

Face masks, social equality, and externalities

Should the Swedish Public Health Agency (Folkhälsomyndigheten; FHM) recommend face masks in situations where it is not possible to keep your distance? According to FHM's head of the microbiology unit Karin Tegmark Wisell, the issue concerns not only infection control but also social equality. She claims, for example, in an interview in *Expressen* that "it should not only be those who are strong in purchasing power" who should have access to face coverings.

This argument ignores the fact that face coverings not only protect the wearer but also others. This is made clear for example in the guidelines of the World Health Organization from June 5. Many of the world's researchers and health experts believe that with most face masks and coverings that effect is most important; see article in *Nature* from October 6. This means that if a person who is strong in "purchasing power" wears such a face covering, this benefits everyone in the person's vicinity, regardless of whether they are strong in purchasing power or not. The person who are "weak in purchasing power" therefore have a better health situation in societies where those "strong in purchasing power" wear face masks than in societies where face masks, for example for equality reasons, are not encouraged.

In addition, there is of course nothing that prevents the government or the regional authorities from providing all citizens with face masks, something that, e.g., has been done in certain contexts in Finland. This can be a relatively inexpensive preventive measure, in addition to all other measures, recommendations and requirements.

Another counter-argument against face coverings, put forward several times by FHM's state epidemiologist Anders Tegnell, is that wearers of face masks can get a false sense of security and therefore change their behavior so that they instead increase the risk of being infected and/or infecting others. As far as we know, there is no scientific evidence for this argument. Most experts abroad agree on this, as does the Swedish Royal Academy of Sciences' expert group. Two recently published studies draw a conclusion that points in the opposite direction, namely that face masks act as leads to increased social distancing. And even if some – hitherto undocumented – harmful aspects of face masks should be proven to exist, it remains for the opponents of face masks to show that the net effect of wearing them is negative. Because in order for the argument to be relevant, it needs to be that the harmful behavioral effect of face coverings is stronger than the protective effect of face masks at otherwise unchanged behavior.

The same type of argument that Tegnell puts forward could be used against seat belts. There is a risk that car drivers with seat belts drive more carelessly, and thus expose themselves and other road users to greater accident risks. In that case, it would be better if everyone drove without a seat belt. But neither does this argument have scientific support. On the contrary, it has been shown that the net effect of seat belts is strongly positive; the number of injured and killed in traffic has decreased significantly when seat belts were introduced. As with face masks, it is impossible to perform "double blind" randomized tests, so causality is difficult to demonstrate, but in both cases the mechanisms are fairly clear and there is empirical evidence.

When a person's activity also has positive effects on others, this is referred to in economics as the activity having positive "external effects." A well-established result in the social sciences is that when individuals make decisions and do not take external effects into account, they will do too little of what creates positive external effects and too much of what creates negative external effects. Based on this insight, it is justified, for example, to tax environmentally harmful emissions – an example of negative externalities – and to provide

public funding for vaccination programs, as an individual who allows himself to be vaccinated not only protects himself but also others through reduced transmission.

When it comes to face masks, one could worry that people will not use them if they do not care about others. A simple model from game theory describes such situations as so-called “prisoners’ dilemma.” In such situations, two persons meet and each has a choice between two actions, usually designated C and D (for “cooperation” and “defection”). There is an individual cost associated with C, which is why two selfish individuals choose D. The result is an outcome that is worse for each of them than if they both had chosen C. Choosing C has a positive external effect for the other party, something that a selfish player does not take into account.

The same situation can apply to face coverings if these would have little or no effect on one’s own infection protection, as the cost of a face mask and the discomfort of wearing it could outweigh the positive protective effect for the wearer. But if both parties were to wear face masks, research shows that the protective effect is great. For example, a study in Germany which was reported on in an article in *PNAS* on November 10 documents how face masks reduced the number of infected persons.

Empirical research based on game-theoretic laboratory experiments has shown that the outcomes in the prisoners’ dilemmas are often not as problematic as one might think. People care about each other! Economics laureate Elinor Ostrom was rewarded precisely for her studies of how generalized prisoners’ dilemmas in practice have been solved through various social mechanisms and institutional arrangements. She identified a number of contextual factors that in practice facilitate cooperation.

However, these factors are not automatically available in a pandemic. If one raises awareness through information campaigns that certain individual behaviors can help other persons, many want to act accordingly. Applied to face masks, this means that if the authorities inform that these have positive externalities – Face masks help others! - it increases the willingness of these people to wear face coverings. Many like to help in a fight against a common danger. Face masks are also clearly visible, which can lead to wearing of face masks becoming a positive social norm, something you want to do and are expected to do for the sake of the common good. It shows that you are participating in a joint fight against the ongoing pandemic. This is the case in many countries today, but not in Sweden.

For those who object that social norms such as these take a long time to develop and establish, it can be pointed out that this spring the attitude to face masks in our Nordic neighbors was as negative as in Sweden. During the autumn, however, this has changed rapidly through clear communication that has created a coordinated behavioral change in the vast majority. If someone steps into a store in Oslo without a face mask, people look angrily at them, or lead them out of the shop.

Face coverings have long been used in times of flu in many countries, especially in Asia. To then, in Sweden, claim that face masks are pointless or harmful with covid-19 would presumably require proof. Instead, FHM believes that it is those who advocate face masks who must provide evidence. This view of where the burden of proof should lie, when a completely new type of situation arises, is highly questionable. Are FMH’s representatives so much smarter and more knowledgeable than other experts in the world that no evidence is needed?

FMH’s position seems astonishing if one considers what is at stake. If face masks actually would help but are not used, the consequence will be that many people become ill or die unnecessarily. In addition, large costs arise in healthcare, both in the short term because more people fall ill with covid-19 and in the longer term because some of those who survive get long-term or permanent health problems which require aftercare.

What would be the worst thing be that could happen if FHM recommended face masks in situations where distance cannot be kept, such as during rush hours in public transport or in

congestions in shops and other establishments? We find it difficult to identify any important negative consequences. Not even social equality is at stake.

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