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Age discrimination in delivery of health services to old people during COVID-19 pandemic: a scoping review study

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Background & objectives. Age discrimination causes many consequences and complications in old people as a high-risk group. With the outbreak of the COVID-19 pandemic, delivery of care and treatment services to old people has become a major challenge. The present study aimed to synthesize and summarize the conditions of discrimination in the delivery of health services to old people during the COVID-19 pandemic.

Research design & methods. A scoping review was performed using Arkesy and O'Malley's framework. PUBMED, Scopus, Web of Science, Embase, ProQuest, Science direct, SPRINGER, and Wiley databases were searched using the related keywords. Out of 246 retrieved studies, 21 published studies related to ageism toward old people in the delivery of healthcare services to old people during the COVID-19 pandemic were examined.

Results. Most of the published reports were from European countries and the United States. Although they indicated a growing trend of anti-aging attitudes, there were some positive behaviors toward them. Promotion of anti-aging culture, discriminatory guidelines and decisions and feeling of insignificance by the old people themselves may be associated with the condition of discrimination against them.

Discussion & implications. The articles were related to limited countries. Owing to discriminatory behaviors in the delivery of health services to old people, it is necessary for health policy-makers to develop protocols on the delivery of healthcare services to this group transparently to minimize harm, enhance positive behaviors toward this group, and train healthcare providers and old people.

Key words: COVID-19, age discrimination, old people, healthcare, delivery of healthcare

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BACKGROUND AND OBJECTIVES

The outbreak of the COVID-19 pandemic has imposed a substantial burden of mortality and morbidity on the healthcare system of countries [1]. In July 2021, the WHO reported 196,553.009 confirmed cases of COVID-19, including 4,200.412 deaths [2]. Among various age groups, old people with COVID-19 have shown more severe symptoms [3-5]. In addition, since

aging is associated with chronic diseases, the risk of death in these people is affected by COVID-19 [6]. An upward trend of the probability of death in the old people with COVID-19 aging has been shown; the rate of mortality in the sixties, seventies and eighties has been demonstrated to be 3.6, 8.8 and 14.8%, respectively [3]. Statistics suggested that more than 90% of deaths during the COVID-19 pandemic occurred in people over 60 years old and more than 50% of them occurred in people over 80 years old [7]. The nursing home residents also account for more than half of all COVID-19-related deaths worldwide [1]. The high rates of morbidity in this age group may be rooted in caring behaviors [8].

The high rates of morbidity in this age group may be rooted in caring behaviors, so that an association between care-elder-friendly approaches and fewer falls, less functional decline, shorter length of hospital stay, in comparison to traditional care [9], has been established. In addition, elder mistreatment was associated with an increased mortality rate in old adults [10].

One characteristic of public health crises is the shortage of medical facilities. Difficult decisions must be made about who should use the limited facilities, and how and where they should be used [11]. Appropriate support measures have been taken for the old people over 70 years old during the COVID-19 pandemic [12]. However, how intensive care unit facilities are allocated to older patients shows the deprivation of many of them. Therefore, due to the shortage of ventilators, only some patients can receive them in critical situations [13]. In this regard, some guidelines have been proposed on how these resources are used by medical associations [14], which may lead to the prevalence of behaviors related to age discrimination [15]. Age discrimination is common in the community and daily lives of old people. Such discriminations have always threatened the lives of the old people. The absence of the old people in the cycle of wealth production and heir weak physical conditions have endangered the delivery of health services to them [16].

In one study, 35% of people over 52 years of age in the United Kingdom and 29% in the United States reported several experiences of discriminatory behaviors. In another study, only 11% did not experience any discriminatory behaviors [17]. This issue leads to inequality in receiving health services [18]. Age discrimination was also seen among healthcare staff in the delivery of health services before the COVID-19 pandemic [19-21]. Age discrimination has many effects on old people's physical, mental and social well-being, resulting in reduced life expectancy, social isolation, and reduced adherence to preventive health behaviors [20,22]. As mentioned above, the outbreak of the COVID-19 pandemic has imposed a significant burden on healthcare systems, leading to a severe shortage of resources needed to solve patients' problems, thereby prioritizing people to receive medical services, particularly acute care, intensive care unit, and ventilator services [23,24].

The current beliefs about old people have caused young people to be prioritized in receiving medical facilities, such as mechanical ventilator [3]; however, guidelines recommend that decisions on the use of medical equipment should be made based on the patient's physical conditions, not their age [25]. Several reports due to the increased risk of COVID-19 disease among older people have made them to stay at home [26]. Moreover, the unpleasant and shocking news of caring for old people during the COVID-19 pandemic has been reported from March 2020 to May 2020 [26]. Age discrimination against old people can be observed at both individual and structural levels [18]. The stereotype embodiment theory (SET) represents three different but interrelated types of age discrimination: practical age discrimination reflecting harmful behaviors against old people, age-related negative stereotypes reflecting individuals' beliefs about old people, and self-perception in the second adulthood reflecting old people's opinions about their aging. Based on this theory, three types of age discrimination have harmful effects on old people's health by affecting their psychological, behavioral and physical dimensions [27]. Considering the outbreak of the COVID-19 pandemic, the evidence for the occurrence of age discrimination in the delivery of health services worldwide, and its significant effects on various aspects of their health, it is essential to conduct a systemic review of studies on the delivery of healthcare services to old people during the COVID-19 pandemic.

It is noteworthy that this pandemic is a new phenomenon; therefore, there are a limited number of articles on this issue. However, given the importance of this issue, the results of these studies can be useful for the health system to avoid similar cases in our community by observing the evidence for the consequences of age discrimination. In addition, searches on valid sites to find further studies will be continued. Several reports of discrimination against old people, especially during the COVID-19 outbreak, led us to conduct a study aiming at explaining different conditions of discrimination against old people in the healthcare system during the COVID-19 pandemic.

RESEARCH DESIGN AND METHODS

In the present study, the scoping Review method was used to create a systematic map of existing studies on age discrimination in the delivery of health services to old people during the COVID-19 pandemic. The

PRISMA checklist was also used to report the results (see Supplementary Material). The scoping review was performed using Arkesy and O'Malley's framework [28]. This framework includes the following steps.

Identification of the research question

Consulting with the research team, the desired concepts and the study population were identified, and then the main research questions were determined:
1. What are the conditions of discrimination in the delivery of health services to old people during COVID-19 disease?

Identifying relevant studies

In coordination with the research team, related databases were used to find the relevant articles and appropriate search strategies for the research topic. All the considered articles were published in 2020. Since they have not referred to the causes of discrimination, this study examined the causes of discrimination in the delivery of health services to old people during COVID-19 disease.

Search strategy

Databases used to extract related articles in this research included PUB MED, Scopus, Web of Science, Embase, Proquest, Sciencedirect, SPRINGER, and Wiley. It was attempted to select those databases, including most terms related to the research topic. To search relevant articles, MeSH terms and other related words including "Old people", "Ageism", "Age Discrimination", "Age Discriminations", "Discrimination", "Age", "COVID-19", and " Delivery of Healthcare", were used with and without quotation marks using the Boolean operators of "and" and "or". Moreover, "*" star was used to expand the search if needed. The considered period was set from the beginning of 2020 when the global outbreak of COVID-19 started to November 1, 2020. The articles were evaluated in English.

Selection of studies

Eligibility criteria and study selection

The eligibility criteria were being related to the age discrimination of old people (over 60 years of age), being related to the delivery of health services during the COVID-19 pandemic, being in English, and being accepted or published. Studies including letters to the editor, professor protocol, and unrelated results, and all dissertations and theses were excluded.

Assessment of risk of bias

Among two similar studies, one of which was a gray article and another one was a peer review, the gray article was removed. The articles were first assessed in terms of the relevance of the title and abstract by two reviewers. If there was a disagreement between them about the inclusion of an article in the study, to avoid the risk of bias, the final agreement would be reached first through discussion and in some cases according to the third reviewer's opinion. Next, the full texts of all studies included were retrieved and using the WEIRD (Ways of Evaluating Important and Relevant Data) tool [29], (see Supplementary Material), which is used for cross-sectional studies, their quality was assessed, and the approved articles were entered into the study (Table 1). Then, the required data were extracted from qualified articles and recorded in the Excel software. The data included study country, year, and type of study. Based on the search process, 246 articles were extracted and after removing 35 duplicates, 211 articles were entered into the study. After the initial review by two reviewers, 102 articles were excluded. Articles including letters to the editor, unrelated contents to the age discrimination in the delivery of health services to old people, and duplicate titles were excluded. Finally, 21 articles were entered into the study (Fig. 1). Included studies were on topics, such as conditions of discriminatory decisions,

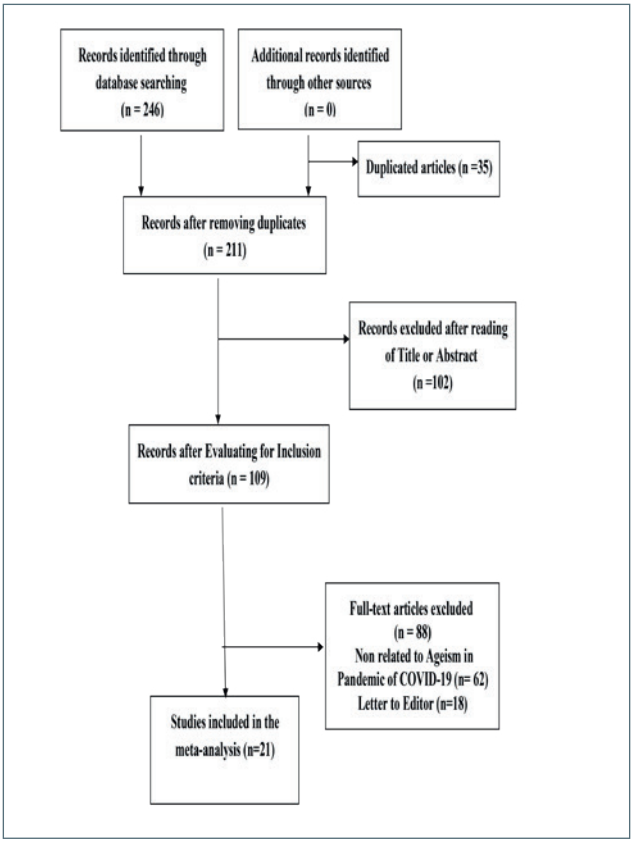

Figure 1- Flowchart of article selection.

shortcomings leading to such decisions, anti-aging culture, and positive aspects of protocols and laws related to the delivery of healthcare to old people during the COVID-19 pandemic.

Charting the data

The data of included articles were examined and extracted independently by two reviewers. A table was designed to list the information of the articles in it. The information was as follows (Tab. II):

- title;
- country of study;
- the key points of the study.

First, five articles reviewed by reviewers were compared in terms of stability of the information extracted. All of the articles included in the present study were descriptive and written merely based on the observations and available documents.

Collation, summarization and report of results

The results were extracted based on the topics and classified thematically. These themes were evaluated and approved by two independent reviewers. At this stage, with the consent of two reviewers, the disagreements were resolved by the third reviewer. The results were divided into individual and social themes, including anti-aging culture, discriminatory protocols, feelings of insignificance by old people themselves, and positive cases. The included articles covered at least one of the extracted themes. The extracted data were initially summarized as key points based on themes. The articles included in the study covered the aim of the study, which was to determine the types and causes of age discrimination. Finally, some recommendations were provided to health policymakers on effective measures to prevent ageism against old people during the COVID-19 pandemic. After obtaining permission from Isfahan University of Medical Sciences, this study was conducted with Ethical Code No. IR.MUI.RESEARCH.REC.1399.147 and Research Proposal No. 199106 by the financial support of the same university.

RESULTS

In this section, the identified causes of age discrimination are discussed. A review of the studies shows that they were conducted in various countries, such as Italy, China, USA, Switzerland, Spain, Bangladesh, Belgium, Poland, and France. According to them, the most cases of discrimination against old people were found in Italy, Spain and the United States, and the most protective measures were reported in Germany [30]. Moreover, there were no formal cases in Belgium, Poland, France and the United Kingdom [31]. However, protective laws were enacted in all countries, including the United States [2].

Promotion of anti-aging culture

Expansion of the anti-aging culture in its various dimensions, especially in receiving health services, has been considered for many years [18]. The present study also addresses the various dimensions of the anti-aging culture. This aspect of age discrimination reflects the discriminatory structure in society formed by the governing system, including local governments in Spain. Such a structure prevents the delivery of health services to old people and promotes injustice against them [32]. For example, one can mention a television program promoting the preference for sacrificing old people to save the young in Texas, the United States [33] as a practical example of this culture. The expectation of society from old people to be sacrificed for the sake of the country's economy is a significant issue in this regard, which was raised due to the creation of a generation called the COVID-19 generation [34,35].

The insistence of society and staff on triaging old people on their arrival in the emergency department is one of the factors reflecting the existing culture of eliminating or ignoring old people in the delivery of health services, in addition to the existing guidelines in the Corona crisis [3]. In the Catalonia region, nursing home old people residents with a suspected or definitive diagnosis of COVID-19 and other underlying diseases were prohibited to refer to health centers. In addition, personal protective equipment was not provided for them, and they encountered staff shortage [31]. Studies have indicated that not paying serious attention to the health of old people has caused complications of the disease in them [7]. This discriminatory attitude has a negative impact on the health of old people and the whole health system [36]. Age discrimination against old people before COVID-19 [6] and hiding discriminatory behaviors are also examples of the anti-aging culture in the delivery of health services to old people [25].

Discriminatory guidelines and decisions

Several articles have referred to the allocation of medical facilities to old people and discriminatory measures. For example, one can mention the priority of medical staff to receive medical services as a discriminatory measure [13,37]. The following are the examples of guidelines for the delivery of health services to COVID-19 patients during the disease outbreak: exclusion of patients with underlying diseases from the list of services [9]; decision on who should receive services, old people or young, with or without underlying diseases, medical staffs or other people [38]; allocation of resources to those with a higher chance of survival, determination of a given age [4] to use the facilities and then reduction of it from

Table I. Assessment of methodological concerns using WEIRD tool for descriptive studies.

N	Study (all are 2020)	1. Is there a clearly stated aim, objective or purpose for the source material?	2. Is there a clear description of the source of the information reported (transparency)?	3. Is there a clear description of the programme or intervention or policy or reform on which the source material focuses?	4. Is there a clear description of the context/s to which the information described in the source material relates?	5. Is the information accurate? (non-empirical studies)	7. Is the evidence representative?	8. Are any limitations of the information and/or methods discussed in the source material?	9. Is evidence provided to support any findings or conclusions made?	10. Are relevant rights and ethics considerations described	11. Are any interest declared and any potential conflicts of interest noted?	Overall assessment
1	Grzelka [15]	Y	Y	U	Y	Y	Y	Y	Y	N	Y	Serious concern
2	Cezari Cesari M, Proietti M [14]	U	Y	Y	Y	Y	N	N	U	Y	N	Serious concern
3	DePergola [11]	Y	Y	Y	Y	Y	Y	U	Y	Y	U	No or very minor concern
4	White [13]	Y	Y	Y	Y	Y	U	N	U	Y	Y	Serious concern
5	Rudolph [6]	Y	Y	Y	Y	Y	U	N	Y	Y	N	Serious concern
6	Comas-Herrera A, et al. [1]	U	Y	Y	Y	Y	U	N	Y	Y	Y	Serious concern
7	Lloyd-Sherlock [35]	U	Y	Y	Y	Y	U	N	U	U	Y	Serious concern
8	Monahan [4]	Y	Y	Y	Y	Y	N	N	U	Y	N	Serious concern
9	Petretto D R, Pili R, 2020 [62]	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	No or very minor voncern
10	Gallina [37]	Y	U	Y	Y	Y	U	Y	U	Y	N	Serious voncern
11	Merodio [32]	Y	Y	Y	Y	U	Y	Y	Y	Y	U	No or very minor concern

N	Study (all are 2020)	1. Is there a clearly stated aim, objective or purpose for the source material?	2. Is there a clear description of the source of the information reported (transparency)?	3. Is there a clear description of the programme or intervention or policy or reform on which the source material focuses?	4. Is there a clear description of the context/s to which the information described in the source material relates?	5. Is the information accurate? (non-empirical studies)	7. Is the evidence representative?	8. Are any limitations of the information and/or methods discussed in the source material?	9. Is evidence provided to support any findings or conclusions made?	10. Are relevant rights and ethics considerations described	11. Are any interest declared and any potential conflicts of interest noted?	Overall assessment
12	Miralles [31]	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	No or very minor concern
13	Morrow-Howell [34]	Y	U	Y	U	Y	U	U	Y	U	Y	Minor concern
14	Shadmi [66]	Y	Y	Y	Y	Y	Y	U	Y	Y	Y	No or very minor concern
15	Swazo NK, et al. [38]	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	No or very minor concern
16	Colenda CC, et al., 2020 [24]	Y	U	Y	U	Y	U	N	Y	N	N	Serious concern
17	Lichtenstein B, 2020 [41]	Y	Y	Y	Y	Y	Y	U	Y	U	Y	No or very minor concern
18	Ehni HJ, Wahl HW [36]	Y	U	Y	U	Y	U	Y	U	Y	y	Minor concern
19	Falandry C, et al. [67]	Y	U	Y	Y	U	N	N	N	Y	Y	Serious concern
20	Ayalon L, et al. [40]	U	Y	Y	U	Y	Y	N	Y	Y	N	Serious concern
21	Marckmann G, et al., 2020 [30]	Y	Y	Y	Y	Y	Y	U	Y	Y	N	Serious concern

N: no; Y: yes; U: unclear

Table II. Reviewed articles (author, country, summary of results).

Goal	Country	Author	N
To study how Polish public perceive vulnerable populations during the COVID-19 outbreak	Poland	Grzelka	1
To study ageism and decisions made during the COVID-19 outbreak despite the limited resources at the height of the disease	Italy	Cesari M, Proietti M	2
To provide basic ethical guidelines to treat patients with suspected or definitive diagnosis of coronavirus disease (COVID-19) and to address the moral considerations inherent to caring for this patient population, especially in the context of scarce resource allocation, imposition of restrictions to individual freedoms, and de facto social distancing	United States of America	DePergola [11]	3
Presenting a framework for rationing ventilators and critical care beds during COVID-19 pandemic	United States of America	White [9]	4
Reviewing emerging discriminatory issue and presenting evidence against attempts to define "the COVID-19 Generation" as a new construct along with conceptual, methodological and practical lines, with a specific focus on identifying real dangers related to examining and potentially managing a new generation related to this pandemic in media	Germany	Rudolph [35]	5
Evaluating the effect of COVID-19 on care home residents and staff and as new and updated information and data become available, summarizing information from three types of sources: epidemiological studies, official estimates and news reports	United Kingdom	Comas-Herrera A, et al [1]	6
Investigating impacts of COVID-19 on elderly in low- and middle-income countries	United Kingdom	Lloyd-Sherlock	7
Investigating positive and negative responses toward older adults during COVID-19 pandemic and the expected short- and long-term consequences such as affecting beliefs about and treatment of older adults, intergenerational relations, and individuals' mental and physical health. The study addresses policy changes to health care (triaging, elder abuse), employment (layoffs, retirement), and education about ageism	United States of America	Monahan	8
Investigating the role of elderly in COVID-19 based on media	Italy	Petretto DR, Pili R, 2020 [62]	9
To study decisions to offer interventions with limited availability of medical resources	Italy	Gallina [37]	10
To collect evidence on hospital healthcare experiences of elderly infected by COVID-19 and to analyze elements that have positively affected elderly perceived health and well-being	Spain	Merodio	11
Summarizing actions, health policies and clinical guidelines adopted by six European countries during the pandemic and assessing the effect of national policies on reducing unfavorable effects of the COVID-19 pandemic in elderly	Belgium, France, Italy, Poland, Spain and United Kingdom	Miralles	12
Recovering from the COVID-19 Pandemic in older adults with an focus on increased comfort through technology and online platforms; stronger family and intergenerational connections, renewed energy to combat social isolation; more respect for self-care and time management; enhanced knowledge on the importance of advance directives; and, potentially, increased interest across disciplines to address the issues of aging society	United States of America	Morrow-Howell	13
1. Exploring the challenges to health equity and describing some of the approaches adopted by governments and local organizations in 13 countries during Covid-19 pandemic 2. Encouraging researchers to continue advancing global knowledge on COVID-19 health equity related issues, through rigorous studies and generation of a strong evidence based on new empirical studies in this field	China, Brazil, Thailand, Sub Saharan Africa, Nicaragua, Armenia, India, Guatemala, United States of America (USA), Israel, Australia, Colombia, and Belgium	Shadmi	14

▶

Table II. Reviewed articles (author, country, summary of results).

Goal	country	Author	N
Evaluating the challenges faced by Bangladeshi physicians in treating and refraining COVID-19 patients	Bangladesh	Swazo NK, et al.	15
Presenting this perspective as a way to enhance knowledge of people about ageism concerning coronavirus disease (COVID-19) pandemic, and acknowledging the extraordinary work that healthcare providers across all disciplines, including geriatrics, are doing at the frontlines of care, and also presenting these thoughts as advocates for older patients, their families, their providers, and the broader community	Italy	Colenda CC, et al., 2020	16
Comparing responses to COVID-19 control in Australia, the United Kingdom, and the United States, 3 countries where public ageism erupted over the social and economic costs of protecting older adults from COVID-19	America	Lichtenstein B, 2020 [41]	17
To provide suggestions on how to deal with beliefs and discriminatory behaviors against older people in COVID-19 pandemic	Germany	Ehni HJ, Wahl HW	18
Investigating the challenges of management of elderly with cancer disease during the COVID-19 pandemic such as increased risks of COVID-19 infection and the temptations of ageism	France	Falandry C, et al.	19
To present some recommendations on how to navigate the current pandemic in the world and confront ageism and intergenerational division	International	Ayalon L, et al.	20
To exame the decisions made on the allocation of intensive care resources in the context of the COVID-19 pandemic and to provide some clinical and ethical recommendations	Germany	Marckmann G, et al.	21

80 to 75 years, liberation of patients with a low chance of survival from the ventilator [25], and decision on who survives and who dies [24,25,39,40].

It was observed that age discrimination against old people influences decisions made in this regard [40]. Upon old people's arrival in the emergency and triage departments, the lowest priority was given to them to receive services and use medical facilities, which was due to the exclusion of them from treatment protocols and even lack of attention to the nursing home old people residents. This can be associated with some stereotypes in larger communities: old people do not need medical care, leading to an increase in their death rate and a negative impact on the family, friends, and society [4]. In this regard, the access of the nursing home old people residents to hospitals was limited, and old people were less referred to care centers after being discharged from the hospital [31].

The priority of maintaining a maximum life and the random selection of patients with similar prognosis were among the problems of existing protocols [37]. In Spain, protocols were adjusted based on patients' age and disability, so that medical facilities and equipment such as ventilators, use of intensive care units, and home care services, were not provided to old people or disabled people, and the order of non-admission of people over 80 years of age to intensive care units was issued [32]. Lack of access to treatment for old people in the hospital and lack of equipment and staff in the nursing home were other measures leading to the increased mortality rate of old people in nursing homes [7].

An emphasis was put on social distancing to prevent the spread of this disease in the development of protocols. Although the social distancing law is an essential measure to prevent the spread of COVID-19 disease, in the case of old people, this law reduces care for them and limits their access to health services [4,37]. Moreover, in social distancing laws, examples of vulnerability have not been specified; hence, governments have been accused of discriminatory behavior [31]. This law increased the isolation and loneliness of old people, leading to an increased risk of death, an increased risk of dementia, negative effects on physical and mental health such as anxiety, depression, readmission, increased heart disease, and exacerbated high-risk behaviors, including alcohol consumption and smoking in this age group [4].

Feeling of insignificance by old people themselves

Induction of the feelings of insignificance in old people causes them not to seek treatment and their mental health is impaired; therefore, due to discriminatory behaviors, old people feel worthless and think that they impose an additional burden on their families and others [4]. Additionally, rejection of the treatment and healthcare services owing to lack of care resources and facilities as their task and internalization of the worthlessness of old people's lives [36] are examples of the feeling of insignificance perceived by old people. This

feeling finally results in the lack of mental health, lack of access to health services, financial problems, and an increase in the suicide rate among old people [7]. Despite the age discrimination against old people during the COVID-19 outbreak, some positive measures have been taken for them. For example, triaging in groups by experts to allocate the necessary treatment and care facilities, to communicate with a team of specialists, patients and families, to monitor the decisions taken to ensure justice, and to improve existing algorithms, has been observed. Furthermore, it has been emphasized on the transparency of the existing treatment and care guidelines on how to deal with old people [4].

DISCUSSION AND IMPLICATIONS

The present study was an attempt to investigate the causes and types of discrimination against old people during the COVID-19 outbreak. After reviewing the included articles, it was found that most of the reports were from European countries and the United States. Many studies have been conducted on ageism in Western societies. Traxler (1980) investigated the roots of ageism among the old people in the Western world and explained its causes [41]. Studies have indicated an increase in negative stereotypes about old people in recent years [42]. However, the limitations of studies in other parts of the world, including ignoring ageism, should also be considered. Based on such a view, the health and life of old people become less important, and an anti-aging culture is promoted, leading to neglecting old people and causing diseases and complications in this group of people [6]. Anti-aging beliefs can be observed in the community behavior. Naming the disease under the titles of “the Boomer doomer”, “the Boomer pruner” and “the Boomer remover” on social media is a sign of beliefs that young people are preferred to receive healthcare services during the COVID-19 outbreak [3,34,35].

This culture is also seen among healthcare providers. The need to prioritize young people and triage old people, which was promoted by the community [4], governments [32], and the Rosenbaum Medical Association, confirms the cultural roots of age discrimination against old people. Research suggests a growing trend of anti-aging attitudes among healthcare providers [18,43]. The mentioned facts reflect injustice in the delivery of health services, which is structurally institutionalized in societies and depends on factors, such as race, social class, and gender [18]. In this study, the age-related injustice was addressed. At times of an economic crisis, other types of discrimination are seen. During the COVID-19 outbreak, in addition to shortages in the area of care and equipment, there are economic problems that have led to not providing effective services to old people [44]. In a study, the financial burden of ageism on 8 important health services to old people was estimated as $ 63 billion [45]. Certainly, it can be stated that ageism has led to more than 6 million cases of depression among old people, and prevention of it is very cost-effective economically [18].

Although the shortage of care resources is inevitable in health crises, an anti-aging culture has been influential in developing COVID-19 care guidelines, so that old people are not directly or indirectly excluded from receiving the services. Thus, improvement of the resilience of the health system to deal with such a crisis is a priority for all public health systems [46]. One can mention the following as examples of discrimination against old people in the treatment process of this disease: age limitations in receiving care and treatment services, exclusion of patients with underlying diseases from the list of the service receiver, allocation of resources to people with a higher chance of survival [4,25], preferring medical staff infected in allocating care resources [13], giving a lower priority for old people in allocating care services and equipment [4], elimination of old people from protocols to maintain the longest life years [4,37], random selection of patients with similar prognosis for the delivery of medical services.

Previous studies also confirmed that delivery of healthcare services was based on the old people’s age not their needs [47]. They also suggest that age is influential in making clinical decisions and determining the type of treatment [48,49]. In a meta-analysis of 400 articles conducted before the COVID-19 outbreak, 84.6% of studies reported the effect of age on the clinical decision-making [4]. The effects of age discrimination on the delivery of services, in addition to hospitals, have been increasingly reported in long-term nursing homes. For example, the following were observed in the protocols: lack of equipment of centers with personal protection facilities, lack of replacement of old people caregivers or caregivers’ leave of caring old people, not referring old patients with physical dependence to hospitals by the nursing home, and not providing home care to old people.

Hence, more than half of the deaths caused by COVID-19 occurred in nursing homes [4,7,32]. Studies have shown that discrimination against old people has negative consequences like a higher risk of Alzheimer’s disease for old people themselves [50]. The shortage of caregivers in nursing homes leads to deficiencies in care and reduces the quality of care [51]. One of the preventive measures during the COVID-19 outbreak was the implementation of the social distancing law. Although it is a good method to prevent the spread of this disease, it needs to be implemented intelligently in the case of old people. The old people, who depended on other people to meet the normal needs of their lives, were

forgotten in this method, and their loneliness and isolation were intensified. Quarantine reduced old people's access to health services and care [6,37]. Ageism, at the societal level, includes stereotypes, prejudgments, and practical discrimination against old people, which in turn results in neglecting old people, their social separation, and loneliness [52,53]. Loneliness and social isolation are interrelated concepts but have different meanings. Isolation means reduced contact with people and the environment, while loneliness is a mental and stressful concept and occurs due to reduced social contacts [3].

Loneliness is a major problem for old people [54]. Isolation and loneliness cause complications, such as anxiety, depression, cognitive disorders, heart disease, reduced quality of life, and death [3,54,55]. During the COVID-19 outbreak, due to the need for social distancing, the isolation of old people from society has increased and ageism, along with the feeling of insignificance among old people, has intensified the isolation and loneliness of old people [3,54,55]. Hence, it is recommended to pay more attention to the loneliness of old people during this period. Additionally, due to changes in the life style of people during the COVID-19 outbreak, there is a need to change the research attitude toward evaluating the answers, determining learned lessons, and developing the methods used to examine the loneliness and social isolation among old people [56]. The feeling of insignificance among old people during the COVID-19 outbreak and dealing with discriminatory behaviors caused problems, such as lack of follow-up care and mental health disorders [4]. The common discriminatory stereotypes in society are internalized by old people, and they actively distance themselves from being considered an old person so as not to be exposed to stereotypes [57].

Based on the stereotype embodiment theory, the effects of ageism on all aspects of health, including mental health, were identified and they included a decrease in self-efficacy, perceived control, and reduced meaning of life [18]. Old people's perception of aging affects their self-efficacy and consequently their physical performance, so that if they have a better feeling about aging, their self-efficacy will be higher [58]. Hence, old people think they are obliged to refuse to accept health services to save the lives of young people, as this feeling of worthlessness has been institutionalized in them [36], even leading to complications like an increased suicide rate [7]. On the contrary, a positive perception of aging improves health-related behaviors that are beneficial to people at risk [59] and if old people resist these negative stereotypes, symptoms, such as suicidal ideation and anxiety, will become reduced [60]. It appears that old people are a heterogeneous group in health, and this issue should be considered in the treatment of these patients. Age is an inappropriate variable and very poor guidance to consider it a criterion in the delivery of care and treatment services [4]. Calendar age should not be regarded as the primary criterion for determining access to medical care services [32,40], and it is required to address old people's health needs and adopt a super-individual perspective in this regard [30].

Moreover, providing psychological support for old people during this period [61], prioritizing ethics over law [37], and paying attention to the principle of equality in receiving health services declared by the World Health Organization [32] should also be considered against discriminatory behavior during the COVID-19 outbreak to take effective steps to prevent more harm coming to this group of people. Some of the measures taken in this regard include triaging by a group of experts to allocate the necessary facilities for treatment and care, communicating with the specialist team, patient and family, monitoring the decisions taken to ensure justice, modifying existing algorithms [25], ensuring transparency of guidelines [4] and avoiding age cut-point for receiving services [4,32,39]. Public education regarding the aging process and the positive roles of old people in society creates negative stereotypes about old people [62]. It requires theoretical foundations. A comprehensive model in this regard refers to two basic points. The first is the importance of education in the aging process and the positive roles of old people to reduce the negative mentality in aging, and the second is to provide opportunities to contact with old people in the form of personal experiences that lead to development of opportunities for cooperation and sharing personal information [63]. Fortunately, positive attitudes have been reported more than negative attitudes among hospital staff in some studies [33,64]. Furthermore, the positive attitude of old people toward themselves has been effective in reducing the complications of COVID-19 [39]. Among the measures to protect old people during the COVID-19 outbreak period, one can mention protection laws for old people, such as presence of them at less busy times of day for shops, complete disinfection of places where old people are present, and delivering their needed goods at their homes. Although the social distancing law is useful for old people, its consequences must be considered [4]. Thus, ageism should be considered one of the social determinants of health and should be seriously addressed. Owing to discriminatory behaviors in the delivery of health services to old people, it is necessary for health policymakers to develop protocols related to the delivery of care in this group and enact protective laws in a way that the least harm comes to this vulnerable group. It is also recommended that healthcare staff be trained to provide services for old people.

CONCLUSIONS

Given the global nature of the agism phenomenon, it is better to use the methods used in countries like Germany, to deal with crises related to this phenomenon. The number of deaths due to COVID-19 is not just numbers but the number of lives lost. The existence of anti-ageism laws is highly important in cases of humanitarian crises.

Educating children about the importance of the presence of old people in society and combating the discriminatory culture against old people will improve society's outlook on old people, especially their health. Therefore, at times of crisis, old people, like other high-risk groups, such as children and pregnant women, should be given special attention. In this regard, the training of health personnel is vital.

Preparing people for old age, particularly the middle age, will increase their self-confidence and awareness of the presence of the elderly in society and will prevent them from neglecting themselves.

Study limitations

First, all available studies were descriptive, and this prevented accurate conclusions. Second, most of the studies were conducted in Western countries, and no information was available from less developed countries. Third, most reports of ageism during the COVID-19 outbreak were not officially available in scientific institutes and associations, and except for a few of them [34,39,54,77]; the remaining studies were the result of unofficial observations and reports. Moreover, protocols were preferably implemented secretly [23].

Ethical consideration

This study was approved by Isfahan University of Medical Science ethics committee.

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Conflict of interest

The Authors have no conflict of interest to declare.

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SUPPLEMENTARY MATERIAL

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	

▶

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	

From: Moher D, Liberati A, Tetzlaff J, et al.; the PRISMA Group. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA Statement. PLoS Med 2009;6:e1000097. https://doi.org/10.1371/journal.pmed1000097 (For more information, visit: www.prisma-statement.org).