The burden of prolonged smell and taste loss in covid-19

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“IT was sudden, like turning an electric switch off.” This is how one patient described her abrupt loss of smell and taste following infection with covid-19. “I was eating some lunch on day three after contracting covid-19 and one moment I could still smell and taste the flavours of my soup, and the next everything vanished.”

She was not alone in this. In fact, smell and taste loss are common complaints among patients with covid-19, with an estimated 50% of patients reporting these symptoms. 1 This is thought to occur due to conductive barriers and nerve damage from the extensive inflammation in covid-19 infection. 2-5

The recovery of smell and taste is very much a gradual process for some. In our analysis of 3699 patients from 12 countries, recently published in The BMJ, we found that at the 30 day mark following the initial infection, only 74% and 79% of patients are expected to recover their smell and taste respectively. 6 Recovery rates rise with each passing month, reaching a peak of 96% for smell and 98% for taste after six months. Using a mathematical technique known as cure modelling to project the plateaus of smell and taste recovery across 18 studies, we found that self-reported smell loss may persist in 5.6% of patients, while 4.4% may not recover their self-reported sense of taste (for some this reflects loss of smell and taste impairments, respectively). 5

Recovery rates may not be a linear process either. One patient shared that she still experiences “huge fluctuations whereby some days (she) can smell things a little more easily, whilst during others (her) thresholds drop to a bare minimum, to almost where they were two and a half years ago.” Another patient mentioned that her taste returned six months after her initial infection, only to vanish again suddenly. To date, she has not recovered her sense of taste.

Our research found that women are especially affected by persistent smell dysfunction, along with patients with greater initial severity of smell loss and those with nasal congestion. One patient we spoke to mentioned that she has yet to recover her sense of smell, even though it has been over 27 months since the initial infection.

Besides a quantitative impairment in smell, a sizeable proportion of patients also report qualitative smell impairment following covid-19 infection, manifesting as distortion of odour (known as parosmia) or a perception of smell in the absence of an odour (known as phantosmia). 7 These patients often struggle to tolerate everyday smells and become increasingly withdrawn. Such a phenomenon has been postulated to occur due to aberrant regeneration of the neurons in the olfactory system during recovery. 9

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Our sense of smell and taste is something that we very much take for granted. In one patient’s words, “I don’t think that as human beings we can truly understand, appreciate, and comprehend how important and how deeply connected to all aspects of our life our sense of smell is until we lose it.” The abrupt loss of smell and taste that covid-19 infection brings has a formidable impact on patients’ quality of life. Smell and taste impairments may hinder the enjoyment of food, causing patients to feel as if eating has become “a chore, a merely functional transaction with the only scope of providing nutrients.” It is unsurprising that smell and taste loss has been linked to malnutrition. 10 For others, the smell and taste loss meant that they were no longer able to indulge in hobbies involving food, instead being forced to search for new activities to occupy their time. Affected patients may also feel alienated and misunderstood, which hinders their relationships with others. One patient felt that she “just could not relate to people in the same way,” and that “nobody else—unless in the same situation as (hers)—could really understand how and what (she) was feeling.”

The extensive disruptions to everyday life may inevitably wreak havoc on mental health, with one patient describing her smell impairment as a “devastating loss” that resulted in her developing depression, suicidal thoughts, and sleeping disorders. Despite seeing a psychiatrist and attending therapy sessions, she has seen little progress. For some, the despair stems from the unpredictable and prolonged nature of sensory impairment. According to one patient, she was not particularly concerned by the same situation as (hers)—could really understand how and what (she) was feeling.”

In the past, loss of smell and taste has been associated with depression, 11 cognitive decline and mortality. 12,13 It remains to be seen if the sudden influx of patients with covid-19 related smell and taste impairments may be linked to similar adverse health outcomes. Loss of grey matter volume and evidence of tissue damage has been shown in the olfactory cortical areas of patients after SARS-CoV-2. 14

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This may simply reflect loss of olfactory input and is likely reversible after recovery; increases in regional brain matter have been demonstrated with recovery after olfactory training.\textsuperscript{15}

Many patients struggle with lack of support as medical practitioners have not been equipped to deal with long covid and this unprecedented wave of patients with persistent smell and taste loss. There are too many questions and far too few answers. Why are women particularly affected by persistent smell loss? Is the sensory loss going to be permanent? Is there anything that patients can do to hasten the recovery? Will olfactory training improve outcomes? These are important questions, and ones that need to be taken seriously and investigated by the medical and research community.

It is heartening to see that patient support groups have been providing invaluable support for patients suffering from smell and taste loss post-covid-19, including avenues for olfactory training. Sharing their struggles with similarly afflicted individuals and learning coping strategies from one another will allow patients to feel that they are not alone.

Even as we learn to cope with living in the era of the covid-19 pandemic, we must keep in mind that covid-19 is not merely a simple cough and cold, but may have far-reaching and long-lasting consequences. Persistent smell and taste loss is only one of the many health issues in the disease spectrum of long covid, and it remains clear that more can and must be done for these patients.

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