

# Identifying the Outcomes of Healthy Lifestyles in the Post-COVID-19 Era

Rasoul Raesi<sup>1</sup>, Nader Khalesi<sup>1,2\*</sup>, Mahboobeh Safavi<sup>1,2</sup>, Abasat Mirzaei<sup>1,2</sup>, Khalil Alimohammadzadeh<sup>2,3</sup>

1. Department of Health Care Management, Faculty of Health, Tehran Medical Science, Islamic Azad University, Tehran, Iran.

2. Health Economic Policy Research Center, Tehran Medical Sciences, Islamic Azad University, Tehran, Iran.

3. Department of Health Services Management, North Tehran Branch, Islamic Azad University. Economics Policy Research Center, Tehran Medical Sciences, Islamic Azad University, Tehran, Iran.



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## \* Corresponding author:

Nader Khalesi, MD.

**Address:** Department of Health Care Management, Faculty of Health, Tehran Medical Science, Islamic Azad University, Tehran, Iran.

## E-mail:

khalesi\_nader@yahoo.com

## Abstract

**Introduction:** This study aims to identify the outcomes of healthy lifestyles during the post-COVID-19 era.

**Materials and Methods:** A qualitative field study was conducted based on the interpretive paradigm and inductive reasoning using theoretical and non-probability sampling techniques. Our study adopted the grounded theory approach, and semi-structured interviews were employed as data collection tools. While theoretical saturation was reached by the end of the thirteenth interview, the interviews continued until the fifteenth for further certainty. Faculty members and experts with doctoral degrees at Mashhad University of Medical Sciences constituted the statistical population from whom 15 individuals were recruited based on inclusion and exclusion criteria. The hidden content of interviews was summarized, coded, and analyzed using the MAXQDA software version 2020.

**Results:** The researcher and supervising professors extracted 37 initial concepts, of which six remained after eliminating duplicates. The outcomes of healthy lifestyles during the post-COVID-19 era emerged from the intuitive opinions of experts, namely, the promotion of social capital, the promotion of psychological capital, and the movement toward development.

**Conclusion:** Providing and maintaining health is not a simple act and is fraught with complexities, as numerous biological, individual, family, cultural, social, economic, political, and health factors are involved. Realization of appropriate health platforms, prevention of chronic diseases, and promotion of healthy lifestyles among citizens are not targets to be fulfilled merely by health-related organizations and bodies; rather, they require extensive coordination and empathy among all educational, health, cultural, service, and even political institutions and bodies.

**Keywords:** Healthy lifestyle, Health system, Lifestyle, Outcomes of lifestyle, Post-COVID-19

## 1. Introduction

Coronavirus has recently emerged as a major global crisis, affecting a wide range of countries, including Iran. Over the centuries, epidemics such as the Great Plague in

Western Europe, the Black Plague in 1347, leprosy in Western Europe in the 6th century, the Naples disease in 1494 in the army of France and Italy, malaria in 1602, cholera in 1832, and presently the coronavirus emerging in 2019 (COVID-19), have all been associated with a huge number of victims and corpses in rural and urban

areas as well as creating chaos in the public space in different regions of the globe [1,2].

The rapid spread of COVID-19 and the resulting deaths have prompted the WHO to declare a public health emergency and initiate control measures. Health and treatment officials and politicians have implemented measures such as quarantine and isolation of people, closure of recreational centers, businesses, schools, and universities, provision of health protocols, establishment of hospitals, physical and social distancing, restrictions on transportation, notifications through the media, and mandatory use of masks and disinfectants to control the disease, to name but a few [2].

One of the most significant effects of the coronavirus spread has been the emergence of social anxiety and panic across the globe, as well as rapid and unbelievable lifestyle changes. Fear of “exposure to this virus” has caused societies to engage in irrational and extreme behaviors [1].

Under such conditions, all aspects of life, including lifestyle, have been severely impacted. Lifestyle is a social concept that has recently piqued the interest of numerous academics and laypeople. Due to its varied and occasionally contradictory applications, some experts assume the term to be inapplicable. The history of humanity and that of lifestyle are intertwined, and every person or group that has ever lived anywhere on earth has had their own lifestyle.

Each of the recognized lifestyle indicators, such as physical activity, leisure time, sleep and wakefulness, social relations, family relationships, spirituality, safety and peace, and nutrition, is an essential component of people’s lives [3,4].

Every individual experiences epidemic-like circumstances that alter their lifestyle. A healthy lifestyle has always been associated with relative well-being, lower mortality, and a longer lifespan. A person’s lifestyle can be affected by factors such as improper diet, lack of exercise and physical activity, smoking, and epidemics together with its associated consequences, such as lockdowns [5,6].

Characterized by distinct behavioral patterns, one’s lifestyle is affected by the interaction between an individual’s characteristics, social interactions, and environmental and socioeconomic living conditions. This definition illustrates that behavioral patterns must continuously adapt to changing social and environmental conditions. It also suggests that the necessary steps to improve human health should be taken by empowering individuals and communities to alter their lifestyles. It is critical to consider and alter

one’s lifestyle in this regard, as a variety of changes not only reduce psychological harm but also improve physical and mental health [7,8].

As a multidimensional phenomenon, a healthy lifestyle is associated with behavioral patterns that prevent health problems. By analyzing people’s lifestyles in society, it is possible to prevent the spread of disease, leading to improved health and life quality of the people [9]. It is believed that over 73% of diseases are in some way related to a person’s lifestyle, meaning that many diseases are either directly or indirectly caused by a person’s lifestyle, or at the very least, lifestyle plays a role in aggravating or perpetuating them. Empowering individuals and communities to alter their lifestyles should be the next step in enhancing health [7,10].

In the post-COVID-19 era, where the lifestyles of many people of various ages have changed, engaging in health-promoting behaviors is one way to help people maintain and control their health. In this regard, scientific evidence highlights that people’s choices and lifestyle patterns have an impact on their health [11].

Studies indicate that lifestyle-related habits and behaviors have changed during the coronavirus epidemic. Indeed, both sedentary and active lifestyle-related habits and behaviors have undergone changes, according to research findings [12-14]. Some studies have revealed minor changes in eating patterns, with some others reporting an increase in the consumption of unhealthy foods, binge eating, and snacking. On the other hand, some research indicates that alcohol consumption has decreased during the coronavirus pandemic, whereas other empirical findings suggest that alcohol and cigarette consumption have increased [15-17].

Some studies have reported negative changes in lifestyle and an increased risk of depression, anxiety, and stress during the pandemic, while others have found a positive correlation between the pandemic and physical and mental health [18-20].

The COVID-19 crisis is an emergency that has created a perilous and unstable situation for societies, necessitating the adoption of new and fundamental countermeasures. In the post-COVID-19, the lifestyles of numerous age groups have changed due to the pandemic’s effects. The terms, “way of life”, “way of living”, and “lifestyle” are often used interchangeably to refer to similar aspects of daily life [21].

As the COVID-19 pandemic continues, it is necessary to investigate its long-term physical and mental health effects on individuals. Previous studies

have examined lifestyle changes during the coronavirus pandemic over a relatively short time frame, and none have identified the outcomes of healthy lifestyles during the post-COVID-19 period. Given the importance of a healthy lifestyle in the post-COVID-19 era and the significance of knowing outcomes of healthy lifestyle, the present study was carried out to determine the outcomes of healthy lifestyles during the post-COVID-19 era.

## 2. Materials and Methods

The current research is a qualitative study conducted in 2022 using the grounded theory (GT) method. As a technique utilized to collect subjective data, qualitative research permits to comprehend the natural world and is entirely interpretive. The qualitative method is drawn upon to identify, classify, and extract concepts based on the analysis of texts or individuals' opinion [22]. This study was conducted to identify the outcomes of healthy lifestyles in the post-COVID-19 era.

The GT method is particularly suited to conduct exploratory research that aims to develop a theory or model. In addition, this research method is inductive and exploratory, allowing researchers in a variety of subject areas to develop their own theories rather than relying on existing ones. Moreover, this theory is developed methodically and based on empirical evidence. When our prior knowledge is limited, we employ this strategy, which relies on the methodical collection of data and the development of a conceptual framework for the topic at hand in order to establish verifiable facts in accordance with established evidence. This method aims to know and understand people's experiences of events in a specific context [23].

GT relies on data collection techniques such as interviews and focus groups in order to collect the required data. Moreover, a comprehensive literature and background review is conducted throughout the data collection procedure. This literature together with its background review assists in explaining the emerging findings [24]. The central idea of grounded theory is that instead of testing hypotheses, verbal reports of people's experiences are used to generate a set of theoretical concepts that most adequately describe the data. Interviews were used for data collection in this study. The studied population consisted of managers and specialists in the area of study.

The steps of conducting the grounded theory can be broken down into four main steps:

### Question Research

At this point, the question is in a semi-structured form, developed with the help of professors and subject matter experts, and is informed by the existing body of literature. This study's primary question was: What are the outcomes of healthy lifestyles in the post-COVID-19 era?

### Selection of participants

Lifestyle experts were sampled purposively such that they could provide a wealth of data on the research topic. The studied population consisted of all professors and experts with a clinical specialty or specialized doctorate degrees affiliated with Mashhad University of Medical Sciences, of whom 15 eligible individuals were recruited. In the current study, participants were selected depending on their knowledge and experience in sociology, psychology, medicine, management, and epidemiology as they were related to the research topic. Inclusion criteria were: consent to participate in the study, a specialized doctorate, at least five years of work experience in their specialized field, expertise in psychology, medicine, sociology, and epidemiology, and experience in scientific or practical activities. Concerning the importance of a healthy lifestyle in the post-COVID-19 era, the focus of the research was on those with the greatest variation in terms of field of activity, type of activity, and presence in fields at different social levels, as well as those with the most diverse and varied experiences.

### Data collection

GT, as described by Strauss and Corbin (1998), makes use of theoretical sampling to increase the number of possible comparisons between events, incidents, or occurrences in order to help learn how something changes based on its characteristics and dimensions. Theoretical sampling is a method in which samples are selected based on the results of collected data in an effort to gain a deeper understanding of the subject or to develop theories. It is a process of data collection for theory generation in which the analyst collects codes and analyzes the data jointly, while determining what data to collect next and where to find it, so as to develop a theory as it emerges. The process of theoretical sampling continues until theoretical saturation is reached. In qualitative research, data saturation indicates that no additional data can be generated [25].

A series of face-to-face, semi-structured interviews served as the research instrument. The responses of the thirteenth interviewee onwards added no new information, meaning that the interview data reached

saturation. However, for further certainty, the interview was extended to 15 individuals, although no new categories emerged from the last two interviews. In the current study, interviews were semi-structured, conducted in the presence of the interviewer at the workplace, and coordinated beforehand. Each interview lasted between 45 and 60 minutes and was conducted over two working days. The categories in this study corresponded to the findings extracted from the participants' interview responses.

### Data analysis

The systematic GT method was used to analyze the data. As such, three stages of open, axial, and selective coding are required to analyze qualitative data in order to present a logical paradigm or objective image of the developed theory [23].

Each interview was transcribed verbatim as soon as it was completed. All the texts were organized, categorized, and analyzed immediately. Three stages of coding were performed concurrently with data collection: open coding, axial coding, and selective coding [23,26]. Open coding is a data analysis technique that involves segmenting, comparing, labeling, conceptualizing, and classifying data. During open coding, the data are segmented into distinct categories and compared to identify similarities and differences. Open coding involves a line-by-line reading of interview transcripts, followed by multiple readings of the entire text before coding. If one or more paragraphs evoke a meaning, that section is considered a unit. In addition, the semantic unit is condensed into one or more brief utterances. This procedure is applied to the entire text of the interviews, which are then classified according to their meaning into major classes [27].

The second stage of analysis in grounded theory is axial coding. This stage aims to establish relationships among the categories generated in the open coding phase. This coding is referred to as axial because it is implemented along the axis of a certain category. At this point, the researcher selects one of the categories as the core category, investigates it as the central phenomenon, and establishes the relationship it holds with other categories.

Selective coding of a given phenomenon is the third one. The central idea and thought is an incident, happening, or an event to which the flow of actions and reactions is directed in order to manage, control, or respond to it. The core phenomenon is associated with the primary question of "what do the data signify"? This phenomenon revolves around the central category of an idea (image, imagination). This

category is the actual title (conceptual name or label) considered for the framework or plan. The category chosen as the core one should be sufficiently abstract to permit relationships with other major categories [27,28]. In selective coding, the extracted themes from the preceding steps are selectively classified into one or more central or axial categories. As far as the current study is concerned, the core class(es) shaped the central phenomenon, i.e., the outcomes affecting a healthy lifestyle in the post-COVID-19 era.

MAXQDA version 2020 was used for data analysis. After the interviews were completed, the data were thoroughly reviewed, entered into a table containing the interviewee's code and verbal statements, and open coding concepts were chosen. The codes were then reevaluated, merged into major categories, and arranged in a table according to their open and axial coding contents. During the execution of this phase, the statements of experts regarding the factors contributing to a healthy lifestyle in the post-COVID-19 era were compiled and recorded in a table, and a suitable title was selected for each of them in two stages. 37 concepts (open codes) were identified at this stage. The method proposed by Guba & Lincoln (1985) and Strauss & Glaser (1968) was utilized in order to ensure the vigor of the findings, which in turn corresponds to validity and reliability in quantitative research [23, 29]. In order to preserve the authenticity of the study participants' experience, they proposed the four criteria of credibility, transferability, dependability, and confirmability to evaluate the vigor, trustworthiness, and robustness of qualitative studies [30]. Measures such as participant evaluation and review by individuals other than the participants (supervisors and consultants) were implemented to assess the validity and reliability of the study's trustworthiness. In the participant review, they were asked to comment on the study's findings and assess the conformity of the resulting classes with their experiences and perspectives [25, 30]. In general, participant review, peer review, collaborative research, and researcher rethinking were employed.

In the first method, a subset of participants evaluated and provided feedback on the final report of the first stage, the analysis procedure, or the obtained categories. In the peer review, the supervising and advising professors examined and commented on the findings. During the collaborative phase of the research, the participants analyzed and interpreted the data at the same time. During the researcher rethinking phase, every effort was made to control bias and prejudice in the study.

The Islamic Azad University of Medical Sciences in Tehran has provided a code of ethics for the current

study (IR.IAU.TMU.REC.1400.186).

### 3. Results

The present study was carried out to determine the

outcomes of healthy lifestyles during the post-COVID-19 era. This research deployed semi-structured interviews with 15 experts who met the inclusion criteria. The demographic characteristics of the participants are given in Table 1.

**Table 1.** Demographic characteristics of the participants

	Variable	Frequency	Percentage	Percentage (valid)
Gender	Man	11	73.33	73.33
	Woman	4	26.67	26.67
	Total (valid)	15	100.00	100.00
	Missing	0	0.00	-
	Total	15	100.00	-
Tenure	5-10	2	13.33	13.33
	10-15	4	26.67	26.67
	15-20	5	33.33	33.33
	20-25	2	13.33	13.33
	25-30	2	13.33	13.33
	Total (valid)	15	100.00	100.00
	Missing	0	0.00	-
	Total	15	100.00	-
Marital status	Married	14	93.33	93.33
	Single	1	6.67	6.67
	Total (valid)	15	100.00	100.00
	Missing	0	0.00	-
	Total	15	100.00	-
Age	35-40	3	20.00	20.00
	40-45	3	20.00	20.00
	45-50	7	46.67	46.67
	> 50	2	13.33	13.33
	Total (valid)	15	100.00	100.00
	Missing	0	0.00	-
	Total	15	100.00	-
Education level	Doctorate	15	100.00	100.00
	Total (valid)	15	100.00	100.00
	Missing	0	0.00	-
	Total	15	100.00	-

Participants were selected purposively, and interviews were conducted until data saturation was reached. Following consultation with experts, the initial codes, subcategories, categories, and the axial codes were extracted. The researcher s identified 37 initial concepts. In this section, some quotes from the interviewees are used to illustrate how the codes and categories were created.

According to the experts' intuitive opinions, the current research findings revealed that the outcomes of a healthy lifestyle in the post-COVID-19 era include the promotion of social capital, the promotion of psychological capital, and the movement toward development (Figure 1 & 2). In this regard, the third interviewee noted: "a healthy lifestyle in the post-era leads to physical and mental health, reduced chronic and contagious diseases, increased life expectancy, enhanced quality of life, improved level of community

health, higher health literacy, and social and economic welfare. A sick society cannot produce wealth. The wheel of society turns properly when its people have good mental and physical health and can express creativity and innovation. Positive social consequences can be the result of a healthy lifestyle". Similarly, the 10th interviewee stated that "Starting a home business has become a way to earn money and adapt to the conditions of the COVID-19 era and after. With the spread of this disease, the need to maintain social distancing, and the importance of finding technology and online spaces (are felt); home businesses are expected to flourish and become more popular. In the same way, the demographics of employees will change in terms of age, economic class, level of education, and knowledge of using technology. Other outcomes are the redesign and rapid implementation of the virtual governance model

and the development of services based on virtual space. In this regard, the thirteenth interviewee stated: "Among the outcomes of healthy lifestyles in the post-COVID-19 era are increased life expectancy and health indicators, the establishment of mental and emotional peace, the strengthened foundation of the family, strengthened digital technologies at home and at work, higher digital behaviors such as work and distance learning, telemedicine, and delivery services. One may also note potential costs such as the loss of social information in virtual communication, disadvantages for people who cannot afford high-speed Internet or digital devices, and the limitations of large sporting and musical events".

As stated by the 15th interviewee, "it is imperative to establish a vigilant spirit in social relations in compliance with standard health protocols. Mood enhancement and stress and anxiety management also play a role. Receiving health information from credible sources is another outcome of a healthy lifestyle in the post-COVID-19 period. Still another outcome of a healthy lifestyle in the post-COVID-19 era is avoiding cyberspace rumors and following health news from credible scientific sources".

The eighth interviewee maintained, "smart management is a component of a healthy lifestyle in the post-COVID-19 era; electronic health, health-oriented telephone and online consultations, electronic purchases and sales, smart technologies based on the collection and analysis of online information and data regarding various issues such as

the volume of vehicle traffic, the number of public transportation passengers, and the identification of congested routes, the development of concepts such as remote working as a less expensive option for employers, and e-commerce and online and offline shopping."

In this regard, the fourth interviewee stated, "in the post-COVID-19 era, compliance with health protocols increases; individuals pay more attention to themselves and their health status; face-to-face relationships are diminished, and virtual relationships are prioritized. A health-based approach is utilized to improve technological infrastructure. Among other outcomes of a healthy lifestyle in the post-COVID-19 era are the focus on health and hygiene knowledge on elucidating the structure and nature of new knowledge, the process of international systems in the post-COVID-19 world, recognition of the new indicators of power with health and hygiene as tools in governance in the post-COVID-19 world, attention to science and interdisciplinary sciences, and consideration of international measures."

Tables 2, 3, 4, and 5 below present parts of the open, axial, and selective coding processes.

Finally, the outcomes of a healthy lifestyle in the post-COVID-19 era, including promotion of social capital, promotion of psychological capital, and movement towards development, were derived from the present research based on the intuitive opinions of experts.

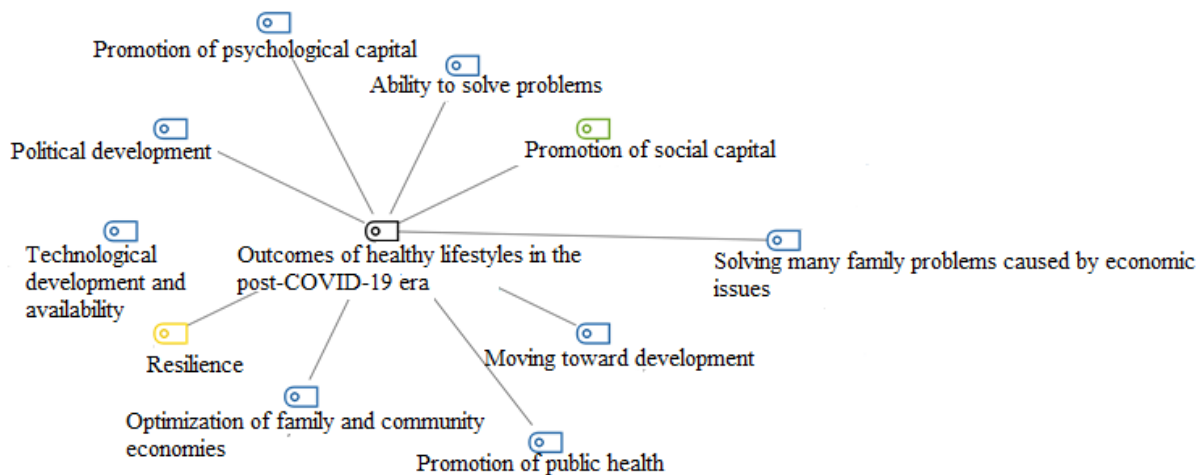


Figure 1. The tree diagram of initial codes, subcategories, categories, and the axial code (Outcomes of healthy lifestyles in the post-COVID-19 era)

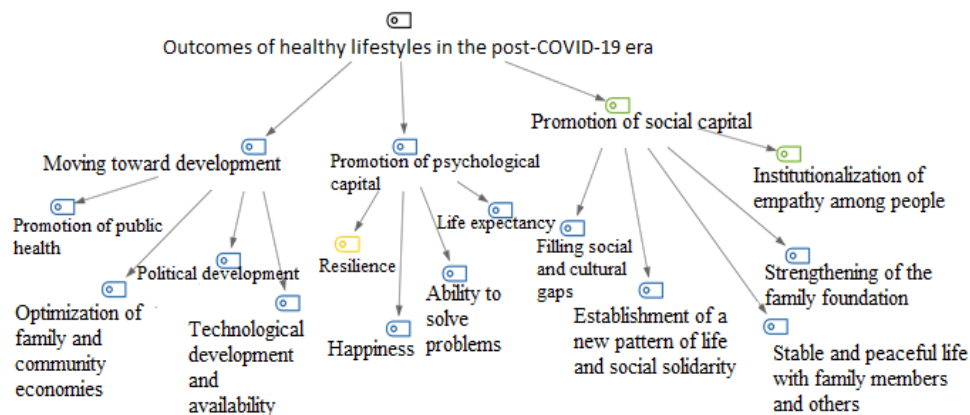


Figure 2. The hierarchical diagram of initial codes, subcategories, categories, and the axial code (Outcomes of healthy lifestyles in the post-COVID-19 era)

Table 2. Initial coding sample from the interview texts

The text of the interview	Initial code
<p>The post-COVID-19 era has ushered in a new way of life. The public's disposition has shifted. There are numerous individuals who suffer from stress due to the loss of family and friends. Because of the decrease in business activities prompted by the coronavirus outbreak and the rise in unemployment, the income and well-being of a great number of families have been negatively impacted. Anxiety and depressive symptoms have increased among children, adolescents, and adults. Therefore, in the era of COVID-19, people's lifestyles have become more health-conscious than they were in the past. It must be a mentally healthy way of life, one that prioritizes mental health.</p>	<p>Ability to solve problems Improvement of public health Resilience Happiness Life expectancy Political development</p>
<p>This lifestyle is linked with hygiene, which includes concepts such as disinfection, compliance, care, distance, and frequent hand washing. During this time, individuals should cultivate the concept of endurance and work to establish it in their personalities. In the face of adversity, a person should be able to maintain his psychological health. A person must have a high threshold for any unexpected event. This acceptance enables the individual to be adaptable and replace his life goals based on the current circumstances. Acceptance, adaptability, and resiliency are, therefore, essential components of the post-COVID-19 lifestyle.</p>	
<p>In the post-COVID-19 era, people live a healthy or unhealthy lifestyle based on the interaction of environmental factors, their aptitude, and their social adaptability. Unhealthy habits expose an individual to physical and mental dangers. Therefore, it is only natural that we pursue a healthy lifestyle. Choosing a healthy lifestyle also depends on a number of other factors, the most significant of which are individual skills and qualifications, stress and anxiety, culture, individual-society relationships, and a sense of life control.</p>	<p>Technological development and availability Optimization of family and community economies</p>
<p>The World Health Organization defines a healthy life as a state in which an individual is physically, mentally, and socially healthy. In other words, the true definition of a healthy life is all the actions, steps, and activities humans engage in to achieve physical and mental health. Consequently, it can be stated that the primary outcome of a healthy lifestyle, particularly in the post-COVID-19 era, is the physical, mental, and social health of individuals so that a relative certainty of the correctness of the processes is attained. Coronavirus negatively impacted the lives of nearly everyone. In the post-COVID-19 era, a healthy lifestyle mitigates many of the negative effects on people's lives, which some individuals turned into an opportunity.</p>	

**Table 3.** Frequency of preliminary codes in the axial code

Axial code	Frequency of preliminary codes
Outcomes of a healthy lifestyle in the post-COVID-19 era	37

**Table 4.** Summary of axial codes and categories

Identifier	Core category	Axial code	Indicator
BA1	Promotion of social capital	Outcomes of a healthy lifestyle in the post-COVID-19 era	B
BA2	Promotion of psychological capital		
BA3	Movement towards development		

**Table 5.** Initial codes, subcategories, categories, and axial code

Initial code	First-order subcategory	Category	Axial code
A stable and peaceful life with family members and others		Promotion of social capital	
Filling social and cultural gaps			
Establishment of a new pattern of life and social solidarity			
Strengthening the family's foundation		Promotion of psychological capital	
Institutionalization of empathy among people			
Ability to solve problems and make correct decisions	Ability to solve problems		
Turning threats into opportunities			
Explanation of the common concepts of the common value system			
Formation of mental and emotional peace	Happiness		
Reduction of negative effects on people's lives			
Increased life expectancy and raised health indicators	Life expectancy		
Induction of positivity and hope in society			
Adaptation to conditions			
Social resilience	Resilience	Moving towards development	
Reinforcement of the spirit of resistance to problems			
Acceptance of adversities and possible events			
Community preparedness in the face of a similar epidemic			
Cultural and spiritual support in the field of cultural diplomacy			
Domestic and international political stability	Political development		
Enforcement of changes in power and political equations			
Economic improvement and prosperity	Optimization of family and community economies		
Reduction of health costs			
Reduction in the costs of combating the disease	Technological development and availability		
Solution to many family problems caused by economic issues			
Creation of more access to technology			
Increase in media literacy of people			
Development of electronic health			
Improved position of the armed forces as regards health			
Improved position of the health system			
Lifestyle based on personal and social health			
Development of social and cultural health			
Establishment of quarantine spaces and special hospitals	Improvement of public health		
Development of health infrastructure			
Social health			
Mental health			
Physical health			
More importance directed to scientific topics in the field of health			

Outcomes of healthy lifestyles during the post-COVID-19 era

**4. Discussion**

According to the findings of this study, the

outcomes of a healthy lifestyle in the post-COVID-19 era are the promotion of social capital, the promotion of psychological capital, and the

movement toward development.

The results of the current research revealed that the first effect on a healthy lifestyle in the post-COVID-19 era is the promotion of social capital, which includes the categories of stable and peaceful life with family members and others, filling social and cultural gaps, the establishment of new patterns of life and social solidarity, the strengthening of the family foundation, and the institutionalization of empathy among people. Notably, the COVID-19 pandemic has had many repercussions, and the destruction of health, particularly social health with dimensions such as social harmony, partnership, and social trust, is only a portion of the consequences of this pandemic in terms of social capital. Social capital is one of the essential components of a society's well-being and one of the critical indicators of its development. Individual and social health are closely entwined, making it impossible to draw a line between them. The health status of individuals in society influences the health of others, their emotions, and the socioeconomic indicators of society in various ways. As a result, ensuring the health of community members is regarded essential because a society's identity depends on its members.

In conformity with the finding of the present study, Ettehad et al. (2021) investigated the changes in urban lifestyles under crisis conditions with a focus on COVID-19. The results revealed that during the COVID-19 pandemic, the biggest changes concerned familial and social relations [31]. Likewise, Birghi Fard and Kargar (2019) investigated the role of lifestyle in health and COVID-19 prevention. In the conflict between general knowledge and scientific knowledge, their findings indicated that individuals should accept scientific findings and abandon some of their unhealthy social habits [32].

In addition, the findings of Nudelman et al. (2021) are consistent with that of the present study. Their study examined the correlation between healthy lifestyle habits and COVID-19-protective behaviors. Higher engagement in healthy lifestyle behaviors prior to the outbreak of the pandemic significantly correlated with greater adherence to coronavirus-protective behaviors [33].

Along similar lines, Laksono et al. (2020) investigated the predictors of a healthy lifestyle during the COVID-19 pandemic in Indonesia. Their study revealed that the predictors of a healthy lifestyle during the COVID-19 pandemic were age, occupation, the use of masks, and adherence to personal hygiene regulations [34].

In this regard, Asgari et al. (2019) analyzed the lifestyle experiences of individuals during the COVID-19 pandemic. The results of their study revealed that one of the consequences of the pandemic was a change in the lifestyles of the population. This change can manifest in a variety of ways, including alterations in the normal course of life, planning difficulties, children's education, and compromised control over one's life [6].

The results of the current research revealed that the second outcome of healthy lifestyles in the post-COVID-19 era is the promotion of psychological capital, which includes the ability to solve problems, happiness, life expectancy, and resilience. In explaining this research finding, it can be pointed out that psychological capital is one of the important and essential features in stressful events and crises such as the COVID-19 pandemic, stimulating people in the society to experience higher well-being in these conditions. Psychological capitals are combined and interconnected instruments that include the positive aspects of a person's life and help to increase the productivity and success of a person [35]. Psychological capitals have dimensions such as life expectancy, ability to solve problems, happiness, self-efficacy, optimism and resilience, which influence people's attitude and behavior; as a strong source for motivation, they can increase activity and efforts. Improving psychological capitals makes people have a clearer, richer and more favorable perspective about themselves and their abilities [36].

In line with this finding of the current research, the results of Mohamadi Turkmani et al. (2022) study (1400) showed that resilience is one of the basic and important components in the post-COVID-19 era and crises, which can ultimately lead to the improvement of psychological capital and well-being physical-mental in people [10].

Also, the study of Asgari et al. (2019) is in line with that of the present study. In their study, they analyzed the lived experiences of people in the aspect of lifestyle during the COVID-19 pandemic. The findings of their study showed that one of the effects of the COVID-19 disease was the change in the lifestyle of people in the society. This change can appear in different ways such as: change in the normal life process, planning problems, change in children's education, inability to plan and reduced control over life. The results of their study showed that the component of resilience is one of the important and fundamental things in dealing with the changes caused by the COVID-19 pandemic [39].

Also, in line with this finding of the current research,

Saadattalab and colleague (2020) investigated the role of spiritual vitality in the relationship between social capital and social support with the resilience of employees against the COVID-19 pandemic in the era of social distancing. The results of their study showed that happiness, life expectancy, spiritual vitality, positive thoughts and feelings among employees have a facilitating role in increasing resilience; with the increase of social capital and the feeling of social support in employees, their spiritual vitality, positive thoughts and emotions also increased and brought about the promotion of psychological capital [40].

Consistent with these findings, Aliakbari Dehkordi et al. (2020) developed, validated, and standardized a lifestyle scale during the COVID-19 pandemic. Exploratory factor analysis indicated that lifestyle should comply with activities that lead to a happier life, mental-physical health, and healthy behaviors [7].

In line with this finding, Rostami et al. (2020) compared the endurance, happiness, and lifestyle of COVID-19 patients and healthy individuals. The results of their study revealed that people with COVID-19 have lower scores on resilience, happiness, and lifestyle than healthy individuals. According to the findings of their study, the increasing prevalence of COVID-19 necessitates that health policymakers prioritize psychological interventions to promote resilience, happiness, and a healthy lifestyle [41].

According to our findings, the third outcome of healthy lifestyles in the post-COVID-19 era is the movement toward development, which includes political development, optimization of family and community economies, technological development and availability, and public health improvement. As a way of life with specific behavioral patterns, lifestyle is influenced by the interaction of one's personal characteristics, social interactions, and environmental and socioeconomic living conditions. Therefore, it can be stated that economic, social, and environmental issues influence the behavioral patterns and lifestyles of individuals. Among effective measures that governments can take are attracting foreign investment, using successful economic models from around the world, paying attention to and following the resistance economy, changing traditional jobs with the introduction of new technology, expanding the domestic economy, directing costs to health issues, reducing unnecessary and additional costs of ceremonies, developing online jobs, helping businesses flourish, and creating new jobs to improve the economy of families.

In conformity with this finding of the present study, Tajbakhsh's qualitative study (2020) investigated the

new lifestyle in the post-COVID-19 era. The results of his study revealed six major themes in the post-COVID-19 era's new lifestyle: health-oriented, family-oriented, media-oriented, community-oriented, culture-oriented, and leisure-oriented. The findings of this study indicated that despite the costs imposed on society, the coronavirus pandemic provided an opportunity to review and rethink lifestyle and that lifestyle in the community has undergone enormous changes [42].

Moradi and Mohammadifar (2020) investigated the role of social networks in the development of social phobia and changes in lifestyle resulting from the coronavirus pandemic in Kermanshah, west of Iran. Their research demonstrated the importance of social workers prioritizing the organization of information and knowledge in order to inform society and encourage the development of rational and desirable behaviors among social network users, as opposed to more extreme behaviors such as social phobia [43].

In their study titled "Structural and capital determinants of health-oriented lifestyle", Ghasemi et al. evidenced that economic, social, and cultural capital influence the dimensions of a health-oriented lifestyle. They observed that one's way of life becomes healthier when their social, economic, and cultural capital is increased [44].

This finding is consistent with the those of Afshar and colleagues. Their study titled "Mass media, socioeconomic situation audience, and agenda-setting the knowledge related to healthy lifestyle" demonstrated that socioeconomically diverse citizens use mass communication tools differently and perceive the need for health-related behavior consultations in different ways. Those with a higher socioeconomic status perceive a greater need for health-related behavior guidance and engage in media consumption to a greater extent. These differences also result in differences in how they benefit from knowledge related to a health-oriented lifestyle, with those in higher socioeconomic positions having more knowledge in the field of health-oriented lifestyle [45].

In another study, in line with this finding of the current research, Ettehad et al. (2021) investigated lifestyle changes in crisis conditions. They focused on the disease of COVID-19. The results of their study showed that the pandemic has caused fundamental changes in the lifestyle, and these changes in areas such as physical activities, leisure time, sleep and wakefulness, social relations, family relations, spirituality, safety, relaxation and nutrition are quite noticeable [31].

Also in harmony with the findings of the current research, Li and Hua (2021) investigated the factors affecting the changeable lifestyle and the risk of COVID-19. The results of their study showed that increased physical activity was associated with a decrease in severe respiratory problems, and increased smoking, inactivity, and failure to follow a healthy lifestyle led to increased respiratory problems and heightened risk of contracting the disease of COVID-19 [46].

In agreement with the findings of the present study, Xiang et al. (2020) examined the relationship between physical activity, healthy lifestyle and the severity of the COVID-19. In their study, some risk factors, including unhealthy diet, obesity and lack of physical activity, were investigated in Sars and COVID-19 patients, and their effects on the severity and duration of the disease were evaluated. The findings of their study showed that patients who had more physical activity and a healthier diet were less likely to suffer from the severe type of COVID-19 disease and had milder symptoms. Finally, the results of their study showed that increasing the level of physical activity reduces the severity of the COVID-19 disease to some extent. Some dietary patterns, such as increasing the consumption of fruit and white meat, drinking healthy liquids and natural juices, significantly reduce the risk of contracting COVID-19 as well as its severe symptoms and complications [47].

Among the limitations of the current study are the unwillingness of some experts to participate in interviews and answer questions in person, the difficulty of gaining access to experts due to the pandemic, job responsibilities, occupational concerns, and distance. Although qualitative research appears to have produced the most relevant results concerning the current research topic, the precision of the findings is difficult to evaluate. Therefore, caution is required when generalizing findings.

## 5. Conclusion

The findings of this study indicated that the post-COVID-19 outcomes of a healthy lifestyle fell into three main categories and eight subcategories. Derived from the intuitive opinions of experts, they comprised the promotion of social capital, the promotion of psychological capital, and the movement toward development.

Since the results of the current research consider the promotion of social capital to be the first effective consequence of a healthy lifestyle in the post-COVID-19 era, it is necessary to establish grounds for the promotion of social capital in order to form a healthy

lifestyle. This objective can be achieved through establishing educational and cultural programs, promoting social solidarity, strengthening the foundation of families, institutionalizing empathy among people, and filling social and cultural gaps after the COVID-19 pandemic.

It is also necessary to benefit from scientific and practical planning to develop the concepts of resilience, problem-solving ability, happiness and life expectancy in culture. Society should be institutionalized. Therefore, the fields of achieving an active spirit in the society after COVID-19, such as preparing the environment and society for social vitality and having a happy and fun life along with an active and constructive spirit to increase positive thoughts and feelings among the people of the society, should be considered. Health care officials and policy makers should be placed for this goal.

Regarding the movement towards development, grounds need to be provided for the structural and social smartness of the society by creating conditions for following up on health news and information from reliable sources. It is necessary to receive health services and activities online and to become intelligent in the field of health information at the community level. Also, programs for economic improvement and welfare and reduction of health costs are necessary. During the COVID-19 pandemic, many businesses were disrupted and this caused many financial problems for families. Therefore, governments should assist to improve the economy of families and communities by helping businesses flourish, creating new jobs, attracting foreign investors, improving traditional jobs with new technology, boosting the domestic economy, and developing virtual jobs. Increasing awareness and creating sensitivity towards acute and chronic diseases in a rational and efficient manner among citizens with the aim of increasing self-care skills and promoting a healthy lifestyle should be considered in the planning of managers and health and treatment policymakers.

Providing and maintaining health is not a simple act and is fraught with complexities, as numerous biological, individual, family, cultural, social, economic, political, and health factors are involved. Realization of appropriate health platforms, prevention of chronic diseases, and promotion of healthy lifestyles among citizens are not targets to be fulfilled merely by health-related organizations and bodies; rather, they require extensive coordination and empathy among all educational, health, cultural, service, and even political institutions and bodies.

## Ethical Considerations

### Compliance with ethical guidelines

COVID-19: Coronavirus disease; WHO: World Health Organization; MAXQDA: Max Weber Qualitative Data Analysis; IR: Iran; IAU: Islamic Azad University; TMU: Tehran Medical Branch University; REC: Research Ethics Committee.

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### Author's contributions

RR Concept, design, literature search, Data acquisition and manuscript editing. AM and KA Data analysis, statistical analysis, and manuscript editing. NK and MS quality check of qualitative approach, Supervision and manuscript review. All authors read and approved the final manuscript.

### Availability of data and materials

The data that support the findings of this study are available from the corresponding author upon reasonable request.

### Conflict of interest

The authors declare that they have no conflicting interests.

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