



IMPACT OF COVID-19 AND HOME CONFINEMENT ON DIETARY PATTERN, LIFESTYLE AND MENTAL HEALTH OF PEOPLE: A NARRATIVE REVIEW WITH RECOMMENDATIONS.

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ABSTRACT

Background: A new Coronavirus (SARS-Cov2) emerged in Wuhan, China (2019) sparking a pandemic that affected all aspects of human life. Nutritional and lifestyle changes resulting from the COVID-19 home confinement increased ensuing danger of degenerative diseases such as obesity, diabetes, cardiovascular pathologies etc.

Aims: This study is aimed to narratively review the impact of COVID-19 and home confinement on dietary pattern and eating habits, lifestyle changes, weight perception and weight variations, mental well-being of people.

Methods: PubMed, ISI web of science, Scopus and Google researcher have been looked to distinguish all pertinent published papers. There has been some significant contribution towards the impact of COVID-19 confinement on human health. After screening, all the relevant articles have been included for narrative review.

Conclusion: The Pandemic has severely impacted individuals from all walks of life. In absence of any effective drug and vaccine for treatment, social distancing and other preventive measures were the only alternatives. Lockdown is among one of the options suggested by WHO to reduce spread of the virus. The lockdown has a major impact on the dietary habit, life style and mental health globally. The pandemic has forced people around the world to stay at home and self-isolate for a period of time. Physical inactivity has been independently associated with several life style diseases. A prolonged home stay may have potential side effects which may jeopardize people's health. Some of the most undesirable consequences are physical inactivity, weight gain, behavioural addiction disorders and social isolation. Further during quarantine, continuous boredom has been associated with higher consumption of fats, carbs and proteins. Hence, a crucial step to generate a future large scale surveys that analyse negatives effects on healthy lifestyle. Government authorities, communities and academic world as the main stakeholders would have to educated people beneficial lessons learned from COVID-19 in order to enhance the quality of life.

Keywords: Covid-19, Quarantine, Lifestyle, Dietary Habits, Lockdown, Mental health, Home confinement, Sleep.

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DOI: - 10.31838/ecb/2023.12.si5.029

1. Introduction

The COVID-19 Pandemic, also known as Coronavirus Pandemic is an ongoing global Pandemic of Corona Virus Disease 2019, caused by Severe Acute Respiratory Syndrome Coronavirus 2(SARS COV-2). The outbreak was first identified in Dec 2019 in Wuhan China. The WHO declared the outbreak a public health emergency of international concern on 30th Jan 2020 and a Pandemic on 11th March as of 12 August 2020[1, 2]. The unprecedented global, social and economic crisis triggered by the Covid-19 Pandemic poses grave risk to the nutritional status and survival of human in low/middle income countries. The emergency has been found to harm the wholesome status of susceptible group through various components. We can anticipate a risky decrease in dietary quality in developing nations, coming from the income hardships related to Govt. commanded closures and the globalization, just as from the freezing of food transfer plans, for example, School feeding projects and the breakdown of food markets because of the demand, shocks and supply limitations. Malnutrition will also increase due to health care failure from a range of nutritionally important functions towards combating Covid-19. The pandemic has constrained individuals all around the globe to remain at home and self-segregate for specific period of time. 'Stay at home' led to several adjustments to new life away from the habituated daily routine. However, these adjustments reduce the access and desirability to healthy food; suboptimal physical activity levels; worsen anxiety and stress; impair the quality of ideal sleep; and encourage substance abuse to relieve anxiety and fear of catching coronavirus. Knowing the fact that COVID-19 has altered (positively as well as negatively) every aspect of life, we have done a narrative review, aiming to understand the realms of COVID-19 among individuals and communities owing to effects of

lockdown, furthermore, inspiring advanced large scale research of potential effects before, during and after COVID-19 pandemic in developing areas of dietary, lifestyle and mental health.

2. Material and Methods.

The various electronic databases of MEDLINE through PubMed, Science Direct and Google Scholar Databases from Jan 2020 to Dec 2020 have been searched. The search has been carried out using terms like COVID-19 & Dietary Habits OR COVID-19 & life style changes OR impact of COVID-19 on lifestyle OR COVID-19 & weight change variation OR COVID-19 & impact on sleep OR COVID-19 & effects on mental health [All fields]. The search strategy and terms were modified according to the databases. Relevant information was searched from references related to the study. Research articles, review articles and advisories by WHO (World Health Organizations), NHS (National Health Services) and Ministry of health (Govt. of India) were incorporated. Peer reviewed journals were included while as grey literature such as conference papers were excluded. Among the database searched, we included 140 articles.

Inclusion and Exclusion Criteria

A total of 1056 articles were searched for reviewing, out of them around 140 articles were found to be relevant to this narrative review as shown in figure 1. All articles that included dietary habits, lifestyle, physical activity, sleep, mental health, smoking etc. with regard to COVID-19 pandemic have been evaluated. The articles that don't discuss about former terms within the Covid-19 context were excluded. Primarily, our focus was placed on study design, results and conclusions in case of primary studies with quantitative data while as discussion and conclusion was emphasized in articles other than primary studies.

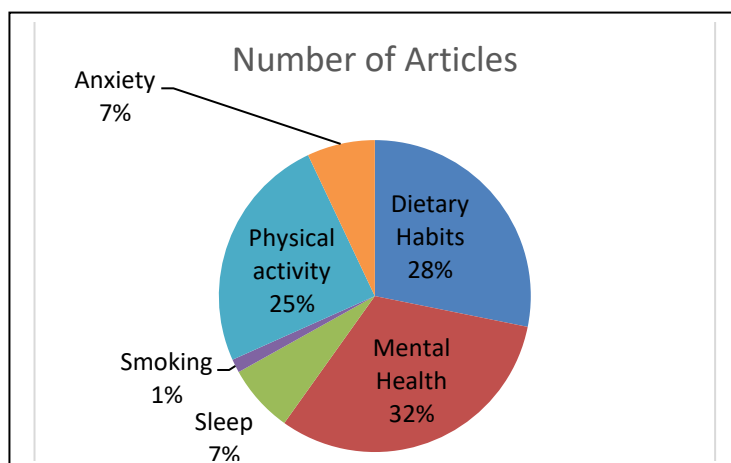


Figure 1. No. of Articles grouped according to various parameters

2.1 Effect of COVID-19 induced home confinement on eating habits and dietary pattern

Good nutrition and hydration are important. A well balanced diet keeps us healthy, strengthens the immune system and reduces the risk of chronic diseases and infectious diseases. The coronavirus disease (COVID-19) is a severe acute respiratory syndrome caused by SARS-COV-2 which was supposed to be apparent in Dec. 2019 with a transit from animals to humans on seafood market that spread rapidly from Wuhan city of Hubei, China to the rest of world [2]. Due to this growing infection, WHO emergency committee declared a global health emergency [3]. One among the measures that the government of most countries worldwide, especially more hit by the pandemic, was complete lockdown of the cities, which led to disruption of daily activities of the population. Lockdown clearly affected the lifestyle and dietary habits of human around the globe. This new situation caused a radical change in dietary habits and difficulty in sustaining a nutritious and diverse diet. Limited access to grocery store may lead to reduce the consumption of fresh foods and elevate the consumption of processed foods that are having high content of fats, sugars and salt. There may be a great risk of dysfunctional eating behaviors as a psychological and emotional response to COVID-19 outbreak [4, 5]. Negative emotions can lead to overeating also called as emotional eating that can occur as a result of COVID-19 home confinement [6, 7]. Eating habits and life style modifications may put our health at risk, so upholding a good nutritional status is vital, mostly at times of COVID-19, when immune system needs to be strong.

A higher intake of unhealthy foods was stated in most survey based studies by majority of respondents in comparison to intake of healthy food by respondents [8]. Most of studies found a change in eating habits than usual thus indicating that changed routine affects dietary patterns of people. Majority of participants agreed that consumption of home prepared meals was high in comparison to food eaten outside home due to imposed restrictions. An elevation of homemade recipes and decline in packaged sweets and baked products, delivery foods and alcoholic intake was prevalent in studies [9, 10]. Interestingly intake of warm water during lockdown was found to be increased and younger people declared increased appetite. Overeating and weight gain was found by many studies during lockdown [11, 12]. In spite of the fact that the situation prevailed, it was revealed that there was an increase in the consumption of fruits, vegetables and legumes among University

students [13] and a significant decrease in frequency of consumption of fish and sea foods was found in comparison to pre lockdown phase. However, home confinement led to limited access of fruits and vegetables especially among socio-economically weaker sections of society because of their unavailability, inaccessibility and unaffordability [8, 14]. Processed and fast food consumption was observed to be higher in richer people [15, 16]. Moreover, taking excessive snacks to overcome boredom also led to weight gain among certain people. It was reported that intake of 'comfort foods' such as chocolates and ice creams were significantly increased in order to calm anxiety caused by lockdown despite the recommendation to reduce the consumption of fats, sugar and salt during COVID-19. Interestingly, lockdown encouraged people to eat fresh home-made food and a reduction in the purchase of readymade meals was evident by many studies. Various measures to boost immune systems to fight against Coronavirus as emphasized by Ayurveda, that included consumption of commonly available condiments like turmeric, cumin, coriander, ginger, lemon and garlic was stated to be heightened in India in particular during COVID-19 restrictions. It was also revealed that daily gargling has rapidly increased during lockdown as compared to pre lockdown, to prevent upper respiratory tract infections [17].

The pandemic was associated elevated food prices and reduced dietary diversification [18]. Unhealthy meal pattern such as skipping breakfast and late night snacking was noticed. Both behaviors are likely to be associated with overweight and obesity. Staying up late during Covid-19 lockdown led to late night snacking and oversleeping during the day which can be a possible reason for skipping breakfast as was shown in the results of certain studies. Regarding food choices there was no major change visible before and during pandemic. However, studies revealed that the majority of participants did not meet minimum portions of fruits and vegetables recommended by USDA of portions a day. The reason behind this can be lack of awareness of current recommendations. No significant variation was seen in beverage intake habits before and during the pandemic. Consumption of fresh juices and coffee was also seen reduced during COVID-19 lockdown. One more important thing which was evident by studies is that "social drinking", i.e., alcohol intake in bars and restaurants was considerably reduced whereas an increase in herbal tea consumption was seen during the pandemic [12]. A Spanish study found that young University female participants had

higher consumption of fruits, vegetables and legumes. Besides, female respondents stayed more at home and watched less TV while eating in comparison to males in general. Geography and maternal education was also found as a component that influenced the intake of healthy foods [13, 19]. Studies discovered that overweight/obese people prior to corona virus pandemic tend to gain more weight during pandemic and malnourished people incline to lose more weight. Studies reported that individuals who were diagnosed with eating disorder prior to pandemic suffered worse during lockdown due to low self-directedness and less adaptive coping. Perception of weight status was seen to be positive but no significant difference was found for BMI pre and during lockdown, indicating no major weight change and revealing a weight misperception among people. The possible reason for this is the consequent change in meal pattern and rise in sense of hunger [20]. One of the studies explored the connection between the mental state, emotional eating and negative emotions which lead to emotional hunger. Women felt more on edge, burdensome, depressive and inclined to comfort food than men [21].

2.2 Effect of COVID-19 lockdown on Lifestyle:

COVID-19 has redefined daily lifestyle related behavior in a major way. Covid-19 induced lockdown has effected physical activity level, screen time usage and sleep pattern significantly which are discussed as follows:

2.2.1. Physical activity.

It is well known that any level of physical activity, no matter how little, is beneficial. Sedentary lifestyle related to increased TV watching, excessive internet usage, playing online games, and overall excess screen time have been evident to negativity influence chronic disease outcomes [22]. Closure of gym and parks, restriction of public movement in open during lockdown period has proven to be a challenge to remain physically active. Majority of the studies reveals that there is a reduction in physical activity levels and increased sedentary behavior during home confinement [23]. During covid-19 induced lockdown, on an average, there was a reduction in exercise intensity for both the genders [24]. Majority of investigations announced a diminishing pattern in actual bodily work levels especially among overweight individuals particularly in males, and senior grown-ups and the old. A multi-national survey found a decline of 24% in physical activity during lockdown period. The studied found an increase of 5 to 8 hr. per day in daily sitting time during home

confinement [25]. Several home-based training courses came across on social media during the pandemic but due to lack of equipment and exercising space, people were not able to adjust to practice at home [26]. In India, Ministry of AYUSH stressed on practicing yoga Sana, Pranayama, and meditation daily for at least half an hour so that people can workout at home and keep themselves active [17]. Work from home has prone people to spend more time on sitting, leaning and lying down on the bed. This sedentary lifestyle can tend to cause overweight and obesity among individuals. Overall physical activity pattern of both previously active and inactive individuals has disrupted during lockdown period but previously physically active individuals were having high level of distress as result of home confinement [15]. Elderly people exercising in groups and those who were not practicing on online exercising programs suffered more with decrease in physical activity levels [27]. While most of studies revealed low physical activity during the pandemic, there was an opportunity at certain places to remain minimally active e.g. gardening, climbing up and down the stairs/steps in home environment, which some people practiced to remain physical fit [28]. Studies have stated that individuals who remained active during lockdown period had experienced less stress, anxiety and depression [29].

2.2.2. Screen time usage and Sleep.

Excessive screen time is associated with many health risks. It replaces sound practices and propensities like active work and rest, and prompts unsafe propensities like day-night reversal, malnutrition, headaches, neck pain, eye irritation and also may affect the mental health such as developing gaming disorder. During the time of COVID-19 pandemic when whole world is on halt as government of most countries imposed lockdown to contain the spread of virus. Closure of workplaces, schools, colleges and all other institutions had led to e-learning approaches and work remotely from home which in turn has resulted in increased use of mobiles, computers, tablets and TV viewing. Excessive screen time, together with substantial decrease in the time spent outside home, might speed up the myopia epidemic. Prolonged battle against the COVID-19 virus may elevate the chances of myopia by developing long-term behavioral changes encouraging the onset and progression of myopia. On the other side, time spent outdoor has proven to be defensive against the beginning and development of myopia. Over 50% reduction in risk of myopia progression was seen in children

who used up at least 11 hours' outdoors per week. Parents revealed that their children getting discomfort or pain while reading, headache and eye fatigue because there is a widespread usage of the electronic gadgets even in preschoolers during the lockdown. Increased screen time affects blink rate, which in turn leads to symptomatic dry eye [30].

Home confinement during COVID-19 pandemic led people to witness lack/disturbed sleep pattern as evident from various studies. Disturbed sleep or insomnia can be linked with increased blue light exposure from prolonged screen time e.g. COVID-19 update scanning, surfing internet to avoid boredom and working from home [31]. A study done on university students and administrative staff in Italy revealed that majority of participants experienced insomnia while 15% specifically had difficulty in falling asleep [32]. One more study found same consequences of lockdown on sleep where 74% of respondents informed about trouble sleeping during pandemic as compared to pre-lockdown period that was surveyed 49% [31]. Interestingly, some studies found that participants informed more sleeping during home quarantine but the quality of sleep was reported as poor/troubled [33, 34]. In an Indian study it was discovered that people who slept more during the pandemic felt more sleepiness in daytime and it was also stated that young people, females and people who feel loneliness and anxiety due to COVID-19 had greater struggle with sleep [35]. Increased worry due to COVID-19, low mood, varying bedtime and information burden are all contributing factors to insomnia and its detrimental effects on health [36]. Despite all the negative effects on sleep during the pandemic there was an opportunity for people with inconsistent sleep patterns in past to improve sleep hygiene during lockdown as reported by few researches [37, 38].

2.3 Effect of COVID-19 lockdown on Mental health:

COVID-19 induced lockdown has significantly thrown life out of gear throughout the globe and is frequently connected with adverse consequence on mental prosperity. These conditions start a progression of mental and psychopathological indications, including emotional weariness, touchiness, nervousness, increased annoyance, depressive manifestations just as post traumatic problem [39]. Home confinement due to COVID-19 has posed a feeling of dread and anxiety throughout the globe. This pandemic has led to short term as well as long term psychological and mental wellness repercussions on all age groups.

Restricted movement during lockdown has greatly lessen the social activity among family, friends/neighbors, and reduced entertainment options. The reduction contributed to contracted life satisfaction to large extent among people as shown by studies [40, 41]. Excessive social media use has proven to have detrimental effects on the mental and social well-being of respondents as revealed in a Saudi Arabian study. Older people, highly qualified individuals and people belonging to higher social strata had been largely affected by lack of social interaction [40, 42]. Apart from this, children were highly affected by quarantine as research have shown results of emotional impact which comprise of being more restless, impatient, irritable, annoying and inattentive during lockdown with more time spent on screen [43]. However, gender differences were witnessed as female suffered more psychological stress than males and the possible reason can be women remain home bound most of time and confronted family issues, home chore burden, sexual violence both physically and emotionally between intimate partners [44, 45]. Continuously acquiring information related to COVID-19 through social media, friends/family, authorities via advisors had increased anxiety among people. Studies expressed concern after analyzing results that reported majority of respondents showing high levels of stress, anxiety and/or depression. Isolated older adults with cognitive decline were tend to be more susceptible to anxiety and depression as suggested by a Chinese research [46]. In addition of this, college students also experienced mild to severe anxiety, anger, confusion during lockdown in China [47]. Several studies concluded that isolation/quarantine had huge psychological impact on people mostly among those kept under community quarantine as compared to those under home self-quarantine [48]. Moreover, symptoms of mental health illness like post-traumatic stress was found in individual after completing quarantine [49]. High stress levels compelled by the dread of COVID-19 contamination, monetary emergency, strain to quarantine and isolation if positive and loneliness, unavailability of addictive substances like alcohol had posed threat of suicidal thoughts and suicides among sufferer during the lockdown period [50, 51]. Also stress/anxiety levels were found higher in women particularly in pregnant women, people with pre-existing health issues, economically weaker people and older adults with already existing mental health illness or chronic medical conditions [52, 53]. Interestingly, avoiding news updates related to COVID-19 and balanced diet

were proven to be the best predictors of lower levels of anxiety and depressive symptoms [54].

The narrative review of articles relevant to Dietary Pattern, Life style and mental health during COVID-19 are summarized in Table 1 below.

Table 1. Articles on Dietary Pattern, Life style and mental health during COVID-19.

S.No	Author and Year	Article	Findings	Conclusion
1	Xiang. M.,Zhang. Z., & Kuwahara. K.(2020)	<i>Impact of COVID-19 pandemic on children and adolescents " life style behavior larger than expected"</i>	An experimental longitudinal study in 5 schools in Shanghai China among children and adolescents (6-7 years), A drastic decrease in physical activity levels was reported. Prevalence of physically inactive students extensively increased from 21.3% to 65.6%. Screen time also prolonged during pandemic(app. 30 hours per week on average).	A decreased physical activity and increased sedentary behavior may negatively affect children's and adolescents physical and mental health.
2	Gornicka. M., et al. (2020)	<i>Dietary and life style changes during COVID-19 and the subsequent lockdowns among polish adults.</i>	This study discovered that COVID-19 had adverse impact on physical activity. An increase in screen time and decrease in physical activity were found to be 43% and 49% among respectively. Total food intake was also seen to be increased up to 34%, 33% in confectionary intake and 18% in alcohol intake. Interestingly, an increase in water intake was reported. While 37% shows decrease in fast food consumption and 48% revealed increased intake of home-made meals.	Home confinement have bidirectional impact on Dietary/life style changes both positive as well as negative.
3	Matsungo. T. M., Chopera. P. (2020)	<i>The effect of the COVID-19 induced lockdown on nutrition, health and lifestyle patterns among adults in Zimbabwe.</i>	Hike in food prizes were reported by majority of respondents and 64% revealed a declined in dietary diversity while 43.9% stated that quality foods were difficult to get during lockdown. A decrease in consumption of vegetables and fruits, rich in vitamin A was reported but an increase in green leafy vegetables were seen. 97.1% respondents indicated that COVID-19 lockdown had increased stress and anxiety levels.	COVID-19 induced lockdown was related to increase food prizes and decrease in diverse diet. Moreover, an elevation of anxiety levels and perceived weight gain was reported.
4	Pivari. F., et al (2020)	<i>Eating habits and lifestyle changes during COVID-19 lockdown.</i>	Lifestyle and eating habits changed during the pandemic is not unexpected as 37% participants agreed with this fact, while as only 16.7% improve their behaviors. Sense of hunger and satiety also seem to change in majority of the respondents. Most remarkable fact is that a decline was witnessed in cigarette smoking. Perception of weight gain was also seen in 48.6% of people. Adherence to the Mediterranean Diet pattern during quarantine period was found in Italian population.	Although, it's not surprising that changes occurred in lifestyle and eating behavior during lockdown, people aged 18-30 were found to have higher adherence to the Mediterranean diet when compare to younger and older adults. Quitting/reduction in smoker was seen in the study which is a positive result.
5	Sandhu. K., & Kaur. B. (2020)	<i>Impact of COVID-19 lockdown on the dietary pattern and physical activity of people.</i>	Modification in dietary pattern were visible in this article. Intake of vitamin C rich foods like lemon water and immunity boosting foods like honey, turmeric milk, garlic warm water was included by respondents. Apart from this, daily gargling significantly increased during lockdown and inclusion of some physical activity (yoga, pranayama) was also evident in this study.	The guidelines issued by authority (GOI & AYUSH) were followed consistently. Most of respondents began to consume turmeric milk, lemon water, warm water and remained physically active to some extent.
6	Ruiz-Roso. M.B., et al (2020)	<i>COVID-19 confinement and changes of adolescent's dietary trends in Italy, Spain, Colombia and Brazil.</i>	Pulses, vegetables and fruits consumption were considerably elevated during lockdown. 43% of adolescents eat vegetables per day and 33.2% consumed one serving of fruit daily during the pandemic. An increase in sweet food intake on daily basis was also found in the results. Higher maternal education remarkably increased intake of fruits and vegetables among adolescents. The results also revealed that taking meal while watching TV tend to reduce fruits and vegetables consumption significantly and increased intake of fried foods and sweet foods.	During home confinement, an improvement was seen in eating habits as mostly meals were cooked and consumed at home. Increase in legumes, vegetables and fruits was found still this, apparently did not increase the dietary quality. Maternal education seems to have a great effect on healthy diet of adolescents.
7	Renzo. L. D., et al (2020)	<i>Psychological aspects and eating habits during COVID-19 home confinement.</i>	In this survey 602 respondents were included. High percentage of participants observed a low irritable mood (61.3%), anxious feeling (70.4), excessive worry (46.2%), and lack of sleep (52.2%). Majority of respondents experienced nervousness because of their changed eating habits, more intake of comfort food and inclination toward eating more food to feel better. Female tend to felt more anxious and liable to comfort foods than male.	The study examined the relationship between the psychological state and emotional eating. Negative emotions like anxiety, depression, hypochondria can be the main reason for emotional hunger.

8	Ammar. A., et al (2020)	<i>Effects of home confinement on mental health and lifestyle behaviours during COVID-19 outbreak.</i>	COVID-19 induced lockdown posed a threat on mental health, 1047 interviewees were included in this survey to investigate the negative impact on psychological aspects. A large proportion of individuals felt psychosocial and emotional disorders. Psychosocial tolls were associated with unhealthy lifestyle behaviours with majority observing physical and social inactivity (71.2%), trouble sleep (12.8) and unhealthy diet behaviour (10) and elevated screen time (15%) during confinement period.	Significant burden on mental health combined with unhealthy lifestyle during lockdown were revealed (by this article). Lack of social and physical activity, unhealthy eating habits and poor diet, insomnia were linked with decreased mental and emotional wellbeing like anxiety, depression, stress, life dissatisfaction etc. throughout confinement.
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3. Recommendation:

COVID-19 has changed many of our daily routines in a way no one predicted. It is vital to plan strategies to improve the quality of life in each aspect of life. For this, direct and digital collaboration of various participants are required at individual as well as at community level. Recommendation for enhancing dietary habits and patterns, healthy lifestyle and ensuring mental well-being during COVID-19 pandemic are been discussed.

3.1 Eating habits and Diet quality:

Eating a healthy diet is vital during the COVID-19 pandemic. Our body's ability to prevent, fight and recover from infections is determined by the quality of diet we consume. Although, no food or dietary supplements can prevent or cure COVID-19 infection, but healthy diets strengthen our immune systems. Balanced diet can decrease likelihood of developing various health issues. A healthy diet is essential at all stages of life for instance, a healthy diet for babies till 6 months means exclusive breast-milk followed by nutritious and safe diet from 6 months onwards till 2 years and beyond, for children, a well-balanced diet is vital for growth and development and healthy diet for older people is helpful to ensure more active and healthy life. Various points to maintain healthy diet are as:

1. Having a diverse diet is essential for optimum well-being. The diet should include all the five food groups, a mix of whole grains, legumes, lot of fresh fruits and vegetables, with some foods from animal origin should be consumed daily. For snacks raw vegetables, fresh fruits and unsalted nuts should be preferred
2. Cut back on salts. WHO suggests intake under 5 g of salt (1 tsp) each day. To accomplish this, prefer food varieties with decreased or no additional salt. Remove the salt shaker from the table, foods labels should be checked and low sodium content foods should be preferred. Rising of canned foods can remove some excess sodium.
3. Reduce intake of sweet and sugary drinks such as fizzy beverages, carbonated beverages, energy and sports drinks and flavored milk drinks. Prefer natural foods like fruits instead sweet snacks such as cookies, cakes and chocolate. Try to avoid offering such foods to children. Salt and sugar should not be added to complementary foods given to children under 2 years.
4. Hydration is vital for ideal health. Drinking water instead of sugar-sweetened beverages is a simple way to limit your intake of sugar and excess calories.
5. WHO recommends limiting total fat intake to 30% of total energy intake, of which no more than 10% should come from saturated fats. Pick cooking techniques that require less or no fat a lot steaming barbecuing or sautéing as a substitute to frying foods. If necessary, utilize limited quantity of unsaturated oils like olive oil, sunflower and rapeseed to cook food sources. Lessen food varieties like red and greasy meats, spread, full fat dairy items and select food varieties that contain healthy sources of unsaturated fats, like fish and nuts. Avoid trans-fats as much as possible.
6. Frequent or excessive alcohol consumption is hazardous and is not part of healthy diet. 1. Alcohol isn't just a psyche modifying and reliance creating substance, yet it likewise debilitates the safe framework and subverts body ability to adapt to irresistible sickness, including COVID-19.
7. Fiber contributes to a healthy digestive system and increase feeling of fullness, which helps to prevent overeating. Fiber adds to a sound gastrointestinal systems and increment sensation of fullness, which assists with prevention of overeating. Intake of sufficient vegetables, fruits, pulses and wholegrain foods in all meals helps to ensure high fiber in body.
8. Sanitation and food hygiene is an essential for food security and healthy eating routine. Only safe food is good and healthy food, keep your hands, kitchen and utensils hygienic, separate

uncooked and prepared food and cook your food completely.

9. The social distancing associated with the COVID-19 outbreak has meant that many families are spending more time together. Family suppers are a significant chance for guardians to be good examples for healthy eating, and reinforcing family connections.

3.2 Healthy lifestyle and physical activity:

As new COVID-19 cases continue to emerge, many healthy individuals are being requested to stay home in self-quarantine. Fitness centers and other location of exercising are temporarily closed. Staying home for long period can pose a major challenge for being physically fit. Physical inactivity and sedentary behavior have deterring effects on the quality of life of people. Being physical active can be a helpful tool to remain mentally calm during these difficult times. WHO has recommended 150 minutes of moderate intensity or 75 minutes of high intensity physical activity per week, or a combination of both. These recommendations can be still achieved even at home, with no special equipment and with limited space. Some points to reduce sedentary behaviors and inactivity during COVID-19 induced confinement are as following:

1. Taking small active breaks during the day can greatly prove beneficial and can add up to the daily recommendations. Carrying out domestic chores such as cleaning and gardening with some additional activity like dancing and playing with children, climbing stairs etc. can fulfill the goal of staying active during the pandemic.
2. Getting training online and performing exercise on daily routine can be an effective tool to remain active during lockdown. Many of such programs are for free and can be found on social media platforms. While following these online exercises one must be mindful of one's limitations, if not having practice regarding the procedure. Certain home-based exercises that can be done in less space can be added to daily exercise routine such as planks, squats, knee to elbow, back extensions etc.
3. Walk is one of the most useful way to stay active. Even in limited places walking around can help people remain physically active. Instead of sitting while having a call, stand or walk around the home. In order to reduce sedentary lifestyle, stand whenever possible. Preferably stand up after 30 minutes of sitting or reclining. Aim to work on a standing table to

avoid sitting for a prolonged time. Spent leisure time prioritize cognitively stimulating activities.

4. Meditation is considered one of the best way to relax the body. Meditation and deep breathing can help to remain calm.
5. Apart from being physically active, limiting screen time is also vital. Take breaks from mobile devices, try dividing longer periods of screen time with short breaks. Making meal time a family time and interaction can be achieved by enjoying meals screen-free.

3.3 Mental health and well-being:

The pandemic has led to a significant rise in mental health issues affecting people throughout the world. Death of relatives and staying far away from the loved ones has tremendously stressed people the lockdown. Majority of people around the globe are spending lot of time at home and many social engagements are disrupted that has increased emotional instability, anxiety, insomnia, depressive symptoms. Sleep is critical to physical as well as mental health and promotes effective functioning of the immune system. It is a key supporter of emotional wellness and mental health and prevents many of psychological problems. Following are some steps to remain mentally healthy and emotionally sound:

1. Worries concerning about catching the corona virus, fear about family/friends who have preexisting health issue, travel ban, economic collapse and such uncertainly often brings anxiety that disrupts sleep and mood. Taking care of mental health while home-bound, build a new daily routine that prioritizes looking after yourself. Reading a chapter daily can help to reduce stress, trying new relaxation techniques and doing home-based workout can also enhance mood swing.
2. Rumor and speculation can increase anxiety. Having access to good quality information about the virus can help feeling more in control.
3. Staying connected with family, friends and neighbors can boost the mental and emotional well-being. Stay in touch with friends on social media but try not to blow things out of all proportion.
4. Minimizing the adverse effects of COVID-19 outbreak on mental health of children by supporting them and discussing news with them but avoid over-exposure to coverage of the virus.
5. Sleep enhances brain functions, complex thinking, decision-making and mood. Lack of

sleep can lead to irritable, drains energy and cause or worsen feelings of depression. Several steps for better sleep during the corona virus pandemic such as establishing schedule and routine, reserving bed for sleep, being mindful of screen time and staying active can significantly improve sleep and mental well-being.

Conclusion:

COVID-19 has disturbed the entire routine and overall quality of life. Coronavirus incited lockdown has altogether tossed life out of stuff all through the globe, people were bound to their homes and were forced to adjust to a new daily schedule. Confinement influenced lifestyle, dietary pattern, physical activity and mental health of people around the globe. In this narrative review, we discussed effects of COVID-19 induced home confinement/quarantine on these parameters. We included all relevant and available published literature on the subject to ensure comprehensiveness. Most of the studies in our review are observational. The unprecedented global, social and economic crisis triggered by the Covid-19 Pandemic pose grave risk to the Nutritional status. The crisis will damage the nutritional status of vulnerable groups through multiple mechanisms. We can expect a dangerous decline in dietary quality in developing countries. Stemming from the income losses due to Govt. commanded shutdowns and the globalisation, as well as from the freezing of food transfer schemes such as School feeding programs and the breakdown of food markets due to both demands, shocks, and supply constraints. Due to health care system failure there will be increase in malnutrition from a range of nutritionally essential purposes towards combating Covid-19.

There are two major consequences: staying at home (which includes digital education, smart working, limitation of outdoor and in-gym physical activities) and storing food due to limited movement for grocery shopping. In addition to this, the disruption of work schedule caused by lockdown could result in boredom which in turn is related to high energy consumption. Besides this, eating habits were seen to be modified during COVID-19 induced lockdown. Change in hunger/satiety was also reported. The perception of weight gains elevated, due to boredom. High consumption of “comfort foods” and “emotional eating” was also stated during Lockdown. Inactive life style due to containment measures can increase the risk of sedentary behavior which further

disturbs metabolism and causes conditions like obesity, heart diseases and hypertension. Bereavement, isolation, loss of income and fear triggering mental health conditions and emotional instability. Stress, anxiety, irritability, insomnia and depressive symptoms were heightened during this period. Therefore, it is important to formulate future large scale studies that analyze long term effects on these parameters and subsequently generate new policies for progress of quality life. Moreover, it is imperative that Governments, NGO's and other agencies that are instrumental in delivering and distributing “daily essentials” focus more on people who don't have enough supplies. Also, integrated basic health, diet and lifestyle education in school, colleges and other academic centers would be a great step, with the vital aim of promoting healthy lifestyle among people during COVID-19.

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