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Letter to the Editor

Discrepancy in reports of COVID-19 onset of symptoms: are faulty data being collected?

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To the Editor

The world is fighting against the coronavirus disease 19 (COVID-19) pandemic. Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) is the third coronavirus to mutate in the past two decades. The SARS epidemic occurred in 2002 in China, and this was followed by the MERS epidemic in 2012 in Saudi Arabia; the emergence of the novel coronavirus SARS-CoV-2 in December 2019 has led to the current COVID-19 pandemic.

As we are walking in uncharted territory, studies across the globe are being implemented to help decrypt this disease. Most data collection occurs through interviews or medical records. Nonetheless, the first step in collecting patient data is via the patients themselves. As mass testing is yet to become universally available, patient interviews form a decisive key regarding screening.

With the medical sector overwhelmed amid the pandemic, patient interviews tend to be hastened and shortened. Healthcare providers would sometimes opt for prototyped survey charts with binary answers to screen suspicious patients in emergency rooms. However, we noticed that patients have a variable perception of their symptoms, leading to difficulty in data collection. With the virus carrying a taboo connotation in some populations, and amid

the fear of quarantine, patients would deny or trivialize their symptoms. Others, seeking to be eligible for testing, would amplify their symptoms.

We wonder how to analyse data that is potentially founded on imprecise material, as discrepancy in symptom reporting is often discovered when reviewing patient charts. For instance, some would report having a fever and then state feeling 'hot' without having measured their temperature. Others would deny any suspicious contact by staying in home confinement while having guests over. Thus, the objective of our study is to investigate this hypothesis by comparing the data collected from our hospital's questionnaire to that from the Ministry of Health (MoH) form.

This is an observational study, and all data collection was anonymous, thus no approval was required from the ethics committee. The analysis was performed at a tertiary care university hospital, Hotel Dieu de France, in Beirut, Lebanon. We retrospectively assessed the medical records of patients who presented to the 'Flu Clinic' from March 1st, 2020 to April 30th, 2020. The 'Flu Clinic' is a geographic area put up in our hospital dedicated to patients presenting with fever and respiratory symptoms. It is located near the emergency department, with a separate entrance, to avoid potential coronavirus transmission. At the admissions box, patients are asked to answer a questionnaire evaluating COVID-19-related risk factors, such as the presence of cough, dyspnoea or fever, onset of symptoms, recent travel, and potential contact with an infected individual; they are then examined. Following the physician's evaluation, patients are either discharged if no clinical suspicion is established or directed to be tested for SARS-CoV-2. Patients could also be hospitalized. According to the level of suspicion, testing involved taking a nasopharyngeal swab for polymerase chain reaction, or a chest CT scan.

Once directed for testing, patients are required to fill out the MoH form which is almost identical to the admissions box questionnaire.

We chose to compare the 'onset of symptoms' item reported on the admissions box questionnaire to that on the MoH form. We reviewed the medical charts of 79 patients who had presented to the 'Flu Clinic'. The study population was composed of 35 females and 44 males with a median age of 48.5 years (16–88 years).

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Forty-one patients (14 females and 27 males) with a median age of 48.7 years (52%) stated two different dates of onset of symptoms; five of them stated they were asymptomatic at the admissions box, then went on to give a specific date of onset of symptoms on the MoH form. The median difference of days reporting onset of symptoms for this group was 2.5 days (range 1–10 days). Thus, 52% of patients had discrepancies in data recollection when analysing the differences between the onset of symptoms reported on admission, and several minutes later when filling in the MoH form.

Over half of the patients did not recall the exact date of symptom onset. Several differences were also noted between the two questionnaires regarding encounters with sick patients, mask protection during these settings, and the likely source of transmission.

The uncertainty we are facing during this pandemic has undoubtedly added to the people's frustration and strain [1]. This has led to decreased concentration and increased stress, which could potentially account for patients' misreporting of their dates of onset of symptoms.

Recently, there has been a large increase in the use of emergency rooms and screening clinics. In these settings, physicians must often rely on medical history obtained from patients over the course of a few minutes, without the convenience of access to old records. In a preliminary investigation, Neugut et al. used medical charts from previous hospital admissions as a marker to evaluate the correctness of patient responses in an emergency room setting. Overall, $62 \pm 4.5\%$ of patients with previous admissions gave accurate responses when asked about the reason for their previous hospitalizations [2]. Bigger studies are needed to evaluate how patient characteristics could be factors in interview accuracy. Although we did not have access to patients' socioeconomic status or educational level, they could potentially have impacted data recall. Moreover, when interviewed by different healthcare workers, patients often report multiple versions of the same story. Corwin et al. report 90 patients with peptic ulcer disease who were asked regarding hospitalization for active ulcer symptoms, and their answers were compared to those found on their medical records. Several differences were noted regarding admission dates and reported symptoms [3].

In this study we focused on the discrepancies in the date of onset of symptoms. Although the incubation period of COVID-19 is wide (within 14 days following exposure) [4], even dates within this range could alter management, albeit not ruling out the diagnosis of SARS-CoV-2. In fact, PCR sensitivity depends on the inoculum, and viral load changes with disease progression [5].

Questionnaires were filled out by healthcare workers. It would be interesting to see whether having the patients write the documents themselves would have provided an additional visual aid to reduce the data discrepancies and recall bias.

History-taking can often be challenging, particularly during anxiogenic circumstances such as the COVID-19 crisis [6].

Author contributions

JC, JM and RW wrote the text. EH, GS and FH collected data. All authors reviewed and revised the manuscript.

Transparency declaration

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