula of sample size for infinity population (1977).[47] According to this formula desired sample size is 385. However, although the researchers had collected 385 responses, eight responses were rejected at the time of data cleaning due to inconsistent and incomplete answers from the respondents. So, the final sample size for this study was 377 representative households (262 households and 115 households from non-slum and slum area) (Table 1).

2.4 | Collection of data

Primary data were collected from households during April 2017 to September 2017 through face to face interview based on a semi-structured interview schedule.

Five graduated ladies collected the data after getting trained with three days training session by the researchers. To complete a questionnaire it took 45 to 60 minutes. The questionnaire was developed by the researchers after a pilot study with 30 respondents. Then the questionnaire sent to three subject experts and recommended by them.

2.5 | Variables

Firstly, a descriptive analysis of the sample was done, based on caste, education, religion, socio-economic background index,[1] place of residence, monthly income, having BPL card, monthly per capita expenditure, etc. of the sample population. Then, the sample was divided into two sub-groups, slum and non-slum, and values of descriptive variables were compared between these two sub-groups using significance test.

For regression analysis, two variables were identified as indicators of "Health Seeking Behaviour" of the respondents, first, the choice of destination for treatment, that is, type of hospital (Public/Private) and second indicator was seriousness about healthcare seeking (more/less) on the basis of an index calculated with the detailed data on stage

TABLE 1 Ward wise distribution of respondents

Zone	No. of eligible wards (15-60% slum population)	Total household (Census of India, 2011)	Sample taken	Slum household (31%)	Actual non slum household (69%)
Central (Ward No. 64)	15	6342	47	16	31
West (Ward No. 141)	6	7755	51	15	36
South (Ward No. 81)	7	10 221	97	30	67
East (Ward No. 33)	7	11 095	95	29	66
North (Ward No. 4)	18	8558	87	26	61
Total		43 971	377	116	261

Source: Compiled by authors.

of illness at which treatment is sought, compliance with the doctor's instruction regarding medical tests and compliance with the followed-up instructions by the doctors, using UNDP, 1990 formula.[48] After calculating the index of each household, the set was divided into two categories, those above the median (more serious) and those below it (less serious).

Index = (Actual Value-Minimum value) / (Maximum value-minimum value), where the value of the index ranges from 0 to 1.

These indicators were regressed on some identified explanatory variables categorised in three categories, namely, "socio economic background" of the respondents (caste, education, religion, socio-economic background index,[2] place of residence, monthly income, having BPL card, monthly per capita expenditure), "healthcare access situation" (source of finance, man day loss, knowledge, facilitator, times of IPD availed in last 365 days, travel time to nearest public healthcare facility, travel time to reach the healthcare facility from patient, type of treatment- surgery or non-surgery, whether any facilitator[3] required or not, bed availability, bed type, smoothness of admission process, admission type, total direct and indirect cost of treatment, convenience of access, waiting time, cure of the disease).

However, the primary data on the above variables could not be compared with the secondary data, due to the non-availability of the later from any authentic sources. In that way, this study can be considered as a pioneer one in any megacity in India.

2.6 | Statistical analysis

The variables under study were measured in both ordinal and nominal scale of measurement. The quantitative data were analyzed by using STATA 13.0 version software. The researchers conducted descriptive and regression analyses to know the details of socioeconomic backgrounds of respondents and association with health seeking behaviour. Four separate binomial logistic regression models were used in this study to explain the variability of the four dependent variables since all of them are binary in nature. Odds ratios were reported for analyzing the results.

2.7 | Data quality check

Researchers monitored the data collection procedure by random field visit. Ten percent of the collected data were cross-checked by telephonic conversation with the respondents.

3 | RESULT

3.1 | Descriptive analysis

To study the socioeconomic background of the sample population, the same was divided into two categories, namely, slum and non-slum (Table 2). It was found that the religion and the caste distribution of these two subgroups were not distinctly different. But the slum population was significantly worse off than their non-slum counterpart in terms of economic status and education.

In slums, 83.5% people were with high monthly per capita expenditure (MPCE) (ie, above the official poverty line) compared to their non-slum counterparts (99.2) and 60% received 10 years of education (median value of the sample) compared to the non-slum people (86.3%).

To explore further a socioeconomic background index has been formulated comprising various socioeconomic variable and it was found that in the slums, only 20% people enjoyed higher socioeconomic status, whereas in non-slum area, the percentage was as high as 74.8%.

TABLE 2 Socio-economic-demographic details of respondents

Sl No.	Variable	Description	Slum	Non-slum	Total
1	Religion	Hindu (Major)	80.9	84.4	83.3
		Other religion like Muslim, Christian	19.1	15.6	16.7
2	Caste	General (Socially Higher)	92.2	94.3	93.6
		Other (SC[b], ST[b], OBC[b]) Socially Lower	7.8	5.8	6.4
3	Years of Education	High (above Median value 10)	60.0	86.3	78.2
		Low (Below Median Value 10)	40.0	13.7	21.8
4	MPCE[a]	MPCE[a] Rich	83.5	99.2	94.4
		Poor	16.5	0.8	5.6
5	Health Insurance status	Have	19.1	18.3	18.6
		Have not	80.9	81.7	81.4
6	Socioeconomic Background#	Good	20.0	74.8	58.1
		Bad	80.0	25.2	41.9
7	Choice of Hospital Type	Public	88.7	64.5	71.9
		Private	11.3	35.5	28.1

Source: Primary data.
[a]Monthly per capita expenditure of house hold: above Rs. 1410.00 in urban area is rich according to planning commission (2014).
[b]Socially and ethnically backward class.

It was also observed that more than 80% of the people had no insurance coverage irrespective of their place of living; however, a significant proportion of people residing in slums (88.7%) sought treatment in a public hospital, compared to their non-slum counterparts (64.5%).

Then a one tailed mean difference was conducted to compare the completed years of education of the respondents live in non-slum and slum area. There was a significant difference in the scores of non-slum area (M = 12.3, SD = 1989.766) and slum area (M = 9.4, SD = 989.9831); $t_{(375)}$ = 7.8169, significant at 1% level. *P* = .0000. With this test it is proved that completed years of education of the respondents of non-slum area is significantly higher than that of slum area.

A similar one tailed mean difference was also conducted to compare the monthly per capita expenditure of the respondents live in non-slum area and slum area. There was a significant difference in the scores of non-slum area (M = 0.4322.351, SD = 1989.766) and slum area (M = 2305.948, SD = 989.9831); $t_{(375)}$ = 10.3159, significant in 1% level. *P* = .00 with this test it is proved that average monthly per capita expenditure of the respondents of non-slum area is significantly higher than that of slum area.

A one tailed mean difference test to compare the socio-economic background index of the respondents live in non-slum area and slum area, showed that there was a significant difference in the scores of non-slum area (M = 0.8101781, SD = 0.0665251) and slum area (M = 0.6875362, SD = 0.0914962); $t_{(375)}$ = 14.6184, significant in 1% level. *P* = .00 with this test it is proved that socio-economic background of the respondents lived in the non-slum area is significantly better than that of the slum area.

The results of the Binomial Logistic regression analyzing the choice of health facility are shown in Table 3. The relative probability of choosing a private hospital than its public counterpart among the respondents was found to increase significantly by 23.6% with an increase in each year of education (odds ratio 1.236), however, other socio-economic backgrounds did not affect this decision significantly. Not having insurance reduced the relative probability of choosing a private hospital over public significantly (88.7%). Also, not having a good and effective facilitator[4] was

TABLE 3 Factors influencing the probability of choosing private healthcare facility compared to public healthcare facility

Predicted variable: Public healthcare facility 0 Private healthcare facility 1		
Predictor variables		**Odds ratio**
Place of residence	Non-slum (Reference) Slum	0.474473
Caste	General (Reference) Reserved	1.082708
Socioeconomic Background Index	Good (Reference) Bad	1.242088
Religion	Hindu (Reference) Minority	0.7079089
Years of Education		1.235799***
Monthly Income		1.000004
Source of finance	Health Insurance (Reference) Monthly Income Savings Loan	0.1134325*** 1.617821 0.929725
Man-day loss		1.000125
Knowledge	Have (Reference) Have not	1.403141
Facilitator (an accompanist who had already availed that hospital earlier)	Neighbour (Reference) Relative Tout Employee of that facility	0.0584944*** 0.0337088*** 0.0680503***
The times of IPD availed in last 365 days		1.178444
Travel time to nearest Public health care facility		0.9780834
Travel time to reach the healthcare facility from home		1.002422*
Surgery	Happened (Reference) Not happened	0.782353
Constant		1.495714

Note: Number of observations = 367, LR chi^2 (18) = 168.51***, Pseudo R^2 = 0.3851.
*Significant at 10% level.
***Significant at 1% level.

found to reduce the probability of going to the public hospital. Increase in travel time, however, was found to increase the probability of choosing a private hospital. Interestingly, the study found that the choice of hospital did not depend on the place of residence (ie, slum or non-slum).

The probability of being more serious about illness comparison than being less serious about illness has reduced by 0.8033725 times where the caste of respondent changes to scheduled (socially backward section among the Hindu religious group) caste from general (Table 4). Total indirect cost of treatment (refreshment cost, travel cost and other costs, if any, except man-day loss) was also found to reduce the relative probability of being more serious about treatment significantly by 0.0064245 times. However, more man-day loss (converted in terms of money) and travel time increases the probability of seriousness about treatment. Seriousness about illness was also found not to be influenced by the place of residence in the present study.

TABLE 4 Factors influencing probability of being more serious about illness than less serious about illness

Predicted variables: Less serious about illness 0 More serious about illness 1		
Predictor variables		**Odds ratio**
Type of Hospital	Public (Reference) Private	1.494073
Place of Residence	Non-slum (Reference) Slum	1.317648
BPL card	Holder (reference) Non-holder	1.263715
Caste	General (Reference) Reserved	0.1966275***
Religion	Hindu (Reference) Minority	1.301888
Years of education		1.039348
Monthly per capita expenditure		1.000145
Total indirect cost of treatment		0.9935755***
	Needed (Reference) Not needed	0.8861143
Source of finance	Health Insurance (Reference) Monthly Income Savings Loan	1.048309 0.5432681 0.2601237
Travel time from Home to healthcare destination		1.009821***
Man-day Loss		1.000392*
Admission type	Planned (Reference) Emergency	0.5387767
Knowledge about health services	Have (Reference) Have not To some extent have	1.468594 2.090654
Constant		1.775575

Note: Number of observations = 375, LR chi^2 (17) = 47.42***, Pseudo R^2 = 0.1283.
Source: Primary data.
*Significant at 10% level.
***Significant at 1% level.

4 | DISCUSSION

4.1 | Choice of hospitals

The above results indicate an average perception of better treatment in private hospitals, despite higher costs, as people with more education and insurance coverage opted for them.

Educational status of household, insurance coverage, availability of facilitator and travel time to healthcare facility from patient's house influenced choice between hospitals. Here, private hospitals were costly, far distant but preferred by the educated people to get better quality treatment.

The result shows that education is a significant factor to make choice among the hospitals. In this study persons with higher levels of education were found to be prone to choose private hospital for treatment. Analysis from NSSO

60th round database (2005)[49] and primary data from India[50] supported this result. The detailed explanation of this has been given in a report of research study of the Kings Fund, London.[51] They explained that higher educated were offered choice than less educated and they were more likely to exercise choice, because higher educated were aware of their right to choose and they were better equipped to compare hospitals and select a higher quality alternative.

The next finding is that people used more travel time to go far to avail private hospital. This result was also supported by the study of Dixon et al. (2010).[51] Travel cost was out weighted by the benefit from improved quality treatment. Less educated patients or those without access to personal transport could be disadvantaged to avail this. Another study showed that higher educated people preferred to travel more rather wait in local to get treatment.[52] But contradictory result was found in another one[53] as utility increased if travelling time decreased.

The result also depicted that the person having health insurance was motivated to avail private hospital as the private hospital was costly and unaffordable without health insurance. A study [54] on attitude of health care seekers towards a health care system of Kolkata also found that cost is the main access barrier to avail private healthcare. A thesis on the pattern on morbidity and health care access in West Bengal found that 30% of household faced a financial catastrophe.[55] In the urban area of West Bengal average direct cost was Rs.24875.00, average indirect cost Rs.2375.00 and total average cost Rs. 27249.00.[56]

The primary data in the present study revealed the average cost of treatment of the respondents per hospitalization in Kolkata to be much less than that in urban area of West Bengal.[56] Public hospitals were found to provide low direct cost treatment, but were associated with high indirect cost and access barriers resulting inconveniences. This explains the result that people with less education, having no insurance but having a facilitator went to public hospitals. A study[25] on secondary level government run hospitals in West Bengal also found similar result.

According to NSSO report of 71st round (2015) only 32% of urban people in India, availed public health care facilities, whereas urban people in West Bengal were more inclined to the same (52.6%), although the percentage decreased in the last decade. 65.4% in NSSO report of a 60th round report, 2004.[57] But the primary survey found that in surveying area, 71% of respondents availed public health care facility which indicates the sample households of Kolkata city were more inclined to public healthcare facility than the people of the urban area of West Bengal as a whole. It might be a result of the availability of four super specialty tertiary care, public hospitals and several specialty hospitals as well that provide free medicine, bed, equipment for all patients.[58]

4.2 | Seriousness about treatment seeking

Demand side factor like social backwardness and supply side factor like indirect costs discouraged the people to be more serious about their health. Several studies supported that increased healthcare cost and lack of awareness are barriers to access healthcare timely.[59,60] However, more man-day loss (converted in terms of money) increase the probability of seriousness about treatment due to increased opportunity cost. Patients with more travel time are more prone to be serious about treatment to avoid repeated visits.

4.3 | Health-seeking behaviour: Slum vs non-slum

Studies had found that in respect of financial affordability of slum people in the public healthcare facility in Mumbai city.[61] In the present study also, it was found that slum people are significantly worse than their non-slum counterparts in terms of level of education, monthly per capita expenditure and socioeconomic background index. And, in terms of health seeking behaviour also, these two groups were found to have significant difference in various studies. A study in Delhi had shown that more than half of the slum people utilized Government healthcare facilities.[62] But, the present study found a different result regarding health seeking behaviour between slum and non-slum people.

4.4 | Novelty of the study

The present study found difference between the slum and the non-slum people in Kolkata city, neither in choice of hospital, nor in seriousness about seeking treatment, in spite of having significant differences in level of education, monthly per capita expenditure and socio economic background index. Although, the difference in health-seeking behaviour depended on people's social background (caste) and level of social awareness (level of education), the place of living did not play a significant role in their health seeking behaviour. However, the reason for this unique result for Kolkata city, could not be identified in the present study, because it required further exploration and separate analysis.

4.5 | Limitations and future research

This study includes households living in Kolkata Municipal Corporation and who have experience of healthcare access within one year. This study neither included the households who do not seek health care, nor the people who come to avail healthcare facility in Kolkata from other districts or neighbouring countries like Bangladesh, Nepal, and Bhutan.

The opinion of the households who do not seek health care can be included exploring the cause of non-accessing health care. Opinion of supply side, that is, doctors and healthcare staffs regarding health care access situation can be searched for supplementary suggestions. The reason behind absence of significant difference behaviour between slum and non-slum population regarding both choice of hospital and seriousness about seeking treatment requires further exploration and analysis.

4.6 | Policy recommendations

The above results call for a 2-fold policy options for the government.

Regarding private health sector: Since people who can bear the cost went to the private hospitals, and, moreover, a considerable percentage of those who went to public hospitals also expressed their choice for private hospitals (ie, if they had had the money), the government could, *firstly*, since, results found that people having insurance coverage tend to go to private hospital, it indicates that private hospitals provide good quality treatment by is generally unaffordable without insurance coverage. Hence, control and monitoring of the private hospitals is required on the part of government so that they could not impose high-cost unnecessary treatment and rather charged fairly to minimize its non-affordability. *Secondly*, the premium of health insurance could also be controlled and monitored in more logical way by the government. The Government could also ensure the proper implementation and utilization of Government sponsored health insurance like National Health Protection Scheme for disadvantaged and vulnerable people. But previous studies found that health care markets tend to create a monopoly and over-pricing, leading to negative equity (for access) that often results in catastrophic health expenditures for households.[63] There is also evidence that the private health market in India highly characterized by the various sources of market failures.[55,64-68]Studies based on NSSO data even indicated the sources of non-sustainability in the Rashtriya Swasthya Bima Yojana (RSBY) in West Bengal, which has later been revamped as National Health Protection Scheme.[69] These studies raised serious questions about the viability of the government-sponsored insurance schemes in India.

Regarding public health sector: The present study identified some unique characteristics of the sample population in the study area. People without insurance went to public hospitals, because they favoured cost-effective and public hospitals were definitely providing it to the poor people at least. But treatment in public hospitals involves high indirect cost. Therefore, the government can provide a strong and effective alternative here against the expensive and complicated private health system if it improvises some methods to reduce the access barrier and indirect cost of the existing public health system.

Therefore, this paper recommends the strengthening of the public health system. *Firstly*, hospitals should be user-friendly with sufficient displayed information. Mass media and website must be used to deliver the latest information. Adequate provisions of health care delivery must be there in the public healthcare facility, keeping in mind the growing demand. *Secondly*, indirect cost of treatment should be minimized. To minimize travel cost of hospital free ambulance service should be available sufficiently and medical mobile vans should be available in the locality regularly at a certain time and also in emergency case. Diagnostic tests should be performed instantly so that patients need not come another day for test and diagnosis. To minimize the refreshment cost a compulsory cheap but good quality canteen should be set up in the hospital premises for the patient party.

However, although the study covered only one metro city of India, the results might not be dissimilar in other cities except the absence of slum non-slum disparity in health seeking behaviour, with only varying degrees. Kolkata might be considered a representative case study for explaining the health-seeking behaviour of the urban population in any other developing country following similar health policies. Therefore, the policy recommendations mentioned above could be applicable in those countries as well.

5 | CONCLUSIONS

The study found indirect costs and social backwardness acted as initial hindrances for the people from seeking treatment in illness and hence determines the level of seriousness about seeking treatment. However, while more man day loss discourages treatment seeking, more travel time encourages seriousness in seeking treatment as people want to avoid repeated visits to the hospital. It also found that people with higher socioeconomic background and having insurance back up went to private hospitals and poor people preferred public ones. Health seeking behaviour did not vary for slum and non-slum people. Public hospitals were providing cost-effective and output-based good services, while could not reduce indirect costs and access barriers. People did prefer cost-efficient and output-based services from the health care facility they availed and there is scope for government to improve the public health system as an effective alternative to its private counterpart which can benefit the innumerable poor people residing in urban slums.

CONFLICT OF INTEREST

The authors have no competing interest

ETHICAL APPROVAL

Our study did not require any human/animal subject to acquire approval from any ethical approval committee.

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ENDNOTES

[1] Socio economic background index is calculated with the help of detailed data of ownership of house, type of house, sanitation facility, source of drinking water and drainage system of sample households. After calculating the index of each household, the researcher divides the set in two parts those are above the median index. 0.8 and above stands for Good.

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[3] An accompanist who had already availed that hospital earlier.

[4] A person/relative/friend/neighbour who is well-acquainted and familiar with the hospital.

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A Scoping Review of Changes to Patient-Doctor Communication During COVID-19

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ABSTRACT

Effective communication between patients and doctors is fundamental to high-quality healthcare, patient safety, and overall satisfaction. However, the onset of COVID-19 has prompted significant shifts in communication from in-room and face-to-face interactions to virtual consults. The impact of this pandemic-related change on patient-doctor communication goals, processes, attributes, and environment remains unclear. We undertook a scoping review involving the systematic search of seven academic databases for relevant articles published up to and including June 2021. In total, 47 articles were identified that met the inclusion criteria. We applied the patient-doctor communication framework to guide our deductive thematic analysis of articles included, sorting results from reported studies and position papers into themes and sub-themes. The theme of *communication goals* highlighted sub-themes related to patient safety, convenience, affordability, and satisfaction; *preparation* included sub-themes on technology interventions, workforce training, and digital literacy; *participant attributes* included compassion for doctors and rebuilding trust among patients; and *communication process* included issues related to telemedicine or video conferencing, challenges with diminished patient privacy, and distractions in the patient's home setting. Finally, the *environment* theme included insights into doctors' workload, isolation, and anxiety and how changes requiring increases in virtual consults iteratively altered confidence in care provision and communication with patients. Results of the scoping review provide important insights for strengthening virtual patient-doctor interactions, including target areas for training and professional development during and beyond the current pandemic.

Introduction

Health communication is a two-way structured interaction in which sharing information aptly guides the development of mutual understanding of illness, disease, and treatments. Matusitz and Spear (2015, p. 872) define patient-doctor communication as "the exchange of messages, in a medical or health care context, between a doctor and a patient, whereby communication processes are performed. Such communication processes include relationship building, information gathering, understanding of the patient's viewpoint." Quality patient-doctor communication is indispensable to patient care, safety, and patient satisfaction (Bolster & Manias, 2010; Brummel-Smith et al., 2016; Slatore et al., 2012). These are embedded in existing patient-doctor communication protocols, founded upon legally agreed standards that direct medicos on how to offer care services. However, the COVID-19 pandemic declared in 2020 gave rise to two main issues potentially effecting the nature and quality of patient-doctor communications. These were the stricter personal protective measures required in face-to-face consults and the increase in virtual consultations, compared to pre-pandemic times.

Clinical visits are surrounded by stricter protective measures requiring the wearing of face masks other personal protective equipment (PPE), physical distancing, and more frequent sanitization (Fakhari et al., 2020). Additional time is needed for personal safety and infection control, adding to doctors' workloads. When a close contact or upon contracting this disease, doctors' time-out contributes to resource scarcity in clinical settings. Along with global, socio-political pressures to keep up with escalating demands, changes have modified the communication environment (Ghosh et al., 2021). There is less time to establish patient-doctor relationships and less time to further communicate with patients (Johnson & Butcher, 2021). Face-to-face consults have reduced, making way for greater uptake telehealth and video conferencing (Nwoga et al., 2020), disrupting many established communication frameworks and protocols, and increasing complexity (Chopra et al., 2020; Fakhari et al., 2020; Naser et al., 2020). There is increased risk of miscommunication, misdiagnosis, and patient isolation, leading to additional health adversity (Mckinstry, 2000; Ong et al., 1995). Few studies have documented changes in patient-doctor communication associated with the COVID-19 pandemic and their implications for patient care.

Given the increased rate of virtual platforms used for patient-doctor communication, our scope of pandemic-related literature sought understanding of changes in communication preparation and goals, the communication environment, effectiveness of virtual communication platforms, characteristics patients and doctors who are champions of change, and the research methods used to study these phenomena. We applied Feldman-Stewart et al.'s (2005) patient-doctor communication framework to explore both the doctors' and patients' perspectives across the articles included.

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Methods

Our scoping review followed the methodology of Arksey and O'Malley (2005). It involved five key steps: identifying the review questions, identifying relevant studies (or items), study selection; charting the data; and collating, summarizing, and reporting the results (Arksey & O'Malley, 2005). We confined our search to articles published during approximately the first 18-months of the declared pandemic. We intended to capture the period in which patient-doctor communication was constantly changed from face-to-face to virtual formats by evolving pandemic contexts.

Identifying the research questions

Our review was guided by the following questions: (a) What changes have taken place in patient-doctor communication goals and preparation during the pandemic? (b) how has the patient-doctor communication environment changed? (c) What are the virtual communication platforms being used, and how effective are they? (d) what are the characteristics of patients and doctors in evolving health communication? and (e) what types of research methods and materials were used to investigate the patient-doctor communication environment and process?

Identifying the relevant literature

The literature search for relevant articles followed the PRISMA guidelines (Page et al., 2021). Systematic searching was conducted on seven significant databases: PubMed, MEDLINE, ERIC, PsycINFO, DELNET, EMBASE, and the Google Scholar search engine. The researchers and a librarian first piloted an inclusive search string for database searching, subsequently reviewed by health communication experts, and adjusted according to the requirements of each database: "SARS-CoV-2" OR "COVID" OR "coronavirus" OR "pandemic" AND "patient" AND "patient-clinician relationships" OR "patient-clinician interaction" OR "person-centered clinical interaction" OR "health communication" OR "patient-doctor relationships" OR "patient-doctor communication" OR "doctors role in health communication" OR "clinical decision making" OR "care management" OR "advance care planning" OR "person-centered care" OR "hospital admission and acute care." Potentially relevant items from each database and the first 2000 items identified from Google Scholar, which orders results according to relevance, were downloaded and exported to Mendeley, an online web-based bibliography and database software platform. Duplicate articles were identified and removed. After selecting relevant articles, reference lists were hand searched for any additional items.

Selection of literature

Items for potential inclusion were screened against the inclusion and exclusion criteria. Peer-reviewed articles in the English language were included. Both primary (quantitative, qualitative, or mixed method research and secondary documents (review article, position paper) published from April 2020 to June 2021 and relevant to patient-doctor communication were included. Included study participants were patients and doctors (physicians, surgeons, psychiatrists, ophthalmologists, oncologists, gynecologists, rheumatologists, pediatricians), medical students, and interns. Correspondences, editorials, letters to the editor, commentaries, short communication, and items published in languages other than English, were excluded. No country restrictions were applied.

Two levels of screening were performed. Following initial piloting with a small sample of articles until at least 90% inter-rater reliability was achieved, title and abstracts were independently screened by two reviewers (MP, MH). A similar independent screening process was applied to the second level full-text screen (MP, MH) with discrepancy resolution completed by two reviewers (NAS, HM).

Charting the data

A predefined spreadsheet was developed to guide data extraction from the articles included. In charting, we document each study's author, publication year, country of study, aims and methodological characteristics, and the main research findings. Specifically, we charted data on terms and concepts used to describe components of patient-doctor communication and added our commentary that noted the significance of each finding in the current scoping review study. The form was calibrated through one pilot test for two reviewers (MP, MH) on a random sample of nine included articles. For this exercise, two team members independently extracted data, compared results, and discussed discrepant items. Upon completion of the pilot test, two reviewers (MP, MH) independently completed data extraction for the 47 included articles. Discrepancies between reviewers were resolved by the third and fourth reviewers (HM, NAS).

Collating, summarizing, and reporting the results

The Center for Reviews and Dissemination guidelines overarched our methods for synthesizing the aggregated data from the selected studies (Page et al., 2021). An integrated synthesis process was chosen because of the heterogeneity of the research designs and methods employed and the countries examined. A thematic deductive method used an established theoretical framework to categorize the identified communication dimensions and factors into themes or groups (Braun & Clarke, 2014). Before synthesizing the findings, an appraisal of the methodological characteristics was conducted to understand the study settings, research designs, and methods employed in the selected studies.

The findings were synthesized about the status of patient-doctor communications, seeking to identify the influence of COVID-19 on this communication. We used the chief constructs of Feldman-Stewart et al. (2005) patient-doctor communication framework to map and understand the real-event factors in the communication process. The framework includes four components [Figure 1].

The first component is the communication goal and preparation that drives the patient in communication during the

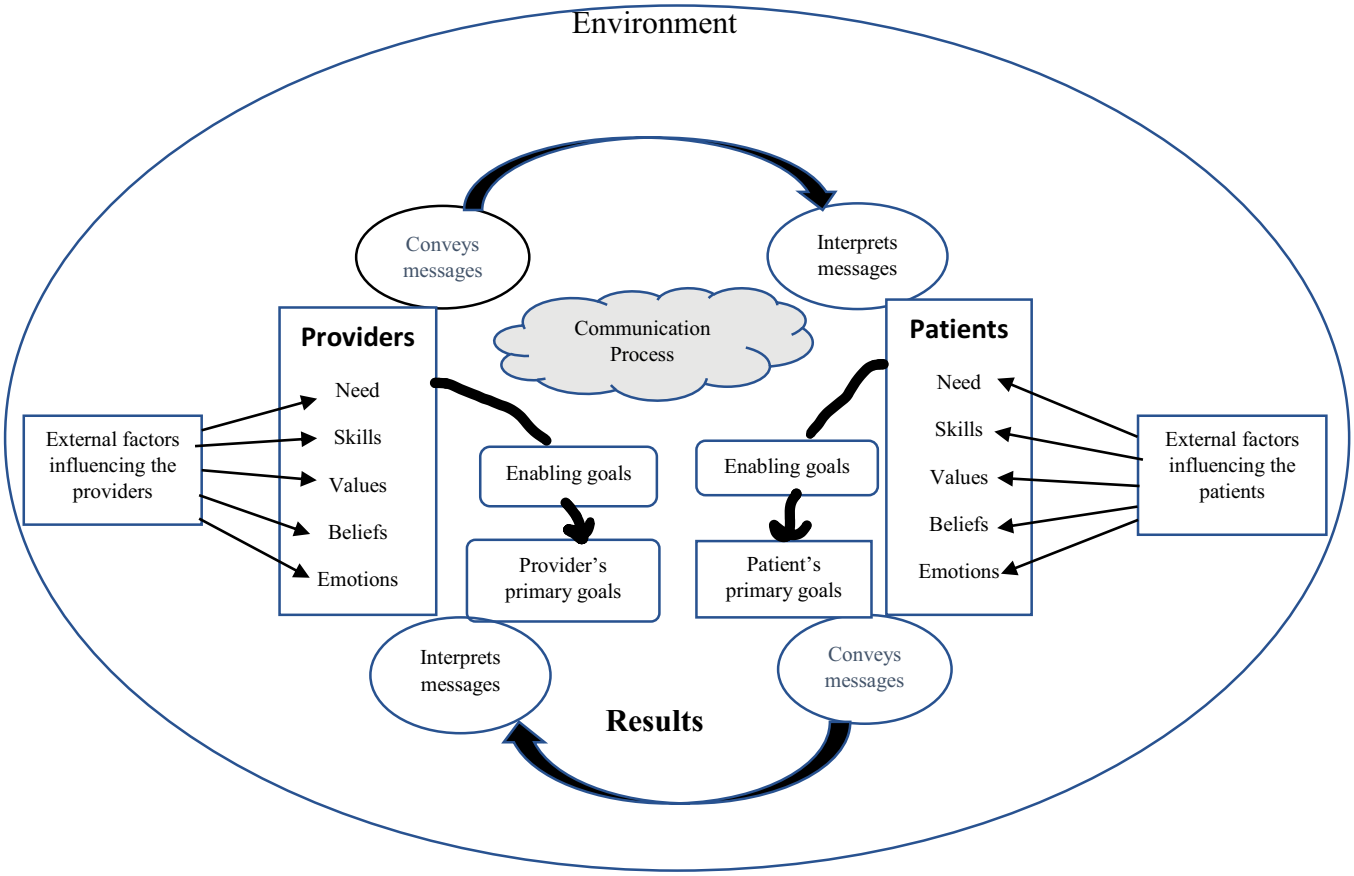

Figure 1. The re-created conceptual framework for patient-doctor communication [**Source**: Feldman-Stewart, D., Brundage, M.D. A conceptual framework for patient-doctor communication: a tool in the PRO research toolbox. *Quality of Life Research* **18**, 109 (2009). https://doi.Org/10.1007/s11136-008-9417-3].

visit with the physician. A goal is defined as the objective of the participants' communication effort, denoting that, each encounter has its particular goals. Each goal is an expression of one or more of the participant's needs. Part of the communication process may be negotiating about which goals will be addressed. Goals are primary and secondary or enabling.

The second element involves the participant's attributes, such as their needs, beliefs, values, skills, and emotions. Communication is a direct function of the attributes, or qualities, of each person involved which includes those needs related to elementary physiology and safety (e.g., food and security), as well as social (e.g., affiliation), psychological (e.g., recognition, self-respect, autonomy, power) and self-actualization needs (e.g., need for the truth). The beliefs of a participant characterize her understanding of her world, including the particulars of her situation and what the participant deliberates to be fact (knowledge). Values of a participant include qualities or end states which may or may not be considered as worthy or desirable. Skills are the elements that underlie a person's ability to accomplish specific goals. Emotions comprise valences both positive (e.g., joy) and negative (e.g., anger).

The third constituent of the context is the communication process, which includes each person conveying messages and receiving messages, which can be verbal, non-verbal, or silent. The provision and interpretation of messages are the heart of the entire communication process. Comprehension of conveyed messages consists of two rudimentary components: content and emotions.

The fourth aspect of patient-doctor communication is the environment where communication ensues. This study uses all these components to thematize and discuss the review findings. Patient – professional communication occurs in a complex environment that includes social, cultural, legal, and physical aspects. As an external factor in participants' attributes, environment can influence the attributes of all involved participants.

Implementing a conceptual framework to a review of the influence of COVID 19 on patient-doctor communication literature can benefit and expedite the integration of research findings into an intelligible coherent body of knowledge; by identifying the outcomes to be used in evaluating the success of a communication process; providing insight onto apparent dilemmas; identifying potential interventions and providing guidance for their design.

Findings

Study characteristics

A total of 2493 publications were yielded in the initial electronic search, and seven publications were added from the manual search. After checking the duplicates from the reference list, 793 references were removed; further 1644 references were excluded via title and abstract screening. Full texts for the remaining 56 potentially eligible references were retrieved

and inclusion/exclusion criteria were applied. In the end, 47 articles were found to meet the criteria. The following Prisma Flow diagram demonstrates the conceptual mapping of selection and management of the final list of references (Figure 2).

The majority of the studies (40) were conducted in high-income countries, such as the United States of America (22); The United Kingdom (4); Italy (4); Germany (2); and Australia (1) (Table 1). Only seven studies were conducted in the lower middle- and upper middle-income countries, including China (2); India (2); Brazil (1); Egypt (1); and North Macedonia (1), with no studies in low-income countries. The selected studies used positivist, interpretivism, critical, and pragmatic social paradigms. Twenty studies used the pragmatic paradigm, with the remaining studies using an interpretive paradigm (17), a positivist (7), and a critical social paradigm (3). The studies mainly employed qualitative approaches (14), followed by analytical (9) and quantitative approaches (7). Mixed methods were used in three studies. Similarly, the data collection techniques varied, where 12 studies used questionnaires and ten drew information from existing databases. Other data collection tools were interviews, observations, case studies, clinical data analyses, consensus meetings, and social media analysis.

There were some differences in the results from five different types of studies. Quantitative studies focused mainly on patients' satisfaction and found positive results, suggesting the need for more digital literacy among patients. Qualitative studies focused on mainly doctors' experiences and found challenges and resilience to challenges, innovative approaches. In mixed method studies, both doctors' and patients' opinions are included. Not only virtual treatment but also e-teaching of doctors are important findings here. In the position papers, the authors discussed the long-term positive effects of virtual communication between doctors and patients, equality of healthcare access and legal support by changing laws. Review studies found governments' role in the changing situation and doctors' stress in the changing environment. These serious issues we could not find in the primary study's results.

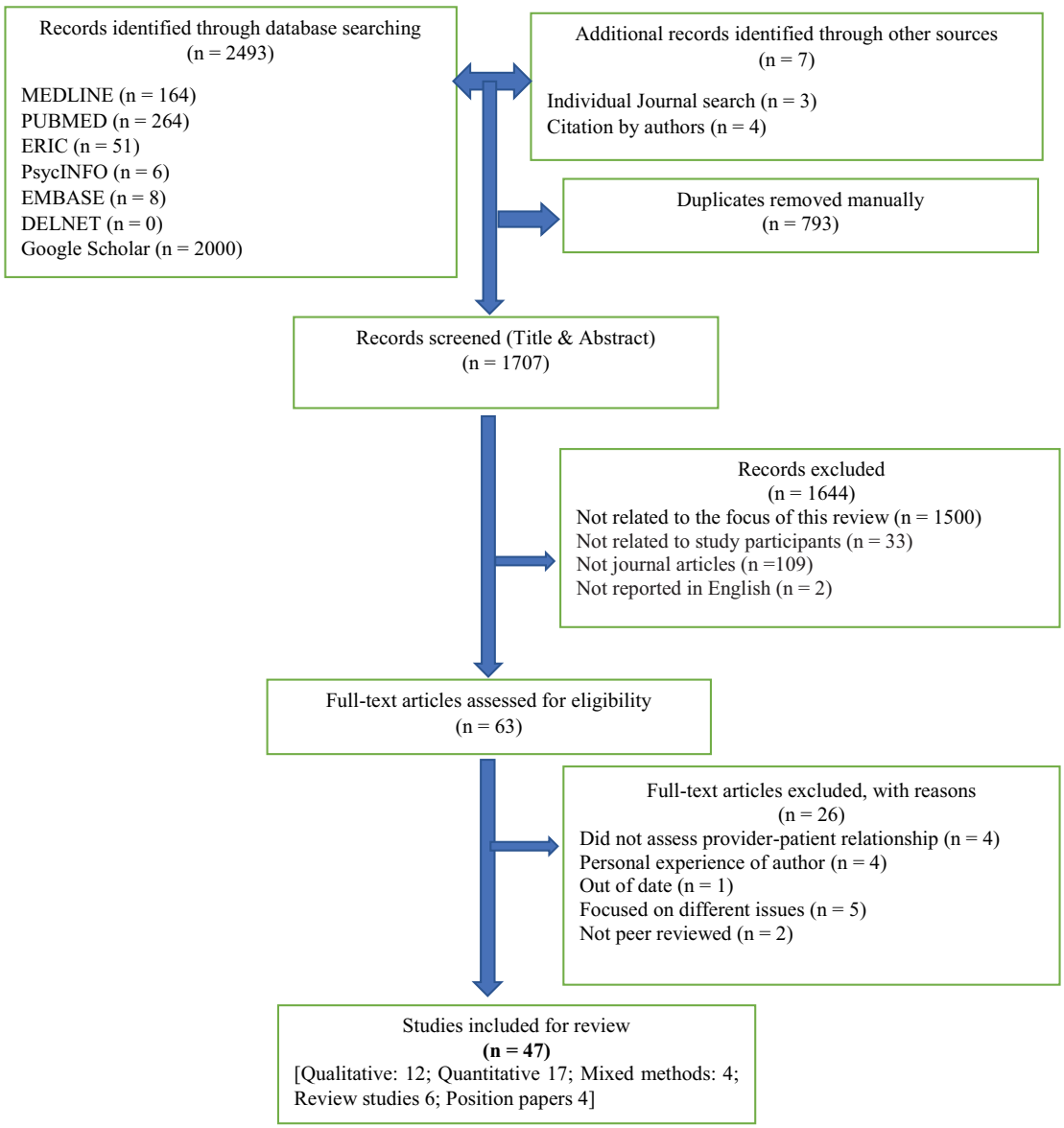

Figure 2. PRISMA flow chart.

Table 1. Overview of studies included.

	Author/s Year and Country	Aims of studies	Methodological characteristics: Research approach and study design	Methodological characteristics: Data collection tool, Sampling method or recruitment process, sample size, and period of data collection	Character of participants	Major findings	Significance to this study
1	Quian Liv/April 2020/ China	We aimed to describe the experiences of these healthcare providers in the early stages of the outbreak of COVID	Qualitative study/ Phenomenological approach/ Interpretive paradigm/	Semi-structured, in-depth interviews by telephone/purposive and snowball sampling/ Nurses 9 and Physicians 4/Feb 10–20 2020	Nurses and Physician who provide direct treatment for COVID-19 patients	(1) Being fully responsible for patients (2) Challenges of working on COVID-19 wards (3) Resilience amid challenges	Need of Regular and intensive training for all health care providers is necessary to promote preparedness and efficacy in crisis management found
2	Marina Serper et al./ June 2020/ USA	Describe a real-world experience of patient- and clinician-rated acceptability of telephone and video outpatient visits during the initial 4 weeks of the emergency COVID-19 response at a large, diverse gastroenterology (GI)/ hepatology practice in an academic health system.	Quantitative/Survey/ positivistic approach	77/Online portal or telephonic survey// March 16 to April 102,020/semi-structured questionnaire.	OPD Patient aged >18 experienced 4 tele conferencing for hepatitis	(1) Early feedback from patients were generally positive, with two-thirds of telemedicine visits rated as good/better than face-to-face (2) Notable differences in telemedicine acceptability, video vs telephone use, and online portal use as a surrogate measure of digital literacy were noted for Black race and older age	Practices should continue work to mitigate disparities in access to technology and low digital literacy
3	François Roubille// 2021/France	Whether these basic principles of patient-doctor relationship are still compatible with this unusual COVID-period.	Historical point of view & philosophical perspective/ Interpretive approach/ position paper	Assimilate clinical data and discuss options with patients.	NA	Profound changes occur presently, from the way we present ourselves to each other (1) (Including the masks), the (2) poor conditions for physical examination, (3) the mental suffering of both patient and caregiver until sometimes terrible end-of-life conditions.	Our relationship can be transformed, but finally, we have to pave the way to go further and overcome these challenges. Rebuilt trust
4	Hai-Lei Li/June 2020/ China	To evaluate the effectiveness and patients' satisfaction of using telemedicine virtual communication to provide remote health care to vascular patients during the coronavirus disease 2019 (COVID-19) period in China.	Quantitative study Pilot survey/evaluative/ pragmatic	Questionnaire was used to evaluate the patient satisfaction level/ 19 February to March 16, 2020/sample size 114 patients who treated through video call/random sampling	Patients who would usually attend outpatient clinic for follow-up of their vascular conditions and above 18 years old. and can access the technology	Telemedicine offers support to vulnerable vascular patients without the need for travel and face-to-face hospital consultation, and so avoided transmission and infection.	Video Telemedicine virtual communication was effective to provide remote health care with a high patient satisfaction during the COVID-19 period

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Table 1. (Continued).

	Author/s Year and Country	Aims of studies	Methodological characteristics: Research approach and study design	Methodological characteristics: Data collection tool, Sampling method or recruitment process, sample size, and period of data collection	Character of participants	Major findings	Significance to this study
5	Joseph R. Scalea/USA/ 2020	COVID-19 is affecting the surgeon-patient relationship and we discuss highlight the need for innovation in our field	Interpretive paradigm/ surgeons experience	March 2020/intervention with video conference/	Surgeon	We have seen how our classical approach to care (of which I am fully supportive) has holes. It is not perfect, nor will it ever be. Let us use this time as surgeons to learn from this new way of practice, but also to ensure that we continue to include humanity in our service.	Innovation is key to our future as surgeons
6	Thomas H. Lee/ March 2020/USA	Are there things we are doing now that will become part of the "new normal"?	Interpretive/Physician's experience	NA	Clinicians	learning new skills during this crisis as we care for patients without seeing them in the office	Those skills will make care better, more convenient, and more affordable after the pandemic ends.
7	Ateev Mehrotra et al./ April 2020/USA	Across four primary care practices, we describe our experiences in trying to become "virtual practices," challenges we have faced, and our goals for the coming weeks.	Interpretive paradigm/ experience of doctors	Intervention of technology	Doctors of Harvard school clinic	In our new virtual practices, we find that telephone care is the current telehealth mainstay; video visits are taking time to ramp up	We have created macros in our electronic health records to ensure we document patient consent for a telehealth encounter, discuss confidentiality barriers, and document time spent in the visit.
8	Isacco Desideri/Sept 2021/Italy	The aim of the present study was to evaluate Health-related Quality of Life (HRQoL), patient satisfaction, and level of patient knowledge and satisfaction with COVID-19 precautions	Quantitative/Intervention/ positivistic	atients/125/1–30 April 2020/validated questionnaire/	Radiation oncology inpatient and outpatient age >18 and without cognitive impairment	Despite the introduction of strict COVID-19 control measures, there was a high level of cancer outpatient satisfaction. Most (89.6%) rated their treatment good, very good, or excellent. Concerning COVID-19-related questions, patients reported overall very good level of information.	The satisfaction levels may influence compliance, continuity of treatments, and patient – doctor communication, impacting the quality of clinical care in the next phases of the pandemic
9	Anthony V Das eta al./ India/May 2020	To describe the experience of tele-consultations addressed at the center of excellence of a multi-tier ophthalmology hospital network in India during the ongoing novel coronavirus (COVID-19) lockdown	This cross-sectional hospital-based study/ pragmatic	7,008 tele-consultations presenting between March 23rd and April 19th 2020/ Google Form/ Sheets and the telecalls/ patients	Patients who availed telemedicine for ophthalmology	Tracking of tele-consultations and access to patient information from the electronic medical records enabled a timely response in an ongoing lockdown due to the COVID-19 pandemic.	Current experience provided valuable insights to the possibility of managing patient follow-up visits remotely in the future.

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Table 1. (Continued).

	Author/s Year and Country	Aims of studies	Methodological characteristics: Research approach and study design	Methodological characteristics: Data collection tool, Sampling method or recruitment process, sample size, and period of data collection	Methodological characteristics: Character of participants	Major findings	Significance to this study
10	Vidushi Mahajan/ May 2020/ India	Discuss issues related to using telemedicine during the SARS-CoV-2 pandemic. Among pediatrician	Position paper/pragmatic	NA	NA	Despite the uncertain situation, we have to remember that other diseases shall not stall in the face of a pandemic. Since telemedicine is an evolving subject, training of medical professionals, clear guidelines and good quality internet service systems will go a long way in increasing the acceptability of telemedicine in the Indian population	Pros and cons of telemedicine during pandemic. Although caution is necessary on the part of a pediatrician, given the benefits of telemedicine we must welcome it.
11	Rajiv S. Vasudevan et al./USA	in the wake of the COVID-19 pandemic, has led many to question the stethoscope as a vector for infectious diseases	Review article/pragmatic			disinfectants may not be completely effective in eliminating microorganisms. Despite these risks, the growing technological integration with the stethoscope continues to make it a highly valuable tool	Rather than casting our valuable tool and symbol of medicine aside, we must create and implement an effective method of stethoscope hygiene to keep patients safe.
12	Giuseppina CAMPISI/ August 2020/Italy	To make suggestions and develop interventionist techniques regarding the interface with the patient starting from the initial consultation.	Review article/pragmatic	NA	NA	The latter is invariably determinant in establishing clear communication of the Ministerial recommendations in encouraging a relaxed atmosphere with the patient	This interface is also a decisive factor in promoting patient empowerment, including specifying the time period envisaged for treatment in the new COVID-19 era in as calm a manner as possible. Such an approach will have a positive impact on the dentistry team
13	Ahmed Hamdy Ashry and Mohamed Fathalla Alsawy / Mishor/2020	to evaluate the effectiveness and safety of telemedicine visits in providing postoperative care of neurosurgical patients	Quantitative primary study/ positivistic	questionnaire/30/March and April 2020/ purposive	Neurosurgical patients who were evaluated after surgery via telemedicine visits for 30 days Above 18, having device and high-speed network and smoot post-operative course	The overall satisfaction rate among patients and doctors was 90% and 95%, respectively	Conclusion: Virtual outpatient clinics seem to be a safe and effective way of postoperative care especially in the time of the COVID-19 pandemic.

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	Author/s Year and Country	Aims of studies	Methodological characteristics: Research approach and study design	Methodological characteristics: Data collection tool, Sampling method or recruitment process, sample size, and period of data collection	Character of participants	Major findings	Significance to this study
14	Roy G. Specee, Jr./ September 2020/ Arizona, USA	A "new public health" and ethical models (medicine) and frameworks (public health) combine to require that countermeasure be shown necessary, effective, and the least intrusive way to further vital governmental goals	Legal study/critical paradigm	LAW analysis/	Laws	Delay trenches on several fundamental or special liberties, and these rights have been analyzed by scholars addressing other countermeasures.	Although delay regimes can be beneficial if properly promulgated and implemented, it is unlikely that the current actions can meet ethical standards or withstand constitutional strict or even certain intermediate scrutiny because they cannot be shown to work or to be the least restrictive alternative
15	Kadri Haxhihamza et al./ August 2021/ North Macedonia	Together with respect to rules of behavior in case of epidemics. The reliance on technology to bridge the obstacles between the patients (consumers) and medical resources (providers) can create problems that impact service delivery and outcomes, but in cases such as this (COVID-19 pandemics), this is virtually the only tool for providing clinical care and information to patients.	Positivistic paradigm	client satisfaction survey, modified self-questionnaire, 28 participants	18 men & 11 women/All of them were patients in our ward during past few (4–6) months having inpatient and telepsychiatry experience	Overall satisfaction with psychiatric care was high (80.22%). None of the demographic or other variables correlated significantly with satisfaction.	Conclusions: Many mental health professionals are using widely available, commercial software downloaded from the internet to provide care directly to a patient's home.
16	Pines, Nov 2020/USA	To inform the ongoing COVID-19 response and pass on lessons learned to psychiatrists who are starting to offer telemedicine	Inductive and deductive approaches were used to develop interview summaries, and a matrix analysis was conducted to identify and refine themes. Qualitative/interpretive paradigm	Semi-structured interview/ 20/ March 31 to April 9, 2020	20 outpatient psychiatrists using telemedicine for 2–4 weeks having active activities during early COVID-19	Challenges affecting the quality of provider-patient interactions, such as decreased clinical data for assessment, diminished patient privacy, and increased distractions in the patient's home setting	Findings highlight that although psychiatrists expressed some concerns about the quality of these encounters, the transition has been largely positive for both patients and physicians.
17	Udhayvir Singh Grewal et al./ Low- & middle-income countries/2021	Discuss how tele-health-based interventions can help maintain efficient delivery of care for cancer patient during the on-going pandemic	Position paper/interpretive	Secondary material	NA	Telemedicine is beneficial for both patients and doctors in terms to provide quality care without shifting to physical location	Care teams and health systems across the world need to focus on innovating and developing newer technologies to incorporate virtual care into the practice of oncology

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Table 1. (Continued).

	Author/s Year and Country	Aims of studies	Methodological characteristics: Research approach and study design	Methodological characteristics: Data collection tool, Sampling method or recruitment process, sample size, and period of data collection	Character of participants	Major findings	Significance to this study
18	Michael T. Kemp et al./ 2021/Michigan, US	Evaluate the perspectives of surgical providers practicing telehealth care during COVID-19 to help identify targets for surgical telehealth optimization.	Evaluative/positivistic paradigm	Questionnaire, /census method/351, /May 5–20, 2020. /Survey	All department of surgery attending faculty, advanced practice providers (APPs), fellows, and residents of University of Michigan	Providers estimated that new patient video visits required less time than traditional visits. Satisfaction was high for several aspects of video visits. The largest barriers to effective video visits were limited physical exams.	Telehealth remains a new experience for surgical providers despite its expansion. Optimization strategies should target technology barriers and include specialized virtual exam and communication training.
19	Modesto Leite Rolim Neto et al./2020/ Brazil	To identify the foreseeable shortage of supplies and an increasing flow of suspected and real cases of COVID-19 contribute to the pressures and concerns of health professionals	Literature review/interpretive	Systematic review/ electronic database/ Scopus & Embase/	well-known international journals found in two electronic databases: Scopus and Embase	Work-related stress is a potential cause of concern for health professionals. It has been associated with anxiety including multiple clinical activities, depression in the face of the coexistence of countless deaths, long work shifts with the most diverse unknowns and demands in the treatment with patients with COVID-19	Important indicator of psychic exhaustion
20	Jack Banks et al./2021/ Ireand	Record ongoing interest in patient- and family-centered care in epilepsy perceptions pre- and post-COVID.	Mixed method study, survey pragmatic	23rd December 2019 and 23rd March 2020 (pre-COVID era) & 24th March 2020 to 24th June 2020/online & telephonic survey/	A subset of patients and clinicians who attended virtual encounters over both pre and during covid periods	Patients reported positive experiences surrounding telephone appointments comparing them favorably to face-to-face encounters.	EEPR demonstrated no loss of care contact for patients with epilepsy
21	Theodore Bowe, BS et al./2020/USA	This communication shares these experiences with the medical community to support patient care during this difficult time and beyond	Conceptualization, experience/pragmatic	Intervention	Over 3.5 years of conducting >350 ophthalmological VVs,	We highlight that mastering the technological platform of choice, optimizing lighting, camera positioning, and "eye contact," being thoughtful and creative with the virtual eye examination, and ensuring good documenting and billing will make a successful and efficient VV	This approach, holds promise for increasing its adoption after the crisis has passed

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	Author/s Year and Country	Aims of studies	Methodological characteristics: Research approach and study design	Methodological characteristics: Data collection tool, Sampling method or recruitment process, sample size, and period of data collection	Character of participants	Major findings	Significance to this study
22	Tarlow, Nelon, Barnhard/2020/USA	How does tele-supervision compare with traditional in-person supervision for mental healthcare professional?	Single-case experimental, quantitative with visual analysis/pragmatic	Phone interview/January and May of 2018. Field study/	3 psychological doctoral students who have both experience	Support the use of tele supervision and suggest that tele supervision is a viable alternative to traditional in-person supervision. tele supervision provides – perhaps most importantly – an opportunity to create Supportive human relationships with their supervisees.	Provides one additional data point to policymakers deciding whether to sanction the use of tele supervision in their agency or jurisdiction, both during and after the COVID-19 crisis
23	Wang eta al./2020/ China	To explore the best follow-up management strategy for patients undergoing peritoneal dialysis (PD) during the novel coronavirus pneumonia (NCP) epidemic.	Intervention/qualitative/ pragmatic	WeChat, QQ, and the telephone/580/	Patients undergoing PD who was outpatient followed up during the NCP epidemic	The close relationship between doctors and patients during the epidemic had a positive effect. Peripheral diseases decreased because of homecare.	During the epidemic period, encouraging patients and caregivers to pay attention to protection at home, avoid going out, strengthen self-management, and other measures. Were beneficial to the control of kidney disease worth promoting.
24	Frankel & Beckman/ 2020/USA	This paper describes several components of the kind of personalized, evidence-informed care patients want and deserve and PCPs strive to deliver Our goal is for patients and clinicians to recognize what they can do differently to coproduce more efficient, effective interactions.	Position paper/interpretive	NA	NA	Rather than accepting the recommendation knowing you won't follow it, asking about less expensive alternatives paves the way for more practical solutions to be negotiated	4 steps to help patients and practitioners work together to obtain optimal results from virtual or face-to-face visits
25	Szabo et al./2021/ Australia	To explore and describe doctors' experiences of providing maternity care during the COVID-19 pandemic in Australia	Interpretive paradigm/Mixed method	Online survey &Semi-structured schedule/ May-June 2020/ Recruitment for the survey was conducted through social media (Facebook, Twitter, LinkedIn, and Instagram)./	86 doctors completed survey, 8 interviewed doctors involved in maternity care in Australia	Doctors acknowledged that altered models of care had increased pregnant women's anxiety and uncertainty. All doctors described silver linings from sector changes	Provides unique insights into doctors' experiences of providing maternity care during the COVID-19 pandemic in Australia to prepare better future.

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Table 1. (Continued).

	Author/s Year and Country	Aims of studies	Methodological characteristics: Research approach and study design	Methodological characteristics: Data collection tool, Sampling method or recruitment process, sample size, and period of data collection	Character of participants	Major findings	Significance to this study
26	Bos, Tubergen, Vonkeman, 2021, Netherlands	To describe the delivery of care for patients with rheumatic and musculoskeletal diseases (RMDs) from the perspective of rheumatologists in the Netherlands during the first months of the COVID-19 pandemic	Cross sectional survey/ Observational research/ mixed method design/ interpretive	Questionnaire via google form/convenience sampling method/75/ 8–22 May,2020	Member of Dutch Rheumatologist Society	During the COVID-19 epidemic, care for patients with RMDs in the Netherlands Continued uninterrupted by the aid of telemedicine. On average, respondents were content with current solutions, although some felt insecure mainly because of the inability to perform physical examination and missing nonverbal communication with their patients.	We hope that the future will show that the COVID-19 pandemic was the turning point for the adoption of telemedicine in RMDs, although we realize it will never entirely replace in-person consultations.
27	Guney, Daniel, Childers/2020/USA	Concerns expressed by patients regarding the Covid-19 virus offer timely information for health care providers	Survey/interpretive	Press Ganey AI/7039090/ 1st Feb to 4th April 2020	Patients' comments	Compassion for clinicians is a strong positive signal in the voice of patients.	Translating Patient Comments into Actionable Insights.
28	Darr et al./2020/UK	To evaluate the impact of the COVID-19 pandemic on pediatric otolaryngology outpatient services whilst collating patient feedback to elicit long-term sustainability post COVID-19.	Retrospective analysis Pediatric Otolaryngology Telemedicine Satisfaction survey & Generic clinic collated,/ positivistic/	Questionnaire/17th March to 17th June 2020 3 months/514/random sampling	Otolaryngology patients undergoing consultant-led telephone and video-linked	Overall, the satisfaction when assessing the patient-doctor relationship, privacy & trust, as well as consultation domains was high, with the overwhelming majority of parents' content with the future integration and participation in VOPCs.	Our novel survey has demonstrated the vast potential that the integration of VOPCs can offer pediatric otolaryngology services within a carefully selected cohort of patients.
29	Holstead & Robinson/ 2020/USA	As experienced telemedicine users, we offer some suggestions on the basis of our experience (and some of our mistakes) in adapting the SPIKES protocol using telemedicine when discussing serious news	Review article/pragmatic	SPIKES protocol as framework to discuss serious news/Case study/	NA	Serious news can be delivered through telemedicine (video or audio) but requires attention to extra details that are taken for granted in a physical encounter	SPIKES is a practical acronym for providing the framework to approach a serious discussion.

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Table 1. (Continued).

			Methodological characteristics				
	Author/s Year and Country	Aims of studies	Research approach and study design	Data collection tool, Sampling method or recruitment process, sample size, and period of data collection	Character of participants	Major findings	Significance to this study
30	Kurotschka et al./2020/ Italy	exploring Italian GPs' care experiences and practices associated with critical incidents during the first wave of the pandemic	qualitative study design/ critical incident technique	Online survey/99/March 12 to April 17, 2020/ purposive sample	General practitioner individual	professional collaboration, the lack of resources (e.g., PPE, swabs) and of specific guidelines and protocols impacted on the care provision	Policy implication: Communication and coordination among services are essential and should be substantially improved, and primary care research should be initiated to collect the context-specific evidence necessary to enhance the system's preparedness to public health emergencies and the quality of primary care services.
31	Herrmann & Schwartz/ 2020/UK	Demonstrate how this network of interactions can be used to predict the spread of the virus and to inform policy on the most successful mitigation and suppression strategies	Experimental/Network generation/pragmatic	Stochastic simulation/ Three sets of networks (scale-free, mitigated hub, and mitigated random).	Generated 5000 networks of each set	Incorporating network science with the current dynamic models of COVID-19 is likely to improve their predictive power The epidemic can propagate for a long time at a low level before the number of infected individuals suddenly increases markedly, and that this increase occurs shortly after the first hub is infected. Mitigation strategies that target hubs are far more effective than strategies that randomly decrease the number of connections between individuals	how network science can improve the predictive power of current COVID-19 Epidemiological models
32	J J Mira et al. /2021/ Spain	To identify priorities, and criteria that health services can use to pursue actually, the goal of achieving person-centered care.	qualitative study/Delphi technique/pragmatic	Online consensus meeting/ identified from various health services through informal contact and the snowball sampling technique/94/May – July of 2020/	10 years of experience as a health-care Professional (doctors and nurses), health-care Institutions and department managers, information Systems experts, health quality experts, public health experts, Academics and patient representatives.	Person-centered care continues to be a key objective	Quadruple aim approach

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Table 1. (Continued).

	Author/s Year and Country	Aims of studies	Methodological characteristics: Research approach and study design	Methodological characteristics: Data collection tool, Sampling method or recruitment process, sample size, and period of data collection	Character of participants	Major findings	Significance to this study
33	A Heyer et al./2021/ USA	To identify medical oncology health professionals' perceptions of the barriers to and benefits of telehealth video visits	Qualitative study/interpretive	Semi structured interviews/October 30, 2019, to March 5, 2020/ 58/convenience sample	Medical oncology physicians, physicians' assistants, and nurse practitioners at the hospital All Oncology health professionals of Thomas Jefferson University	Disagreed on the clinical effectiveness and potential limitations of the virtual physical examination, as well as on the financial impact on patients. Recognized the convenience and improved access to care enabled by telehealth for patients. The health professional-patient relationship and them. Limited ability to comfort patients in a virtual setting.	Understanding oncologists' perceptions of telehealth elucidates potential barriers that need to be further investigated or improved for telehealth expansion and continued utilization
34	M Hamlin et al./2020/ Israel	To investigate the attitudes of the public toward receiving medical services and providing medical information through remote communication in times of emergencies.	Quantitative study/positivistic approach	507/structured online survey/open-source software for epidemiological statistics for recruitment (simple random)/end of January through February 2020	population insured by Meuhedet Health Services (MHS)/Israeli society, both Hebrew- and Arabic-speaking individuals were included above the age 18	The multiple regression model identified Higher trust in data protection, level of education, and social media use as statistically significant predictors for a higher willingness to receive medical information while the first two predicted willingness to provide information.	Overall positive attitude to receive medical care through remote communication.
35	Wittenberg et al./2020/ USA	To identify opportunities for developing future COVID-19 communication curricula & support tools.	Systematic review/pragmatic	English/published in Jan to Sept 2020/Databases: PubMed, Web of Science, Psych info, CINAHL. 36 provider communication resources & 53 peer-reviewed articles.	NA	Resources lack content that address non physician provider, communication with family & telehealth communication strategy for family engagement.	Future development of covid-19 communication resources for providers by the interdisciplinary team
36	Mulroy et al./2020/UK	To understand can the doctor – patient relationship be sustained purely or primarily through virtual communication	Descriptive/interpretive	Secondary material & participant observation	NA	Telemedicine and novel health technologies will rise to meet a number of challenges in current healthcare models, including time and cost-savings for our patients	Future direction: telemedicine and health technologies should be critically evaluated and validated before becoming part of routine practice

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Table 1. (Continued).

	Author/s Year and Country	Aims of studies	Methodological characteristics: Research approach and study design	Methodological characteristics: Data collection tool, Sampling method or recruitment process, sample size, and period of data collection	Character of participants	Major findings	Significance to this study
37	A B Newcomb et al./ 2021/USA	We aimed to identify effective techniques for surgeons to build relationships during a video consult, and to design and pilot a class that increased student skill in communicating during a video consult	Experimental design/ pragmatic	Communication assessment tool used/11 participant	Fourth year medical students with surgical internship for experiment.	Asking direct questions was recommended to understand the patient's emotional state. Students were particularly appreciative of opportunity for direct observation of skills and immediate faculty feedback, noting that the intimate setting was unique and valuable	Our training plan appears effective at engaging learners and improving skills and confidence, and identifies areas of focus when teaching virtual communication skills.
38	Niaz et al./2021/USA	To present a summary of our current understanding of cardiovascular involvement in children with COVID-19 or MIS-C and identify the role of a pediatric cardiologist in caring for these patients.	Literature Review/interpretive	NA	NA	COVID-19 has had a profound impact on the practice of medicine and will continue to impact all elements of patient care.	Pediatric cardiologists can have a meaningful impact in the care and outcomes of these patients
39	A Monzani et al./2020/ Italy	The objective of this study was to document the lived experience of pediatric healthcare providers in Italy during the initial phase of the 2020 COVID-19 pandemic.	Lived experiences: phenomenological/ interpretive	Structured interview face to face or phone/ purposive sampling/13/ end of March 2020	Staff of the pediatric Emergency department of the Maggiore Della Carita University Hospital	The most challenging aspects reported are: (1) performing a physical examination in personal protective equipment (PPE), (2) being updated with rapidly evolving guidelines, and (3) staying focused on the possible COVID-19 clinical presentation without failing in differential diagnosis.	pediatric emergency physicians are radically changing their clinical practice, aiming at prioritizing essential interventions and maneuvers and self- protection.
40	T Annis et al./USA/ 2020/	To evaluate early lessons from a remote patient monitoring engagement and education technology solution for patients with COVID-19 symptoms.	Experimental approach/ pragmatic	March 18 and April 20, 2020. A satisfaction survey was given to/300 patient respondents	Patients with COVID 19 syndrome	74% of patients would be extremely likely to recommend their doctor.	A COVID-19-specific remote patient monitoring solution (Get-well Loop) effective approach
41	Rodler et al./2020/ Germany	The goal is to warrant high-quality cancer care, despite being an academic center on the front line of Germany's response to COVID-19.	Evidence-based study/ pragmatic	120 patients/observation	Patients undergoing systemic therapy for genitourinary Cancers are prospectively included into a database at the University Hospital of Munich (Ludwig-Maximilian-Universities (LMU]	The early precautions adapted ensured a low infection rate in our vulnerable patient population despite the widespread outbreak among the healthcare staff.	With continuation of the pandemic, our approach should be implemented and extended to all patients with cancer primarily treated at academic centers directly facing the challenges of the COVID-19 pandemic.

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Table 1. (Continued).

	Author/s Year and Country	Aims of studies	Methodological characteristics: Research approach and study design	Methodological characteristics: Data collection tool, Sampling method or recruitment process, sample size, and period of data collection	Character of participants	Major findings	Significance to this study
42	Gomez, Anaya, Kevin and Tarn/2020/ Canada	to assess physician perspectives regarding the benefits and challenges of telemedicine.	Qualitative approach/ Interpretive	Semi-structured interview/ 15/Los Angeles (UCLA) Health (an academic medical center), and with a Southern California group-model health maintenance organization/purposive sampling/between April 19 and June 28, 2020.	Practicing primary care physicians and physicians-in-training from a Southern California academic health system who adopted telemedicine	Physicians indicated that telemedicine improved patient access to care by providing greater convenience, although some expressed concern that certain groups of vulnerable patients were unable to navigate or did not possess the technology required to participate in telemedicine visits Concerned about the loss of personal connections and touch, which they believed diminished expected rituals that typically strengthen physician-patient relationships	Many of these changes are positive, but it remains to be seen whether others such as lack of physical examination and loss of physical presence and touch adversely influence provider-patient communication
43	Kopp et al./2021/USA	study describes the development and implementation of in-patient e consultation program as well as the experiences of student and faculty participants	Mixed method/inpatient e-Consult program was developed. Pragmatic	April 6 through May 29, 2020/review of clinical documentation and surveys/17/	nine students of 3rd year and eight faculty members	In narrative responses, students and faculty agreed that teaching was a strength of the program whereas lack of in-person contact was a challenge. Faculty agreed with the importance of teaching students about telehealth and e Consults specifically.	Rapid development of an inpatient eConsult-based educational experience for third-year medical students was feasible and successful Offers a framework for teaching Students about the field of e Consults which is emerging as an important component of patient care that is expected to be an enduring aspect of health care delivery moving forward
44	Reddy et al./USA/2020	Describe weekly trends in face-to -face visit and virtual visit at primary care practices across national VHA system.	Secondary material. descriptive study/pragmatic	January 5th to June 13th 2020/Data from electronic medical records & CDW, VSSC data base	NA	All virtual visit encounters, telephone visits had the largest percentage increase from 63.8% prior to mid-March to 90.6% after. During this time video visits increased by 8-fold.	Primary care must continue virtually as priority during this pandemic for the safety & health of veterans
45	Kernebeck et al./2020/ Germany	The aim of this article is to provide an overview of the current status of MHA and MA use in the field of gastroenterology, describe the future perspectives in this field and point out some of the challenges that need to be addressed.	Review of electronic medical records./Pragmatic	NA	NA	Patients with chronic diseases and health care professionals will benefit from these interventions in many different ways	This would be particularly useful in guiding health care Professionals in almost all health care systems worldwide to apply comparable criteria to better evaluate the reimbursement of digital interventions

(*Continued*)

Table 1. (Continued).

	Author/s Year and Country	Aims of studies	Methodological characteristics			Major findings	Significance to this study
			Research approach and study design	Data collection tool, Sampling method or recruitment process, sample size, and period of data collection	Character of participants		
46	M McNairy et al. /2020/ USA	The aim is to search the innovative procedures for human connectedness during COVID 19	Qualitative/Narrative/ pragmatic	Doctor's experience/	Doctors of Well Cornell Medicine	Technology like the use of tablets can humanize interaction with patients.	Connect patients with tablets by the doctors without PPE and their family members
47	S J White et al./2021/ Trans national	To share observations based on the evidence & experimental knowledge during COVID 19 with a focus to policy &/practice.	Position paper about policy and practice in communication of healthcare/Critical approach	Electronic data base	NA	How healthcare communication occurred during pandemic and possible ways of improving. The policy should be evidence-based, person-centered, more inclusive & equitable.	Provides a key area for development in communication in healthcare during COVID-19.

Table 2. Research design and methods of the studies.

Methodology	Characteristics	No. of Studies
Paradigms	Positivist	7
	Interpretive	17
	Critical	3
	Pragmatic	20
Research Methods	Qualitative	14
	Quantitative	7
	Mixed Method	3
	Analytical	9
	Descriptive	3
	Interventive	5
	Review	6
Major Data Collection Tools	Interview schedule	7
	Case study	1
	Questionnaire	12
	observation	4
	Participant observation	7
	Electronic database	10
	Social media analysis	1
	Clinical data	4
	Consensus meeting	1
Participants	Doctors	15
	Medical students	2
	Patients	10
	Doctor + Patient	3
	Doctor + patient + Health institutes+ Planners	1

Source: Author compilation.

Most of the selected studies focused on either patients or doctors as participants (n = 13 + 13), whereas only three studies focused on both doctors and patients as participants. All studies were reported on adult patients (i.e., 18 years of age or above). Patients with several types of diseases like hepatitis, vascular problems, oncological, neurological, epileptic, psychiatric, and dialysis, with COVID-19 syndrome were included in the studies. The studies reported on hospital-based doctors and those in private practice with different specializations, such as physicians, surgeons, psychiatrists, gynecologists, rheumatologists, oncologists, and pediatric.

Health communication in the pandemic: Nature and factors

Communication goals and preparation

Changes in communication goals were evident in the patient-doctor communication during the pandemic (Tables 2 and Tables 3). There was a goal change in favor of safety from a viral infection, with general goals like convenience, affordability, and satisfaction. Safety from cross-infection prompted a shift from clinical visits to online consultations (Bowe et al., 2020; Frankel & Beckman, 2020; Grewal et al., 2021; Liu et al., 2020; Scalea, 2020). Technologically innovative measures, along with training of the health workforce for new types of technology-oriented interactions and the spread of digital literacy among patients were commonly cited developments (Kemp et al., 2021; Kopp et al., 2021; Mahajan et al., 2020; Newcomb et al., 2021; Serper et al., 2020).

The technological interventions aimed to maintain safety from the contagion of the covid-19 virus (Ashry & Alsawy, 2020; Li et al., 2020; Reddy et al., 2020; Rodler et al., 2020; Wang et al., 2020). Such interventions contributed to a reduced risk of infection (Li et al., 2020). The safe and effective post-operative care was made available, with high-quality virtual cancer care and primary care (Ashry & Alsawy, 2020; Reddy et al., 2020; Rodler et al., 2020). Transitions to in-home treatment ensured that health-compromised patients would not be exposed to COVID-19 risk during the course of medical care (Wang et al., 2020). Innovative technologies, such as wearable devices, were proposed as potential substitutes for gathering data that in normal circumstances would be obtained through physical examination (Mulroy et al., 2020). Five studies identified telemedicine as a convenient and affordable substitute for medical consults (Das et al., 2020; Grewal et al., 2021; Kemp et al., 2021; Lee, 2020; Mulroy et al., 2020). Telemedicine was beneficial for both patients and doctors in terms of providing access to care regardless of their physical location (Grewal et al., 2021). Video visits required less time than traditional visits and allowed physical observations to be made (Kemp et al., 2021).

Patient satisfaction in the changing environment was explored in several studies (Ashry & Alsawy, 2020; Desideri et al., 2021; Haxhihamza et al., 2021; Li et al., 2020; Uscher-Pines et al., 2020). Patients were stated as having received the right treatment and on average 70% were reportedly satisfied in their communication with their doctors (Annis et al., 2020; Darr et al., 2020; Holstead & Robinson, 2020). One study showed that vulnerable vascular patients were "'satisfied' "or "'highly satisfied'" with video calls and expressed interest in continuing telemedicine during follow-up visits (Li et al., 2020). In postoperative care of neurosurgical patients, patients and their doctors showed 90% and 95% satisfaction rates respectively (Ashry & Alsawy, 2020). A shared National Epilepsy Electronic Patient Record demonstrated no loss of care contact for patients with epilepsy (Banks et al., 2021). Doctors also expressed high satisfaction, but some doubted the suitability of telemedicine for new patients for example. Psychiatrists were concerned about the quality of their encounters with patients (Uscher-Pines et al., 2020). Remote patient monitoring appeared as a safe and satisfying experience for patients, while minimizing the risk of COVID-19 exposure (Annis et al., 2020).

The significance of training doctors in digital literacy and scientific innovations was underscored (Kemp et al., 2021; Newcomb et al., 2021; Serper et al., 2020). The medical faculty surveyed in a study by Kopp et al. (2021) mostly agreed or strongly agreed on the importance of teaching medical students about telehealth (N = 7 of 8, 88%) and e-consults (N = 6, 75%). Medical staff agreed on regular training to promote preparedness and efficacy in crisis management and to enable doctors to perform video calls and explain prescriptions to the patients in virtual space (Liu et al., 2020; Mahajan et al., 2020). Training plans appeared to be effective at engaging learners, resulting in improved soft skills and confidence (Newcomb et al., 2021). Health care staff in oncology were identified as

Table 3. Theme wise distribution.

Theme	Subtheme	No. of studies	References
Communication goals and preparation (30)	Safety	5	Li et al. (2020), Ashry and Alsawy (2020), Wang et al. (2020), Rodler et al. (2020), Reddy et al. (2020),
	More convenient & affordable	5	Lee (2020), Das et al., 2020), Grewal et al. (2021), Kemp et al. (2021), Mulroy et al. (2020),
	High patient satisfaction	9	Li et al. (2020), Desideri et al. (2021), Ashry and Alsawy (2020), Haxhihamza et al. (2021), Uscher-Pines et al. (2020), Banks et al. (2021), Darr et al. (2020), Holstead and Robinson (2020), Annis et al. (2020),
	Training of healthcare workforce & Digital literacy spreading	6	Liu et al. (2020), Mahajan et al. (2020), Kemp et al. (2021), Newcomb et al. (2021), Kopp et al. (2021), Serper et al. (2020).
	Innovation	4	Scalea (2020), Grewal et al. (2021), Frankel and Beckman (2020), Bowe et al. (2020),
Participant's attributes, such as their needs, beliefs, values, skills, and emotions (2)	Rebuild trust among patients	1	Roubille et al. (2021),
	Compassion for clinicians	1	Guney et al. (2020),
Communication process (15)	Distraction & lack of privacy	1	Uscher-Pines et al. (2020),
	Lack of physical examination, verbal cue & personal touch	4	Bos et al. (2021), Gomez, Anaya, Kevin, and Tarn (2021,), Heyer et al. (2021), Hamlin et al. (2020),
	Person centered care	2	Mira et al. (2021), Niaz et al. (2021),
	Electronic health data	1	Mehrotra et al. (2020),
	Telemedicine/video conferencing/Tele-supervision	5	Mahajan et al. (2020), Darr et al. (2020), Kernebeck et al. (2020), McNairy et al. (2020), Tarlow et al. (2020),
	Stethoscope hygiene	1	Vasudevan et al. (2020),
	Commercial software	1	Haxhihamza et al. (2021),
	Examination with PPE & mask	1	Monzani et al. (2020),
The environment (8)	Excessive work load, isolation & plenty death & Increased anxiety in maternity period	2	Neto et al. (2020), Szabo et al. (2021),
	Use of network science & Interdisciplinary support	2	Herrmann and Schwartz (2020), Wittenberg et al. (2021)
	Ministerial & legal recommendation for equity, safety & coordination among the essential services	4	Campisi et al. (2020), Specee (2020), White et al. (2021), Kurotschka et al. (2021).

in need of innovative technologies to incorporate virtual care, in which outcomes were deemed successful in two studies (Grewal et al., 2021; Scalea, 2020). While the public health crisis necessitated innovation and shared development of best practices to allow for safe and efficient implementation of virtual visits, a quick adaptation of training and uptake by students and medical providers showed the capacity to respond to demands.

Participant's attributes

We found two studies that reported the patients' and doctors' attributes. These included compassion for doctors and rebuilding trust among patients in virtual interaction (Guney et al., 2020; Roubille et al., 2021). In the context of the pandemic, these studies showed that patient-doctor relationships were compromised due to being outside of their comfort zone and expressed feeling disposed of due to drastically reduced activities. Evident in these studies was the impact of an unprecedented number of patients during COVID-19, diminishing the capacity of doctors to provide individually tailored, quality care. One of these studies added that healthcare providers were gloved-up and masked, leading to a sense of dehumanized interactions between patients and doctors when there was no mutual recognition (Roubille et al., 2021). The researchers' analysis of patients' comments showed that, while confidence was impaired, the patients were aware of and appreciate the courtesy and respectfulness of physicians and staff under the challenging circumstances of Covid-19 (Roubille et al., 2021). In the other article reporting patient-doctor attributes, it was noted that doctors were kind and explained everything to the fullest even though they were tired from the additional burden of care. This finding indicated the doctors, as healthcare providers, adjusted to the new normal in their interactions with patients. Attentiveness, kindness, calmness, concerned attitude, humor, and empathy were recurring aspects of positive care experiences (Guney et al., 2020.)

Communication processes

We found fifteen studies that reported the clinical communication process, with the majority identifying telemedicine or video conferencing as the communication medium (Darr et al., 2020; Holstead & Robinson, 2020; Mahajan et al., 2020; Tarlow et al., 2020). Medical health apps and medical apps were used in teleconsultations. Some created macros in their electronic health records, for example, to ensure documenting of patient consent in each telehealth encounter (Haxhihamza et al., 2021; Kernebeck et al., 2020; Li et al., 2020), to remind doctors to discuss confidentiality or to documented time spent per consult (Mehrotra et al., 2020). Two studies focused on the challenges of technology-oriented communication, including

decreased availability of clinical data for assessment, diminished patient privacy, increased distractions for patients when in their home setting, and the limited ability of doctors to comfort patients in virtual settings (Heyer et al., 2021; Uscher-Pines et al., 2020). Patients likewise expressed decreased privacy and distraction when engaged in virtual communication from their home settings (Uscher-Pines et al., 2020).

There was a lack of physical examination which presented difficulties as doctors could not observe or estimate patients' progress (Bos et al., 2021). One study showed a loss of personal connections, especially among patients who did not have suitable technology to engage in virtual consults (Gomez et al., 2021). Another study raised issues of patient trust, specifically trust related to data security when transferring highly sensitive medical information via remote communication and trust related to confidentiality in telemedicine (Hamlin et al., 2020). These patient concerns about the virtual environment outweighed any trust concerns they had in relation to doctors, care workers, and the treatments offered (Hamlin et al., 2020).

Apart from the above-mentioned technology-assisted interactions, we observed few studies investigating traditional face-to-face patient-doctor clinical interactions during the COVID-19 pandemic. Two studies, however, reported compliance with the mandatory use of PPE and masks to prevent transmission of the virus (Brummel-Smith et al., 2016; Monzani et al., 2020). Both doctors and patients faced some challenges due to their faces being shrouded, thereby patients perceiving the doctors as anonymous and experiencing a loss of personal touch, and doctors being depleted of non-verbal cues to inform their assessments or client understanding (Li et al., 2020; Liu et al., 2020; Newcomb et al., 2021; Scalea, 2020). Physical examination was reported as problematic when wearing PPE as it restricted necessary maneuvers (Monzani et al., 2020). One study identified that stethoscope hygiene compliance was low and noted this as a vector for cross-infection (Vasudevan et al., 2020). Two studies found that compromised patient-centered care was hindering recovery while acknowledging that those new modes of technology-assisted care were needed to reestablish effectiveness and improve patient outcomes (Mira et al., 2021; Niaz et al., 2021).

The environment

Since the pandemic, the traditional communication environment has undergone massive changes, including its physical, social, cultural, and legal settings. The fear of transmission of the deadly virus commonly prevailed and in order to prevent it, guidelines issued by WHO (2020) were suggested to be strictly followed. As a result, patients avoided interactions with doctors in clinics or hospitals except where necessary. Doctors in clinical visits were mandated to use PPE, goggles, and masks which became known as not sufficient to prevent the virus from spreading (Liu et al., 2020; Monzani et al., 2020; Roubille et al., 2021) There were not enough supplies of protective gear for doctors as society was not prepared for the pandemic. A lack of training of health workers on the management of highly infectious diseases, usually confined to single hospital wards, created difficulties for safe consulting of patients in the clinical setting (Liu et al., 2020).

A few of the articles in this review identified feasible alternatives that soon became quickly popular, and led to the abandoning of traditional unprotected, face-to-face patient-doctor interactions. These platforms included real-time close circuit video conferencing, phone systems, websites, social media, portal messages, monitoring programs by repurposing, and existing third-party applications (Annis et al., 2020; Mehrotra et al., 2020; Scalea, 2020) Here, doctors could see patients in a natural setting and evaluate patients' home environments and connect with patients' families or caregivers (Gomez et al., 2021).

On the other hand, some studies advised how both doctors and patients were unprepared for the rapid changes, not digitally literate, or reluctant to use technology. This dearth of technical capacity was due to technology-assisted platforms not being widely used before the pandemic (Serper et al., 2020). Lack of technological equipment & resources, low digital literacy, optimizing lighting and camera positioning, the varying level of internet capacity, poor image quality, lagging, and video visits being clogged due to dropped calls were some of the common hindrances experienced by both doctors and patients (Kurotschka et al., 2021; Mehrotra et al., 2020; Mulroy et al., 2020; Serper et al., 2020).

Despite these barriers affecting the shift to technology-assisted patient-doctor communication, benefits were soon observed. Efficiency in some cases of treatment increased due to accessibility of electronic medical records, digital biomarkers, and travel time savings, thus allowing in some contexts more patients to receive care and treatment (Kernebeck et al., 2020). This was evident in research findings related to telepsychiatry involving the use of commercial software, and in virtual management of cancer patients, in both cases reducing the frequency of physical visits for patients and timesaving for doctors between patients (Grewal et al., 2021; Haxhihamza et al., 2021). Some environments did not change during the pandemic such as with dentists where it was crucial to ensure their protection via PPE, sanitization, and waiting room management (Campisi et al., 2020).

There were heavy workloads due to a shortage of health workforce leading to work-related stress. Even after long hours of duty, many doctors endured social isolation and quarantine away from their families (Liu et al., 2020; Mahajan et al., 2020; Neto et al., 2020). Many studies underscored the importance of professional collaboration and teamwork, for both practical and emotional wellbeing (Ashry & Alsawy, 2020; Gomez et al., 2021; Kurotschka et al., 2021; Mehrotra et al., 2020; Neto et al., 2020). Doctors had to manage the lack of resources, constantly evolving guidelines and protocols, and changes to care provision while also carrying responsibility for mentally boosting their patients (Kurotschka et al., 2021). This was particularly the case with in-patients who were isolated from their families, in which medical staff had to also manage patients' feelings of abandonment (Liu et al., 2020). In addition, some cultural considerations made it even more difficult due to PPE and lack of patient-doctor contact.

Specific to working with patients from different cultural backgrounds, studies reported doctors as being out of their comfort zone since having a reduced ability to observe non-verbal cues required to support communication, interactions, and diagnosis (Lee, 2020; Li et al., 2020; Uscher-Pines et al., 2020). As a normal practice, doctors observe body movement

while engaging in narration with patients to minimize misinterpretation, but this was reported more difficult to interpret via virtual technology, more so with patients who were distressed, culturally diverse, or distressed (Mulroy et al., 2020). One study showed that changes to the patient environment were associated with changes to clinical communication, reporting how patients experienced dwindling expected rituals that typically strengthen physician-patient relationships. Patients perceived a loss of personal connection and touch (Gomez et al., 2021) Pregnant women especially felt more scared and unsecured in the changed mode of communication (Szabo et al., 2021) These feelings were exacerbated in patients who struggled to navigate or did not possess the technology required to participate in telemedicine visits (Gomez et al., 2021). In addition, socioeconomic differences were evident; in one study where 20 patients lacked internet connection at home and 40 patients refused to access technology-assisted services as they preferred in-person visits to their doctor (Ashry & Alsawy, 2020).

Medical practitioners were empowered and legally protected to provide telemedicine services according to Telemedicine Practice Guidelines India enforced from March 2020 (Mahajan et al., 2020). In the United States of America, however, platforms like Skype were not compliant with privacy regulations. During the COVID-19 pandemic, the US Department of Family and Health declared that it would not enforce compliance rules (Mehrotra et al., 2020). Two studies identified processes in which network science and interdisciplinary support advocated a change to legal aspects of clinical communication in virtual space according to patient needs (Herrmann & Schwartz, 2020; Wittenberg et al., 2021). Ministerial and legal recommendations for equity, safety (Johnson & Butcher, 2021), and coordination among the essential services were found effective in establishing the legal environment for better patient management (Campisi et al., 2020; Kurotschka et al., 2021; Specee, 2020; White et al., 2021).

Discussion and conclusion

This scoping review discusses the impact of the COVID-19 pandemic on patient-doctor clinical communication. Through the review, 47 articles were identified that reported the patient-doctor communication characteristics during the pandemic. We employed Feldman-Stewart et al. (2005) patient-doctor communication framework. Our review accumulated and synthesized the literature related to patient-doctor interaction, with the intention to facilitate discussion regarding vital issues and study gaps in patient-doctor communication during pandemics or other times of medical crisis.

This review demonstrates that the patient-doctor communication process changed dramatically from face-to-face to virtual consultations as a result of the pandemic (Darr et al., 2020; Kernebeck et al., 2020; Mahajan et al., 2020; McNairy et al., 2020; Tarlow et al., 2020). Due to high infection rates and changes in COVID-19 variants, the most vital factor was to maintain safety and this often-compromised patient-doctor interaction (Ashry & Alsawy, 2020; Li et al., 2020; Reddy et al., 2020; Rodler et al., 2020; Wang et al., 2020). The World Health Organization directed all countries to maintain the safety of health workers by issuing guidelines in this regard (WHO, 2020). From the studies we identified, there were two ways by which countries tried to maintain safety while continuing to communicate and meet patients' care needs: (a) traditional ways; and (b) with the help of modern technology and innovative methods.

It was evident that patient-doctor interactions could take place safely with the help of technology e.g., telemedicine or video conferencing (Darr et al., 2020; Mahajan et al., 2020; Tarlow et al., 2020). But the interactions using technology created serious problems: distraction and lack of privacy in home set-ups (Uscher-Pines et al., 2020) and, lack of physical examination, non-verbal cues, and personal touch (Bos et al., 2021; Gomez et al., 2021; Hamlin et al., 2020; Heyer et al., 2021). To overcome the challenges of technology-oriented interactions, some studies recommended the use of innovative measures during the intervention. These included real-time close circuit video conferencing for surgeons; telemedicine during cancer and palliative care; a four-step approach (prepare, rehearse, engage, persist); optimizing lighting, camera position, and eye contact for virtual eye examination (Bowe et al., 2020; Frankel & Beckman, 2020; Grewal et al., 2021; Scalea, 2020). In terms of staff capacity, studies advocated for better training of the health workforce (Kemp et al., 2021; Kopp et al., 2021; Liu et al., 2020; Mahajan et al., 2020; Newcomb et al., 2021 and expanding digital literacy among older people and socio-demographically disadvantaged patients (Das et al., 2020; Gaffney & Hamiduzzaman, 2022; Kernebeck et al., 2020; Serper et al., 2020).

Some countries had established or were early adopters of technology-assisted services, including telemedicine, real-time video conferencing, health apps, commercial software, digital biomarker, and electronic records system. We found from the studies that these services were, as expected, safe against the virus, and they help minimize exposures. They were convenient for doctors and patients since they did not need to travel to access treatment. Doctors could provide specialized care, despite lacking resources, through remote mentorship – this translated to improved access and affordability for patients (Das et al., 2020; Grewal et al., 2021; Kemp et al., 2021; Lee, 2020; Mulroy et al., 2020).

Time efficiency was experienced by both doctors and patients (Ashry & Alsawy, 2020; Das et al., 2020), rated as highly satisfactory to the patients (Annis et al., 2020; Ashry & Alsawy, 2020; Banks et al., 2021; Darr et al., 2020; Desideri et al., 2021; Haxhihamza et al., 2021; Holstead & Robinson, 2020; Li et al., 2020; Uscher-Pines et al., 2020), and when technology was used well it ensured person-centeredness (Mira et al., 2021; Niaz et al., 2021). The newness of virtual interaction impacted trust and time was needed to rebuild patient-doctor relationships (Roubille et al., 2021), which is a critical soft skill to be developed through medical education and professional development programs.

In this pandemic, the health workforce has been overburdened with continuously escalating levels of work. With the increase in COVID-19 patients, the rising demand for doctors has placed increased pressure on other areas of medical practice and associated patient-doctor communication (Cheong et al., 2022; Nguyen et al., 2022) Media reports on the increasing levels

of stress and risk among doctors (Serper et al., 2020 have left patients feeling compassion for health workers (Guney et al., 2020) even in the context of pandemic-impacted patient-doctor communication and diminishing health support.

Despite the advancements in technology, many patients have been unable to access technology-assisted medical visits. Technological assistance is readily available and highly effective, yet many people even those digitally literate remain scared, reluctant, or not willing to use it (Ashry & Alsawy, 2020; Gomez et al., 2021; Szabo et al., 2021; Uscher-Pines et al., 2020). Ogburn (1922) explained this concept as "cultural lag" in which there is a tendency for material culture to evolve and change rapidly while non-material culture resists change and remains fixed for a far longer period of time. In a new world that demands technology to be safe, and technology use to optimize health, it calls for greater attention toward improving the environment of doctors and capacity building in medical technology use across populations (Campisi et al., 2020; Specee, 2020; White et al., 2021). Interdisciplinary service coordination is essential (Kurotschka et al., 2021; Wittenberg et al., 2021).

While technology-assisted interaction is expected to expand patient-doctor communication during and beyond the pandemic, there are some noteworthy gaps that exist in the literature. In this review, we found changes in patient-doctor relationships involving diminished trust and perceptions of concealment of facts which may not be easily identifiable in single study designs (Tripathi et al., 2019). The use of a theoretical framework to deductively search for indicators of relational elements in the studies included enabled feelings and experiences of patient-doctor communication to be scoped and consolidated. Using this framework, we were able to explore changes in the relationship.

In our scope of relevant literature, we identified a visible absence of studies in the context of low-income countries. Only one article reported a transnational observation and analysis (Grewal et al., 2021). We located studies reporting on the doctor's point of view, while other studies focused on the patient's experience, but few reported on both. In fact, we found that only three studies in which both doctor's and patient's opinions were explored (Banks et al., 2021; Mira et al., 2021; Tarlow et al., 2020). Some of the studies included the experience of patients who made use of technology-assisted communication; however, a large number of patients had no access to or refused technology-assisted interactions. The lack of engagement in technology means that a whole segment of the population was unlikely to engage in online surveys or technology-assisted research participation, meaning that many studies in our review were likely skewed.

We acknowledge some limitations and several strengths of our review. We included only published peer-reviewed research articles and position papers. Excluding unpublished, non-peer-reviewed papers such as editors' perspectives, and editorials were excluded, which may have an impact on drawing inferences. We followed a scoping review approach where consideration of the quality of studies was not accounted for when formulating conclusions (Arksey & O'Malley, 2005). The strength of the conclusions is potentially weakened as many are drawn from a mix of higher and lower quality studies.

In conclusion, this review provides important information regarding the changing scenario of patient-doctor interactions during the Covid19 pandemic. During face-to-face interactions, the use of PPE and mask is essential to prevent viral infection but it creates barriers to communication. A variety of technologically assisted methods are being used like telemedicine/video conferencing, medical Apps, etc. which are quite common. Technological intervention offers safety, convenience, and affordability to doctors and patients, but there are significant challenges in areas of services coordination, equity, and access to such services as well as capacity and skills required which must be addressed. As a result, our review highlights key areas where further research is still required, including technological preparedness of medical students, understanding doctors' technology use and factors associated with change, conditions associated with sustainable uptake of innovations as more effective technologies emerge, patient experience of technology use, including in non-contact doctors' rooms and surgeries, and research on patient capacity to optimize their experiences in the virtual health space.

Practical implications

The changes identified in the review may benefit the doctors, especially the junior doctors to develop a favorable environment, and design questions or phraseology to elicit information regarding the patient's needs and preferences. Uncovering the factors associated with patient-doctor communication can be beneficial for the doctors and patients when they interact each other for their preparation to discuss health problems at digital platforms. These themes can be used for supporting the doctors how to incorporate the technologies and making changes in the health communication approaches and methods to encourage patients to ask questions about their conditions, diagnosis and treatment options. This in turn can improve the patient empowerment, patient-doctor collaboration and positive health outcomes in the pandemic and post-pandemic periods.

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ECO-FRIENDLY RELIGIOUS WORSHIP AMONG THE BENGALI HINDU COMMUNITY

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Abstract
Religious Worship is very common and normal activities among the all religions daily or occasionally. It may be seem that without any everyday ritualistic practice one can failure in his target. Bengali Hindu Community maintaining some environmental ethics during their worships, and friendly behavior with nature as a part of Hindu culture. Some ritualistic practices in collaboration with eco-friendly activities are carried out by us in our daily and occasional worship. Bengali Hindus carries out several eco-friendly worships and rituals throughout the Bengali Calendar year such as plantation of Tulsi tree in the month of Baishakh or Durga puja or Navratri in the month of Ashvin and harvesting of new rice or Nabanna in the month of Agrahayon or Suryavrata, a vrata carried by unmarried Hindu women on the month of Magh etc. In Kolkata, some Durga Puja used eco-friendly materials like cane, jute, etc. for making the Puja Pandals. Such themes concerning sustainable development definitely carry a great impact on the crowd's mind, given the sanctity of the occasion. With this attempt, the festivals in Hindu Bengali Community a thought of sustainability combined with sanctity of the religious rites have developed which in turn helps in the preserver or transferring of natural resources to next generation. Hindu religious rituals are mostly inter-connected and inter-dependent with our several Hindu deities. Hindus believe that all living things are sacred because they are part of God as is the natural world. In Hindu religion the Supreme God has absolute sovereignty overall creatures including humans. In contemporary period, Bengali Hindu society most of the time maintaining environmental guideline during their worship.

Key words: *Sustainable, Sacred, Ritual, Kolkata, Durga-Puja.*

Introduction

Hinduism did not start at any particular date or from the influence of any particular charismatic individual. In its present form it developed in central India. Hindu individuals and communities thus adapt to local situations as they see fit since there has never been any central supervising organization. The people now use polluted water as much as they ever did and the consequences are reduced by civil and medical action quite independent of religion. Most, Hindus understand 'environment' to mean the natural world - everything around us that is part of the earth and nature. Hindus believe that all living things are sacred because they are part of God as is the natural world. Environmental ethics refer to the moral relationship between human beings and their natural environment, more specifically it refers to the value that mankind places on protecting, conserving and efficiently using resources that the earth provides. The Hindu religion demands veneration, respect and obedience to maintain and protect the harmonious unity of God and nature. But religious Ethics as is always obligatory to their respective scriptures. Vedas are the