

COMPARATIVE STUDY ON HEALTH AWARENESS AMONG THE POPULATION IN PRE AND POST COVID

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ABSTRACT

A global health emergency called COVID-19, which hit the world in 2019, created a significant impact on people's life regarding the awareness of health. The public's perception of COVID-19 will be a major factor in determining the long-term effects on human life. The coronavirus illness of 2019 (Covid-19) also hit the economy severely, which ultimately led to a change in health awareness among the population. The objective is to compare the health awareness among the population in the pre and post covid era. People are more aware of the nutrition in their food now and trying to boost their immunity with the food itself, which was not there much pre covid. Also, the importance of mental health among the population have increased. The nightmares and trauma, which increased at the time of covid, led to severe effects post-covid. Also, the impact of the sleep cycle on the health status of an individual is being taken care of. People have started believing in the quality of life, started avoiding crowded places, and took good care of sanitation. There has been decline in alcohol consumption also. Government is also taking some serious steps for generating more health awareness by organizing health campaigns and displaying ads via television, newspaper. Post-covid people also realised the importance of vaccination to prevent themselves from such transmission.

KEYWORDS: Post-pandemic, Covid-19, Nutrition, Lifestyle, Anxiety, Depression, Immunity

REVIEW OF LITERATURE

INTRODUCTION

A global health emergency called COVID-19 has significantly changed how people live (Roy & Ghosh, 2021). The relationships during the pandemic led to changes in opportunity, capability, and motivation (Schwarz, 2012). These three paths' strengths and direction are expected to differ significantly between populations, regions, and nations (Soga *et al.*, 2021). The awareness and acceptance of COVID-19 immunization among a population are significantly influenced by educational awareness (Abuhashesh *et al.*, 2021). Patients with chronic respiratory disorders, therefore, have high acceptance for vaccination following COVID (Terraneo *et al.*, 2021). To avoid the social gatherings also there was a decrease in surgical and medical emergency department admissions to hospitals and promoted teleconsultation (Hu & Zhang, 2014). Although the most frequent ED diagnoses were the same before and after COVID-19, there were considerably fewer medical hospitalizations for COPD exacerbation and pneumonia of an unidentified pathogen during COVID-19 (Lokhandwala & Gautam, 2020). Even the respiratory infections caused by virus may have occurred less due to better personal cleanliness habits and social distance (Rennert-May *et al.*, 2021). However, the worldwide pause has created room for a potential reinvention of sports as well (Bowes *et al.*, 2021). To stop the transmission of illness by carriers who are asymptomatic, everyone has started wearing masks post covid (Sheehan *et al.*, 2020). Healthcare workers being the first respondents are at risk for a variety of dangers, including exposure to viral infections, overwork from long shifts, emotional stress, weariness, burnout from their jobs, social stigma, and workplace violence (Abbas *et al.*, 2021). Demand and supply interruptions are a problem for global supply chains (GSCs) everywhere (Lee *et al.*, 2020).

The devastating effects of pandemic on the local and worldwide economy has resulted in a mismatch between supply and demand for vital items (Sharma *et al.*, 2022). With the use of Information Technology (IT), people

were able to connect and keep themselves engaged. Thus IT use has been promoted for awareness(Chen *et al.*, 2021). Some research reported a rise in unprocessed food consumption and unhealthy food choices and dietary practices (Rennert-May *et al.*, 2021). While few reports stated a decrease in food consumption due to economic instability and healthier diet practices for immune-boosting(Fletcher & Park, 2017).The population having higher BMIs were more likely to adopt unhealthy eating habits(Boshra *et al.*, 2022). Shopping frequency was reduced as there was a loss of jobs from the pandemic(Sheehan *et al.*, 2020).Cafés and restaurants were restricted from social gatherings (Kozman & Melki, 2018). Children were reported with the changes in food consumption pattern consistently(Yang *et al.*, 2021). An essential control variable is consumption levels before the epidemic. Post-covid significant change in shopping frequency was noted(Terraneo *et al.*, 2021). Except for households with children, people in Denmark tended to consume less fresh food(Menges *et al.*, 2021). This shift is a result of decreased shopping activity during the pandemic in all countries (Janssen *et al.*, 2021). The largely active adults were able to promote good mental condition(Van Aelst *et al.*, 2021a).

Covid highlighted the importance of creating strategies and programs by government for the betterment of public(Ramírez-Contreras *et al.*, 2022). Making parks and green spaces and, building parks closer to homes, installing bicycle lanes, expanding green space in urban areas created positive effect on mental state of people(Cindrich *et al.*, 2021). The pandemic's effects on isolation created a huge impact on the style of people's living (Giuntella *et al.*, 2021), It resulted in diminished physical activity and altered eating habits ultimately leading to mental and emotional reactions(Waters *et al.*, 2022). Physical exercise, as well as other important daily activities, leisure time, social interaction, and education, all saw considerable declines(Yang *et al.*, 2021). Covid affected the lifestyle of children like poor nutrition, addiction of screen time, lack of schedule as there was online classes in that period, and mental issues(Knobloch *et al.*, 2015). Elderly people usually struggle to adjust to lockdown procedures and experience despair and cognitive issues(Caroppo *et al.*, 2021). More than half of the population experienced a shift in their sensation of satiety and hunger while lockdown(Jontez *et al.*, 2021). Due to pandemic, the mental state of the population has been impacted(Van Aelst *et al.*, 2021b). Centers for Disease Control and Prevention (CDC) in the US has generated a report in 2020 stating that approximately one-third of US individuals had anxiety or depression (Pedrosa *et al.*, 2020). Even while the COVID-19 epidemic has had numerous detrimental repercussions on people's quality of life, not everyone touched by it has necessarily experienced a decline in subjective happiness(Azuma *et al.*, 2021). Global economic activity has declined as a result of the coronavirus epidemic, leading to higher unemployment everywhere(Čvirik *et al.*, 2022). The promotion of behavioural health changes effectively protects the community and country from the spread of pandemic diseases like the coronavirus COVID-19 (Rossinot *et al.*, 2020). The in-charge of decision-makers in health organizations include government health officials, medical professionals, and practitioners(Čvirik *et al.*, 2022). Government have started health promotion campaign to increase public awareness of health issues(Di Renzo *et al.*, 2020).

Governments should provide assistance programs to protect the economy and jobs in order to safeguard mental health(Schwarz, 2012). Additionally, the degree of policy rigidity in response to pandemics may have an effect on mental state and should be adjusted as appropriate by the relevant governments(Olff *et al.*, 2021). SARS-CoV-2 infection have longer-term effects which increased the burden on healthcare systems(Soga *et al.*, 2021). Issues occurring in the general population realized the government bodies of different countries that there is a need to organize healthcare treatments and resources in a timely manner(Lee *et al.*, 2020). Current terminology for such effects persisting more than the three months after being affected is known as "post-COVID-19 syndrome" or "Long Covid"(Menges *et al.*, 2021). COVID-19 has hit the world hard. It is important to maintain the balance between our life and behaviour to stop the chain of covid-19(Abbas *et al.*, 2021). Large-scale crises, like a pandemic, may be followed by a "second disaster," according to research on disasters conducted around the world(Ramírez-Contreras *et al.*, 2022). This is especially true when the first crisis is accompanied by psychosocial disruptions, practical and financial difficulties, and complex political and societal issues(Olff *et al.*, 2021). Public health authorities (PHAs) are increasingly using social media sites like Facebook to quickly distribute pandemic response strategies to the general public(Bourmistrova *et al.*, 2022). The public is more demanding of real-time, clear, and consistent messages when a health danger like COVID-19 is present(Raamkumar *et al.*, 2020). The significance of public health planning is that it considers a lot more factors other than rate of infectivity and mortality rates when evaluating public health policies(Waters *et al.*, 2022).

It has been realised that the government's investment in hospital beds and medical specialists will decrease the effect of risk on mental health(Terraneo *et al.*, 2021). It has been reported that there has been rise in the number of snacks consumed during lockdown (Bennett *et al.*, 2021). The health care workers and the serious patients developed the feelings of loneliness during covid-19 as there was decrease in social bond(Porcelli, 2020). Healthcare workers are at risk for a variety of dangers, including exposure to viral infections, overwork from long shifts, emotional stress, weariness, burnout from their jobs, social stigma, and workplace violence(Abbas *et*

al., 2021).

CHANGES IN DIET:

Since sedentary activity, such as spending more time on screens and watching television, is linked to unhealthy eating habits, this is a trend that is probably observed when being imprisoned (Bennett *et al.*, 2021). At the developing stage of vaccine, there was an increase in nutraceutical extracts to reduce the spread and severity of disease (Rodríguez-leyva & Pierce, 2021). The COVID-19 lockdown led to changes in eating habits, which may have health effects in the long term (Di Filippo *et al.*, 2021). Post covid there is an increase in home-cooked food and fresh fruit and vegetables consumption (Park *et al.*, 2021). The Healthy Eating Index (HEI) considerably decreased during the lockdown and then recovered after the lockdown, but it didn't approach the baseline value (Jontez *et al.*, 2021). On the clinical path after acute COVID-19, specialized nutrition therapy for patients with a chronic critical illness like began (Mechanick *et al.*, 2021). The participants' intake of water, alcohol, vitamins, minerals, proteins, fats, and carbs, as well as their frequency of drinking and smoking, were all severely impacted by the condition but returned to normal after it was over (Access, 2021). Diet was improved by the action COVID. These findings, however, are only applicable to those with a higher degree of education and possibly depend on income (Waters *et al.*, 2022).

Vulnerable people started showing their concern over the food supply, nutrition, and the possibility of catching the virus from tainted food (Collins *et al.*, 2022). Various platforms were developed for the inactivation of virus from food and packaging materials by advancing technology (Knorr & Khoo, 2020). Develop practical advice for food habits and healthy lifestyles that can be followed during a pandemic, such as the management of COVID-19 (Menges *et al.*, 2021). The scope and extent of the pandemic created adverse impacts on food prices and nutrition security (Singh *et al.*, 2020). Across all food categories and districts, there has been a significant increase in food commodity prices, with pronounced inter-district heterogeneity (Abuhashesh *et al.*, 2021).

Therefore, the pandemic led to both positive and negative changes in eating habits, resulting into short- and long-term health effects (Menges *et al.*, 2021). During quarantine, those with higher BMIs were more likely to adopt unhealthful eating habits (Di Renzo *et al.*, 2020). Since sedentary activity, such as spending more time on screens and watching television, is linked to unhealthy eating habits, this is a trend that is probably observed when being imprisoned (Bennett *et al.*, 2021).

CHANGES IN SLEEPING CYCLE:

In terms of maintaining excellent health, sleep is right up there with food and exercise. The adequate sleep improves the emotion, health and cognitive function. Lack of regular, good-quality sleep leads to the severe chances of developing serious illnesses and disorders like dementia, obesity, and even heart disease and stroke. Thus people after Covid got even more aware of the importance of sleep and started having an accurate amount of sleep. Compared to the pre-COVID-19 pandemic, a higher percentage of teenagers got the recommended amount of sleep or more during and post covid (Gruber *et al.*, 2021). In the summer of 2020, the term "COVID-somnia" was created to explain how the global epidemic was affecting people's sleep (Alimoradi *et al.*, 2021). The patient's recurring nightmares have returned because of COVID-19 (Hurley, 2020). During the pandemic lockdown several people faced issue in sleeping (Pérez-Carbonell *et al.*, 2020). It has been found that sleep issues and psychological anxiety are associated (Alfonsi *et al.*, 2022). Whenever there is a disbalance in the routine, it may lead to the variation in sleep timing and circadian rhythms (Blume, 2020). Post-lockdown people started sleeping more (Soga *et al.*, 2021). Even months after recovering from Covid-19, some people still had trouble sleeping.

The increase in "screen time" brought about by electronic media was the most negative impact on the sleep cycle (Kandeger *et al.*, 2018).

CHANGES IN MENTAL STATE:

With the high transmission of viruses the disease mortality among the greater risk populations, there is also an emotional, behavioral, and psychological toll on the population (Pedrosa *et al.*, 2020). Post-covid pandemic, university administrators started taking some bold and proactive measures to promote the good being of mental state (Browning *et al.*, 2021). People younger in age, having poor overall health, spent a lot of time on screens, or knew someone who had the virus were more prone to experience higher degrees of psychological effect during pandemic (Abbas *et al.*, 2021). With pandemic posing a threat to the entire world and the significant changes in general population living and working conditions brought on by containment measures, mental

health has grown to be a serious worry (Hettich *et al.*, 2022). The symptoms of mental health have been found to be increased in North America and Europe (Robinson *et al.*, 2022). As the covid hit and social isolation began, it left many people with deteriorating mental health especially the first two months in which WHO tagged it as a pandemic (March 2020), but by mid-2020, most symptom categories had decreased and were comparable to pre-pandemic levels (Robinson *et al.*, 2022b). The direct impacts of COVID-19 on mental health have only recently begun to surface, 18 months after the first instances originally surfaced (Lee *et al.*, 2020a). The cost has escalated significantly, and COVID-19's indirect impacts, such as the interruption of mental health services, are also starting to show (Bourmistrova *et al.*, 2022). The socioeconomic class belonging from the middle class had the highest rate of depression during pandemic (Agberotimi *et al.*, 2020). Pre-covid annual economic and societal cost for mental health was £105 billion in England (Terraneo *et al.*, 2021). Everyone feels terror due to the global crisis brought by covid, and behavioral reactions can range from denial to actual panic attacks (Agberotimi *et al.*, 2020). Following the severe crisis, the national healthcare systems may have to cope with a new, significant issue, notably the psychiatric effects of the unpleasant, upsetting sentiments that some are experiencing (Porcelli, 2020). Intriguingly, patients with prior mental disease experienced anxiety to a larger extent than those without prior mental illness, despite the fact that anxiety has an immune-inflammatory etiology (Pedrosa *et al.*, 2020). This may indicate that there is a threshold for immune system activation in anxiety or that SARS-CoV-2-specific reasons are to blame (Uzunova *et al.*, 2021).

CHANGES IN LIFESTYLE:

The awareness and acceptance of immunization among a population are significantly influenced by educational awareness (Abuhashesh *et al.*, 2021). Patients with chronic respiratory disorders, therefore, have high acceptance for vaccination following COVID (Terraneo *et al.*, 2021). Viral respiratory infections have occurred less due to better personal cleanliness habits and social distance (Rennert-May *et al.*, 2021). To stop the transmission of illness by carriers who are asymptomatic, everyone has started wearing masks post covid (Sheehan *et al.*, 2020). With the use of Information Technology (IT), people were able to connect and keep themselves engaged. Thus IT use has been promoted for awareness (Chen *et al.*, 2021). Cafés and restaurants were restricted from social gatherings (Kozman & Melki, 2018). An essential control variable is consumption levels before the epidemic. Overall, our findings show how the context—that is, the places and people eat—as well as the frequency of food shopping—has a significant impact on people's food choices (Terraneo *et al.*, 2021). Except for households with children, people in Denmark tended to consume less fresh food (Menges *et al.*, 2021). This shift is a result of decreased shopping activity during the pandemic in all countries (Janssen *et al.*, 2021). Making parks and green spaces and, building parks closer to homes, installing bicycle lanes, expanding green space in urban areas could have a significant positive effect on the population's mental health (Cindrich *et al.*, 2021). The COVID-19 pandemic's effects on social isolation have had a significant impact on people's way of life (Giuntella *et al.*, 2021). The awareness and acceptance of COVID-19 immunization among a population are significantly influenced by educational awareness (Abuhashesh *et al.*, 2021). It resulted in diminished physical activity and altered eating habits. As a result, significant mental and emotional reactions have been noted (Wang *et al.*, 2021). Physical exercise, as well as other important daily activities, leisure time, social interaction, and education, all saw considerable decline (Yang *et al.*, 2021). COVID-19 has changed peoples' lifestyles on a global scale (Ramkumar *et al.*, 2020). Inactivity and irregular eating habits among many people have led to unhealthier lifestyles and the escalation of diseases associated with those lifestyles, which in turn worsen COVID-19 (Sheehan *et al.*, 2020). Educated efforts are crucial for stopping the spread of misinformation on social media platforms (Abuhashesh *et al.*, 2021). In order to move from the idea of sustainable lifestyle, post-COVID recovery draws on "back-casting," an approach that envisions pathways towards alternative, "better" futures (Collins *et al.*, 2022). A 36.8% decrease in liquor utilization was accounted for in Italy (October 2021).

METHODOLOGY:

The literature search was limited to articles published from 2019-2022. From inception a comprehensive literature search was conducted on PubMed and Google Scholar using the keywords: Post pandemic, Covid-19, Nutrition, Lifestyle, Anxiety, Depression, Immunity. A selective filtration strategy was used for articles published only in English, and studies conducted on the Indian population were included in the review. We conducted search on platforms like Wiley, Elsevier, ScienceDirect, SPER, and Academia.

SELECTION PROCESS

Title, abstract, and full text screening were used to determine which results were eligible.

The articles were evaluated for eligibility and compliance with the inclusion criteria independently by two researchers.

This literature search's inclusion criteria were as follows:

1. Only include works (including preprints) that were published in 2019 and after;
2. Studies that looked into the link between COVID-19 and health awareness.
3. Only academic publications written in English

The search was maintained broad to find any pertinent papers that would fit within the review's objectives.

DATA CHARTING AND SYNTHESIS

Prior to conducting the initial search, we talked about databases and search phrases.

An open Excel spreadsheet was used to keep track of all searches.

We conducted the final search using the revised search criteria in the databases after deliberating.

The studies were extracted and screened after being determined to be eligible based on the inclusion/exclusion criteria.

Study characteristics were exported together with the creation of a first extraction template.

Each study's first author, year, title, journal, study type, participant count, age, location, findings, and conclusion were all taken out.

After giving it some thought, the researchers modified the extraction template to solely concentrate on what they felt were the key and major findings from each study.

ANALYSIS

The preferred reporting item for systematic reviews and metaanalysis (PRISMA) technique is the one that is used.

Following the review and summarization of every article that made it through the selection process, consideration was given to the goals, the year the article was published, the amount of citations, and any recommendations for additional research.

INCLUSION & EXCLUSION CRITERIA

The be included in current study, studies have to meet some criteria

- (a) Studies have included some kind of selection criteria (post covid nutrition, work life balance). These criteria limited the number of studies
- (b) Accordingly excluded the studies in which it based on irrelevant information there is no proper Title, Abstract & Review.

FINAL DATA SET

Based on all keywords searched, the research data yielded 1300 research articles. After scanning the title, there was the same article in two different databases. The results after deducting the duplicates are 900 articles. A total of 900 articles were screened. 650 Articles excluded that they not meet the inclusion criteria. Articles accessed for eligibility are 150 articles. A Total number of 93 articles excluded based on the

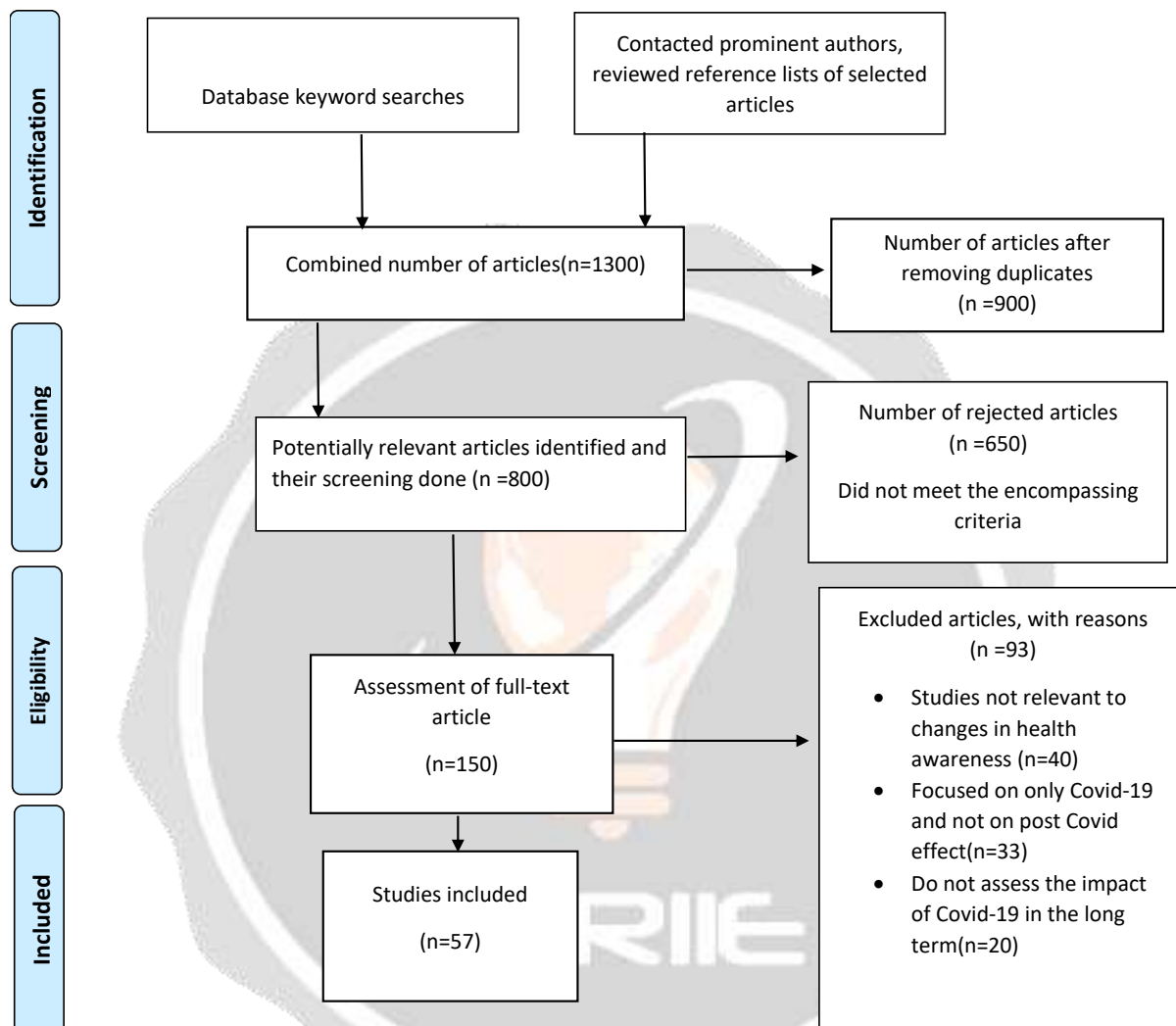
- Studies not relevant to changes in health awareness (n=40)
- Focused on only Covid-19 and not on post Covid effect(n=33)
- Do not assess the impact of Covid-19 in the long term(n=20)

The final data set consists of 57 articles.

The oldest included study was published in the year 2019 and the most recent study was conducted on 2022.

The Entire process is shown in figure

PRISMA Flow Chart



DISCUSSION:

The nutrition of micronutrients and macronutrients that one's derives from the food one eats plays a major role in building immunity, and thus, people have started taking the natural supplements of zinc, selenium, and sulfur post covid realizing the benefits of these nutrients.

Proteins, which are the building block of the body, are being given major importance. There is a flourishing in the alternative natural supplements industry post covid. The sale has been increased for this sector

The population having higher Body Mass Index tend to move towards unhealthy eating patterns during lockdown.

The awareness regarding personal hygiene, that is the use of sanitizers and avoiding personal contact, has led to a decrease in communicable diseases. The importance of an adequate sleep cycle contributes to the physical health as well as to the improvement in mental health, thus reducing the risk of nightmares, anxiety, and depression. The balance between work and life approach is actively being discussed in organizations for the

improvement of mental health. Great consideration of mental health is given post-pandemic. Earlier, when people used to consider discussing mental health as a taboo became normal post-pandemic, and they even started working on it and took the major decision when needed, like consulting a psychologist for treatment.

A drift from packaged food to home-cooked food has been seen post-covid.

It has also been noted that post-covid there was a decrease in liquor consumption.

CONCLUSION:

The researchers' findings after analyzing the data are as follows:

Post-Covid increased the health awareness of citizens as there was even better prevention for viral diseases, and people also started following hygiene education.

The symptoms of mental health have been found to be increased in North America and Europe.

With the use of Information and Technology, teleconsultation has increased.

There was increased socialization among the 18-29 years age group prior to and post covid, while people above 60 years continued to use masks and sanitizer and avoid social gatherings post covid.

Post-pandemic, there is an increase in sales of nutraceutical supplements.

We want full efforts by doctors and specialists to coordinate the mental health of all inside a bigger framework by noticing the psychology and providing the right medication and treatment.

The well-being specialists and the states have also taken initiatives to provide emotional support to vulnerable individuals.

Post-Covid the food habits of population shifted to fresh products and home cooked food.

A 36.8% decrease in liquor utilization was accounted for in Italy.

Government of India has taken initiatives like National Tele Mental Health Programme in budget of 2022-23 for affordable and accessible mental healthcare facilities.

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