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GREY MATTERS

Medicine Masked: Ethical Implications of Half-Hidden Faces During a Pandemic

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"[T]he face is what forbids us to kill." — Emmanuel Levinas[1]

Abstract

The most visible change to medicine in 2020 has rendered human faces only half-visible. In an effort to reduce transmission of the SARS-CoV-2 virus, healthcare professionals everywhere, and patients too, are now wearing face masks covering the nose and mouth whenever meeting in person. Masks block germs, but they can also block communication, as positive emotions are conveyed by the lower part of the face. When the mouth is covered, smiles are hidden. Expressions of intent may seem ambiguous, of concern neutral, of empathy imperceptible. Although medically necessary during an infectious pandemic, masks shroud a vital feature of our shared sense of humanity and may lessen the perception of presence at the bedside. In order that the face-to-face healing encounter is not reduced to a rendezvous of the hemi-anonymous, masked caregivers must be especially intentional in their eye contact, tone of voice, and chosen words.

Introduction

During the COVID-19 global pandemic, in combination with handwashing and eye protection, face masks have become necessary apparel for healthcare professionals to prevent transmission of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).[2] As the mouth both breathes and speaks, a barrier to potentially infectious respiratory droplets can also be a barrier to communication. This is obvious to the hearing-impaired, who rely on reading lips to interpret words they cannot clearly hear. Masks also modify communication in subtle ways in which the wearer may be unaware. The masking of facial expressions can alter how the wearer is perceived.

A Brief History of Masks

Throughout history and in nearly all cultures, masks have been fashioned for purposes dramatic, magical, religious, social, political, symbolic, and utilitarian. In pre-technological cultures, the wearing of masks in religious ceremonies was believed to impart to the wearer the spirit or qualities of the animal or god represented.[3] This universal imitative instinct was manifest also on the stages of ancient Greece and Rome, where, for dramatic effect, actors wore masks both tragic and comic. Ornate painted masks are a distinctive feature of Japanese musical drama. Unlike the human face, stage masks are rigid, conveying a fixed expression and attitude.

By concealing the wearer's face, masks foster a sense of disinhibition. When masquerading, it becomes easier to violate social norms in public. Some burglars and

anarchists wear masks, not to put on a new persona, but to disguise their identities and escape detection. Executioners wore masks to conceal their identity, thus evading the possibility of retribution by associates of prisoners sentenced to death as well as distancing themselves psychologically from the act of killing. In some cultural contexts, violence done by a mask-wearer is understood to have been committed, not by the human but by the mask.[4]

Masks have also served as protection against threats. Samurai warriors wore fierce masks into battle. The Chinese would place terrifying paper masks over the faces of their children to frighten away the demon believed to cause smallpox.[5] In 17th century Europe, physicians who treated victims of the bubonic plague wore protective masks with glass eye apertures and long beak-shaped noses stuffed with aromatic herbs and spices believed—incorrectly—to purify the air they inhaled through the mask.[6] In the 20th century, in response to the deployment of poisonous gases in World War I, the Allies developed gas masks consisting of a rubberized fabric face covering supporting two circular eyepieces and fitted with a cannister through which the wearer breathes. As mechanical barriers, these masks sometimes protected. As caricatures of the human face, they could also frighten. Many a science fiction movie has sent chills down the spines of its viewers by casting a villain with grotesque goggles covering or substituting for eyes and a low-pitched, strained, mechanical breathing apparatus obscuring the mouth.

During the 1918 influenza pandemic, mask ordinances required people to wear cloth or gauze masks when in public. Similar rules are in place in 2020. As in 1918, the efficacy of masking has been both promoted and questioned, and compliance has been far from universal. Such masks do not appear frightening. They indicate protection, both for and from the wearer. They also conceal part of the face.

Medical Mimicry

"Masked facies" refers to the reduced spontaneous facial expression, or hypomimia, that occurs in people with Parkinson disease. Other forms of facial motor impairment, such as Bell's palsy, myotonic dystrophy, myasthenia gravis, and the muscle weakness caused by injections of botulinum toxin, can reduce emotional facial expressions. Weakness of the facial muscles, especially if bilateral, can create a false appearance of affective neutrality or negativity.

False facial expressions can be produced also by activating facial muscles. Applying the principle of galvanism, by which electrodes brought into contact with a frog cause the legs to twitch, the 19th century French neurologist Guillaume-Benjamin Duchenne placed electrical probes over the muscles of the human face and triggered muscular contractions that produced specific facial expressions. As the camera had recently been invented, he published a photographic atlas of exaggerated and, at times, grotesque electrically induced facial expressions, which he believed to reflect the "gymnastics of the soul."[7]

Duchenne may be the only neurologist to have had a facial expression named after him. A "Duchenne smile" refers to a full, or genuine, smile in which the eyes squint as the corners of the lips are drawn upward. It is possible to feign a smile by raising the corners of the lips—a voluntary action that one can manipulate—but such a smile is incomplete. A genuine smile, by contrast, also recruits the orbicularis

oculi muscles to cause the outer corners of the eyes to squint slightly—an involuntary gesture signaling joy.[8]

The Neuroscience of Facial Expression

Whereas Duchenne mapped the facial muscular components of human emotion, in recent decades research has employed electromyography to define with even greater precision the orchestrations of facial movements encoding specific emotions. By placing electrodes on the surface of the skin and analyzing the patterns of electrical signals generated by contracting muscles beneath the skin, neuropsychologists have identified two groups of facial muscles that correspond most closely to specific emotional states. The corrugator muscles, which are located above the eyebrows and contract the forehead into wrinkles, correlate with negative affect and are active when someone feels sad, unhappy, or depressed. The zygomatic muscles, which draw the corners of the mouth upward and outward, correlate with positive affect and are active when someone is smiling or feels happy.[9] These muscles were active even when observers could not consciously discriminate among emotional states.

More recently, neuropsychologists have employed functional magnetic resonance imaging (fMRI) to map the brain networks that correspond to displaying and perceiving basic human emotions. As one would expect, the visual cortex was highly active, as well as the fusiform face area in the inferior temporal cortex. Many additional brain regions were recruited, including the temporoparietal cortex, anterior cingulate gyrus, lentiform nucleus, prefrontal regions, and cerebellum. Whereas viewing fearful, happy, or sad faces activated the amygdala, viewing disgusted or angry faces activated the insula.[10]

Another line of research utilizes a bubble or tile technique of masking and revealing parts of viewed faces. Observers shown bubbles revealing randomly sampled portions of faces were most likely to identify correctly the emotional state of the face when presented with the eye or mouth regions.[11] Of these, images of the mouth area were found to be the most important cue for accurately identifying both static and dynamic facial expressions.[12]

Facial expressions are a basic means of nonverbal communication. When viewing the facial expressions of others, one can feel intuitively what they are feeling. The neurobiological basis of this mimetic function is the mirror neuron system, which contributes to empathy, or the ability to share the feelings of others.[13] When subjects were shown disgusted, neutral, or pleased facial expressions during fMRI, their self-reported empathy correlated with neural activity in the anterior insula and adjacent frontal operculum, suggesting that these brain regions contribute to the mapping of others' emotional states onto one's own internal emotional state.[14]

Effect of Masks on Relational Communication

It is reasonable, therefore, to ask whether concealing part of the face by wearing face masks hinders nonverbal communication during medical care. A research team in Hong Kong has put this question to the test. In a controlled study of 1030 patients who were randomized to primary care clinical consultations with physicians either wearing or not wearing face masks, a significant negative effect for masks was found

in patients' perception of physician empathy.[15] They concluded that wearing masks diminished the positive effects of relational continuity.[16]

Although not empirically verified to date, research mapping regions of facial activation to specific emotions suggests that masks might not only restrict emotional communication in general, but also introduce a negative bias. As the upper part of the face conveys the strongest signals of negative emotions, and (with the exception of the squint of a genuine smile) the lower part of the face conveys the strongest signals of positive emotions, face masks may filter emotional expression by allowing negative emotions to be displayed while concealing positive emotions. When wearing a mask that covers the lower face, forehead wrinkling remains visible, while smiles disappear. Mask-wearers might thus be misunderstood to show negative emotions more often than positive emotions.

In what further ways universal masking influences the relational aspect of medical care is, at this time, a matter of speculation, but personal experience can offer some preliminary insights. Early in the pandemic, patients surrounded by healthcare professionals wearing masks might have felt a surge of fear. Entering a hospital or clinic and seeing everyone wearing masks, some may have wondered whether they had just stepped into an infectious zone where doctors were taking extraordinary precautions. Some may have wondered whether they themselves were viewed as a potential source of contagion. Such thoughts are unlikely to make a patient feel safe and comfortable. However, as the public has grown accustomed to seeing and wearing masks, medical encounters have settled into a "new normal," and most patients understand that the purpose of face masks is not to create distance from them, but to protect them. As the perceived meaning of the mask has shifted from insulation to obligation, wearing masks has the potential to reinforce relational bonding and trust.

Effect of Masks on Ethics

The potential influences of masks on medical ethics may be subtle and more difficult to discern. Masks can confer a sense of anonymity, and feeling that one is anonymous can change one's behavior. Psychological research has shown that masks can function as disinhibiting props, reducing one's sense of moral responsibility for one's actions. Subjects in a psychological experiment who were asked to wear sunglasses behaved less generously than those who did not.[17] In another study, children on Halloween were offered a bowl of candy and told that they could take only two pieces; those wearing masks were more likely to break the rule and take more candy than those whose faces were visible.[18]

Embedded in the medical profession, however, are strong safeguards against the potential anonymizing effect of face masks. Physicians initiate the medical relationship by making themselves known, and most wear identifying badges displaying their faces. The physician's signature on a prescription pad, or its digitally authenticated equivalent, affirms that he or she bears responsibility for medical decisions, even if his or her face is unseen.

If, however, physician-assisted suicide or euthanasia were to become a legal option, would a masked physician feel less personally culpable for making a recommendation for death? Would a physician who meets in person with a patient

whose display of humanity is partly concealed by a mask be more or less likely to choose interventions that hasten that patient's death?

There remains an occasional ambiguity in medical practice of the caregiver's intent, an ambiguity rendered more opaque by the mask. The patient may not be able to tell whether the physician is smiling or frowning, approving or disapproving. The mask thus creates opportunities for misjudging or misunderstanding.

Conclusion

Sir William Osler advised physicians to cultivate the manner of imperturbability, by which he meant "coolness and presence of mind under all circumstances, calmness amid storm, clearness of judgment in moments of grave peril, immobility, impassiveness. . . . The physician who has the misfortune to be without it, who betrays indecision and worry, and who shows that he is flustered and flurried in ordinary emergencies, loses rapidly the confidence of his patients."[19] The face mask may conceal the expression of emotion, but it cannot produce the virtue of imperturbability. Healthcare professionals wearing masks, in order not to appear indifferent to their patients, must be even more intentional in the use of eye contact, comforting tone of voice, steady demeanor, and judiciously chosen words.

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