

Review

Alzheimer's Disease and Face Masks in Times of COVID-19

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Abstract. Generalized lockdown caused by COVID-19, necessary yesterday, can no longer be that of tomorrow. It will no longer be possible to cram the humblest into cramped areas, but priority must be given to prevention (certainly with physical barriers, hydro-alcoholic gel, face masks), biological diagnosis, isolation, and also the care of any infected person. COVID-19 has hit the most vulnerable first in terms of biological inequality, such as Alzheimer's disease (AD) patients. Those with AD can have sensorial deficits and perception troubles, including visual difficulties and the inability to recognize faces and emotions. Face masks and physical distancing can disrupt facial familiarity and make it more difficult to recognize emotional facial expressions. It can provoke distress, which the visitor can perceive and feel obligated to take off the face mask. This gesture should not be considered as an act of indiscipline, but an act of empathy. Transparent face masks could improve the suffering of AD patients, distraught in the presence of their loved ones whose masks hide their faces. Wearing a mask should not be due to fear of punishment, but as an understanding of the responsibility of each individual in the control of the current pandemic. It may be necessary to convince more citizens of this civic duty, using clear and attractive messaging in order to standardize the wearing of face masks for the general public and to adapt them to the needs of patients.

Keywords: Alzheimer's disease, COVID-19, ethics, mask, physical distancing

INTRODUCTION

A number of diseases are linked to social inequalities. Chronic lung disease, diabetes, and even obesity, are more common in socially disadvantaged settings. People belonging to the population with the lowest incomes are one and a half times more likely to have one of these co-morbidities than people belonging to the population with the highest incomes.

COVID-19 has significantly revealed the vulnerability of humanity in many fields such as social,

economic, biological, and medical. It has also hit the most vulnerable first, in terms of biological inequality. COVID-19 preferentially targeted the most disadvantaged people and those whose social situation was the most precarious. The excess mortality rate associated with COVID-19 has therefore also been linked to the density of the population. Thus, it is the humblest people, living in overcrowded areas and crammed into cramped habitats, who have paid the heaviest price for the coronavirus. In addition, age, precariousness, and ethnic origin have also been factors in the excessive mortality rate from coronavirus [1, 2].

Among chronic diseases, Alzheimer's disease (AD) creates growing vulnerability. Many elderly

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people and patients with AD have died of COVID-19 and that has taken a great toll on this pandemic. Additionally, there are probably half or two-thirds of residents of nursing homes who have cognitive disorders and for many of them, AD or a related disease. There was also the indirect suffering of COVID-19: the isolation in a room added to the confinement generated a feeling of abandonment. The architectural difficulties of setting up COVID units in places ill-suited to the management of a pandemic and wandering residents that had to be contained posed difficult problems for staff and that has added to the distress of the elderly, sometimes even as far as taking away the will to live. The de-escalation phases were carried out in the nursing homes at a slow pace with a laborious resetting of visits. And even today, the barrier measures must be maintained and have to remain, including social distancing and face masks. The problem is not to discuss the interest of these measures, but to think of the best and most adequate ones, instead of applying them in a reflex way. Thus, many countries worldwide urgently adopted several general and variable laws with vast regulatory packages. They were imposed on people to specify the innumerable questions about what was allowed or forbidden in daily life during the pandemic period. But laws in critical situations can be over-interpreted due to legal and moral confusions and fear of legal complaints. There was a major difficulty when the law texts had to apply in peculiar and personal situations, concerning the lockdown and/or the de-escalation phases of patients with motor and/or mental diseases in nursing homes. For instance, what to do when a strolling resident in a closed unit, suffering from a severe form of AD, refuses to stay in his room where it was decided to isolate him, is agitated, shouts, drums at his closed door? Or what to do when they do not seem to understand the rational need for isolation or wearing a face mask? Should we go as far as mechanical or chemical restraint?

Ethical reflection believes that the law and regulations cannot close the debate. Ethical reflection is essential in this articulation and the balance between the general and the singular, “the greatest good for the greatest number” for the well-being of each human person and, indeed, humanity. Ethics can help to discern conflicts of values and virtues, understanding the motivations behind the actions and the decision-making chain, as well as anticipating the consequences of action options, in terms of humanity. Furthermore, ethical reflection and responsibility can avoid the discrediting of socio-bio-medical debates,

frequently generated by the massive mediatization of the COVID crisis, as well as some obscure powers and interests. Even if the epidemiological arguments have priority, it cannot be ignored that humanity does not only feed on reason, but it also needs affection and emotions which constitute the essential human relationships. It is necessary to re-assess each situation, to weigh the benefits and the risks, and thus, a compromise can be found, a framed and assumed exception; in terms of Aristotle, it means to find the “*epikie*” [3]. The compromises or exceptions are not a disregard for the rule, using responsibility ethics, but it is a matter of critical consideration, which is based precisely on the general nature of the law and its adaptation to situations where its mechanical, passive, and blind application would be dehumanizing. In addition, compromises or exceptions open the way for a regular re-evaluation of the laws.

Thus, generalized lockdown, necessary yesterday, can no longer be that of tomorrow. Lockdown will no longer be able to cram the most humble into cramped places, but should give priority to prevention (certainly with barriers, hydro-alcoholic gel, physical distancing, and face masks which were so cruelly lacking; the free distribution of masks to precarious people), to biological diagnosis (which took so long to gather the necessary resources, material and human), to isolation (targeted, effective, lucid of patients and contact persons), and also to the care of any infected person.

Physical distancing should be at least one meter according to experts from the Public Health Agency of many countries across the globe such as France, Sweden, Italy, Spain, and Norway [4]. Obviously, if we say that greater distance decreases the risk of contagion even more, we can extend this distance to one and a half, two meters, or even more. The risk of COVID transmission quickly required all caregivers to wear a face mask. Patients already knew that healthcare professionals wore face masks, particularly surgeons in operating rooms and caregivers in hospitals when they were going to carry out care requiring strict aseptic measures, but the patients were surprised by the widespread wearing of face masks when the nurses came to treat them at their homes or when their general doctor also wore a mask in the clinical office. Thus, healthcare professionals responded to their concerns by explaining that the “surgical” face mask (most often worn) primarily intends to protect patients. Moreover, it was also necessary to explain that there were differ-

ent types of face masks and among them, the FFP2 masks which intend to protect both caregivers and patients [5].

In times of COVID-19, several countries in the world have decreed new normative in nursing homes of the elderly people to pretend to manage the spread of the virus, limiting family and social relationships. But those rules attack the freedom and the meeting right of people, and they also have an impact on elderly's health, in generating suffering, depression, and apathetic withdrawals with the medical complications. Besides that, these health safety measures have had greater impact on elderly people with AD, who often have age-related sensorial deficits, but also perceptual troubles and important difficulties in seeing, recognizing, hearing, and understanding their interlocutors. For instance, the nursing homes in France were locked down a week before the general confinement established on March 17. Thus, the residents were unable to receive any visits from their family members and some establishments even isolated them in their bedrooms. It is therefore estimated that in France, that a third of elderly people aged 75 or over, in nursing homes and only 4% of them living at home have AD [6]. When the opening of visiting rights for relatives could again be authorized in France (after about three months of confinement), the elderly people and AD patients were subjected to new rules: visits from relatives were allowed under strict conditions to preserve health security, such as supervised visits by staff members, short duration visits, and delays (sometimes several weeks) that separated two visits. These contacts, lived in an atmosphere of strangeness, were a source of distress both for the patient and for the family members who came to visit them; and what do we say when, we add the face mask to physical distancing!

During the COVID-19 pandemic, the ethics committees were aware of these difficult situations. It was observed how some relatives could take off their face masks during the visits. This attitude was very often judged solely from the point of view of safety and the families were reprimanded for not respecting security rules. However, these reactions from families should lead to reflection on the upheavals in the human relationship with an AD patient who meets a loved person wearing a face mask that hides his face, but she is not a professional caregiver. It needs a neuropsychological and ethical approach that must aim to bring awareness of the function of the human face in our personnel relationships and also, how AD disturbs the relationship with the face of the other.

FACE MASKS AND ALZHEIMER'S DISEASE

The wearing of a face mask in Asia and particularly in China has become commonplace since the SARS epidemic in 2002-2003, and in United States, the American Centers for Disease Control and Prevention (CDC) recommended wearing a face mask in public to slow the progression of the epidemic from April 3, 2020 [7]. In the United States, a study carried out from April to May, just after the CDC recommendations, in a group of the population showed that in the days following the recommendation, almost two-thirds (61.9%) reported wearing a face mask when leaving home and a month later, face mask use increased to over 76.4% [8]. Another study reported that in a Missouri hair salon where the wearing of a face mask was required by law, none of the hundred customers, who had been in contact with one of the two infected professionals, contracted the disease [9]. Another study showed that the widespread wearing of the mask in a healthcare professional group of Massachusetts hospitals reduced the rate of coronavirus infections from 14.7% to 11.5% [10, 11]. Thus, many countries in the world have had to switch from the recommendation to the obligation to wear a face mask in closed public places. It clearly reflects the failure of citizens to become aware of the value of this measure in limiting the spread of the pandemic. It must be said that governments and some international institutions have struggled to develop a pedagogically coherent discourse on this subject by trying for long weeks to minimize the interest of face masks, even initially affecting the health workers and vulnerable people such as elderly people and AD patients. Wearing a mask cannot be due to fear of punishment, but to better understand the importance of the face mask in the prevention of the contamination of others, the benefits that can be expected for oneself and for others, the responsibility of each in the pandemic control.

Human beings from the beginning of life meet the face of others, first of all, the face of the mother. The meeting with the people's faces is the base of alterity. And beyond that, it attests to belonging to the same humanity, which the individual recognizes not in their own face—that he cannot see it in the meetings—but in the face of the others. Two brain processes are necessary for the recognition of faces: their morphological characters and a familiarity feeling. In AD, the person may have difficulty in recognizing the morphological features of faces or prosopagnosia [12], but the familiarity feeling is preserved for a long

time during the disease [13, 14]. Furthermore, the feeling of familiarity calms the AD patient and it provides him with a feeling of well-being, linked to recognition—not explicit (overt recognition), but implicit (covert recognition). Nevertheless, an AD patient has much more trouble recognizing familiar faces, when he is in front of a family member who is wearing a face mask, because he is confronted with a fragmented perception of the face, which may no longer even induce a feeling of familiarity. At that moment, an AD patient can feel and express by his facial expressions, and/or by a few words, feelings of consternation and distress, which the visitor can perceive and feel. Those feelings can provoke the visitor to take off his face mask, as it is perceived as the reason of the distress. And we should not attribute or consider this gesture as an indiscipline action.

Moreover, face perception allows us to identify the emotions expressed by others [12]. This recognition of emotions is innate and targets the so-called primitive emotions: fear, joy, anger, surprise, sadness, and disgust. Emotion recognition from facial expressions can be assessed using the Ekman 60-Faces Test which is a well-known neuropsychological tool [15]. However, the discrimination of facial identity (i.e., if the two faces correspond to the same person) can be altered, while the discrimination of facial emotions is preserved or relatively preserved in AD. It has been observed that the preservation of the ability to discriminate facial expressions of emotions can coexist with deficits of facial discrimination and of identification of emotions [16]. Furthermore, Michalon and her team [17] showed that the recognition of joy, sadness, and disgust in people with AD was no different from that of a control subject group.

The mask on the face, going from the nose to the chin and leaving only the gaze and the forehead available, makes this process of emotional recognition very difficult and in some cases, impossible. Thus, the face mask prevents the AD subject from the beneficial soothing effect that a smiling face can provide, even if the patient has prosopagnosia. Additionally, the human brain has the ability to read emotions in the eyes of others, which is a more complex process than the recognition of primitive emotions. It consists in guessing in the eyes of others more subtle emotions such as arrogance, jealousy, irritation, annoyance, and impatience. It can be assessed using the “Reading the Mind in the Eyes” test elaborated by Baron-Cohen and his team [18]. Furthermore, we can also attribute to others’ emotions, intentions, and thoughts, which have been called Theory of Mind

[19]. However, Yidirim and his team [20, 21] have observed that affective Theory of Mind is preserved in healthy aging, but it is impaired in AD. Even if some emotional recognition seems preserved in AD, this disease is associated with deficits in both cognitive and affective Theory of Mind [22]. This ability needs more brain resources, in particular the executive functions [21, 23] and without the aid of primitive emotions, AD patients can experience a relationship of disturbing strangeness when he has a visitor with a face mask. And once again, when the families perceive the distress, then they remove their masks, provoked by empathy and not by indiscipline.

In regard to these difficult situations with AD patients due to the wearing of face masks during the COVID-19 pandemic, we could suggest the implementation of some preventive measures. Firstly and at a tactical level, it consists in anticipating the distress of AD patients or in reassuring them by allowing families to remove their face masks while respecting social distancing. The presence of a psychologist during a risky interview would undoubtedly be of great help to the patient and his family. Secondly and at a strategic level, it could also be useful to promote and provide transparent masks, technically more reliable [24], in order to diminish the distress of people with AD, because they would not be a barrier to meet the people faces. Beyond nursing homes and people with AD, transparent masks would help relationships with autistic children and psychotic adults who both have difficulty reading the emotions and intentions of others in their eyes, as well as people who are hard of hearing, due to the inability to read lips.

CONCLUSION

Essential information from modern and humanistic neuropsychology about AD is very useful in the support of patients and their families without the intention to condemn the wearing of face masks, but to develop an ethical understanding of the troubles and distress of AD patients. It invites no sanction to patients and/or families, but rather the implementation of preventive measures, addressed by an ethical concern of constantly increasing the reflection about the health safety rules.

People with AD can have sensorial deficits and perceptive troubles, leading to difficulties in seeing, facial and emotional recognition, hearing, and understanding their interlocutors, and even much more, when face masks are added to physical distancing,

because they are confronted with a physical barrier and a fragmented perception of the face, which may no longer even induce a feeling of familiarity and no emotional recognition. Thus, transparent face masks could improve the suffering of AD patients, distraught in the presence of their loved ones whose masks hide their faces.

Wearing a mask cannot be due to fear of punishment, but to better understand the importance of the face mask in the prevention of the contamination of others and oneself, as well as the responsibility of each individual in the pandemic control. It may be necessary to convince more citizens of this good or civic duty, using consistent, clear, and attractive messages and effective diffusion media, in order to standardize the wearing of face masks for the general public and to adapt the face masks to the needs of patients. We must send the message that wearing a face mask is economically an inexpensive action, generating a great general benefit at all social, economic, emotional, and health levels.

Finally, we should be aware that elderly people are not a heavy burden for the society. Elderly people with or without disabilities are really great factors of economic richness for all societies. In fact, they are part of the giant market called the “*Silver economy*”, which has the main objective to offer services to the needs of aged people, improving their quality of life. They have even sustained young families and general society in crisis periods, such as the last economic worldwide crisis in some countries. Silver economy fields are very different and wide, concerning the health (care at homes, telemedicine), food, security (face masks, sensor to detect falls, GPS), home adaptations, communication networks, tourism, and leisure. Thus, industries have quickly adapted to give innovative solutions to elderly people in this pandemic period, particularly to fight against their physical isolation. Thus, the fight against the virus will only be effective if everyone does their part.

DISCLOSURE STATEMENT

Authors’ disclosures available online (<https://www.j-alz.com/manuscript-disclosures/20-1233r2>).

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