

# COVID-19 Vaccination for Persons With Severe Mental Illnesses: An Indian Perspective

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Amidst the growing concerns due to the second wave of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection, the various available vaccines have come as a respite for the masses. Due to their limited availability, various countries rolled out priority-based programs, where the vaccines are administered in a cascaded manner. Certain groups of the population are placed higher on the priority list because of their vulnerability to contracting SARS-CoV-2 infection, having a more severe presentation, and/or a poorer prognosis. Dynamic interaction between a multitude of risk factors such as age, profession, socioeconomic status, and medical comorbidities might predispose them to these poor outcomes. Despite addressing the prioritization of the vaccines for various vulnerable groups, many of the vaccination programs, including the Indian one, seem to have failed to acknowledge the disadvantage that the people with severe mental illnesses (PwSMI) face in these adverse times.

Severe Mental Illness (SMI) has been defined as “psychological problems that

are often so debilitating that the individual’s ability to engage in functional and occupational activities is severely impaired.”<sup>1</sup> SMI (schizophrenia and severe mood disorders) follow a chronic course,<sup>2</sup> thereby highlighting the long-standing disabilities posed by them. While the



global prevalence of SMI ranges from 0.4% to 7.7%,<sup>3</sup> the recent National Mental Health Survey of India revealed the lifetime and point prevalence of SMI to be 1.9% and 0.8%, respectively.<sup>4</sup>

Even before the COVID-19 pandemic had set in, evidence had shown that PwSMI are more likely to have various medical comorbidities, including respiratory tract diseases and viral diseases, compared to the general population.<sup>5</sup> A higher mortality rate, shorter life span, and less likelihood of receiving a standard level of healthcare for these diseases point toward a lower level of physical well-being in PwSMI.<sup>5</sup> And this trend persists even during this pandemic, where numerous studies have shown a correlation between an existing psychiatric disorder and increased risk of infection with SARS-CoV-2, along with COVID-19-related hospitalization, morbidity, and mortality (almost 2.7 times in SMI, especially schizophrenia<sup>6</sup>) and worse outcomes than other mental illnesses.<sup>7–11</sup>

Here, we focus on the reasons why PwSMI should be prioritized for

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vaccination against COVID-19 and some recommendations about how this can be achieved.

## Why Are PwSMI at Greater Risk?

The higher likelihood of PwSMI getting infected with SARS-CoV-2 and eventually having a worse prognosis can be explained by the following.

### Biological Factors

#### Higher Rate of Medical Comorbidities

Compared to the general population, PwSMI are at a higher risk of obesity, cardiovascular diseases, type 2 diabetes, and respiratory tract diseases (either due to genetic causes or treatment-induced).<sup>5</sup> All of these are risk factors for worse outcomes and can exacerbate the underlying vulnerabilities discussed subsequently. The increased risk persists even if these comorbidities are corrected for.<sup>12</sup> This shows that these are only contributing factors rather than the sole responsible factor. This also refutes the claim that PwSMI would anyway be given priority because of their physical health status.

#### Higher Rates of Substance Use

The lifetime prevalence rates of substance use disorders (SUD) are nearly 50% in PwSMI.<sup>13</sup> Factors that predispose individuals with SUD to getting infected with SARS-CoV-2 include ongoing substance use, inadequate infection control measures, and social disadvantage.<sup>14</sup> Considering smoking, in particular, its prevalence is up to 2-3 times higher in PwSMI than those without a mental illness.<sup>12</sup> The role of smoking in the worse outcome of COVID-19 can be explained by the causation of chronic obstructive pulmonary disease in smokers, which predisposes to worse outcomes in COVID-19.<sup>12</sup> The higher expression of angiotensin-converting enzyme 2 (ACE-2) in bronchial epithelial cells of active smokers can also be another explanation for increased infection of smokers with SARS-CoV-2, although this theory is controversial.<sup>12</sup> Acquisition of substances needs constant social engagement with drug suppliers or stores. When smoking, frequent hand-to-mouth actions and sharing of smoking devices can lead to the spread of infection. Smokers who live in smoke-free

areas may need to leave and return their homes frequently, exposing themselves and others to infection. Smokers may be apprehensive about using alcohol hand sanitizers since they can provide a fire danger if used near a fire source. In addition, the social disadvantage they face may lead to housing, food, and economic insecurity,<sup>15</sup> which can lead to poorer outcomes of infection.

#### Altered Immune Function

SMI is associated with a pro-inflammatory state and a maladaptive functioning of T cells.<sup>12</sup> Childhood adversities, chronic stress, and sleep disturbances also predispose these individuals to a dysregulated immune system.<sup>12</sup>

#### Accelerated Biological Aging

Increasing age is a known factor for poorer outcomes in COVID-19.<sup>16</sup> SMI is associated with the evolving concept of “accelerated biological aging,”<sup>17</sup> which can be thought of as playing a role in the worse outcomes.

### Psychosocial Factors

#### Poor Awareness and Knowledge About COVID-Protective Protocols

An Indian study<sup>18</sup> revealed that 72% of PwSMI did not have adequate knowledge about the symptoms of COVID-19. 64% had inadequate information about the precautionary measures to be taken for the same.<sup>18</sup> PwSMI may be unable to find adequate information on COVID-19, understand the contents and applicability of this information to their situation, and adapt to the continuously changing health safety regulations of “respiratory etiquette,” including usage of masks and social distancing.

#### Treatment Challenges if Infected

Help-seeking and getting adequate treatment are a challenge in this population due to stigmatization, discrimination, erroneous beliefs, and negative attitudes.<sup>12</sup> Dedicated COVID facilities might even be reluctant to admit floridly symptomatic PwSMI for many of these reasons, even if there is a clear indication for the same. The symptomatology of COVID-19 reported by these patients often might be misinterpreted by physicians as their “psychiatric symptoms” and thereby ignored. In many cases, the symptoms of SMI might themselves act as barriers to help-seeking. For

the management of agitation in cases of SMI, in particular in hospitals, benzodiazepines are commonly used. However, many doctors of other specialties are not aware that these benzodiazepines are not weak respiratory depressants<sup>21</sup> that might further complicate the clinical picture of COVID-19. Another challenge in this population is the use of corticosteroids, which are known to cause psychotic symptoms,<sup>22</sup> thereby causing further damage to their mental health.

#### Other Psychosocial Risk Factors

Social exclusion and loneliness are associated with dysregulated antiviral immunity, which can be thought of as a cause for poor outcomes in SMI.<sup>19</sup> In addition, socioeconomic deprivation, poverty, and homelessness also predispose PwSMI to higher infection rates.<sup>12,20</sup>

Thus, PwSMI are at a higher risk of not only contracting COVID-19 but also having poorer outcomes and not getting adequate medical care. Including SMI in the comorbidities as a priority group for COVID-19 vaccination is thus very important.

### Global Scenario on Priority Vaccination

Various countries are at different stages of developing and putting into practice their plans. Nevertheless, systemic efforts have been initiated to facilitate the inclusion of PwSMI in the priority list for COVID-19 vaccination. A glimpse of the same is provided in **Table 1**.<sup>23,24</sup>

### Indian Scenario

Let us look at the Indian scenario, where the world’s largest vaccination drive is underway.<sup>30</sup> As per the recommendations by the National Expert Group on Vaccine Administration for COVID-19 (NEGVAC) constituted in India, the vaccine was offered on a priority basis to healthcare workers and various other frontline workers, and later, to persons above 60 years, followed by individuals older than 45 years with associated comorbidities.<sup>31</sup> These comorbidities are enlisted in **Table 2**.

The last criterion in the list does mention individuals with disabilities having high support needs/multiple disabilities. Though this does not exclude PwSMI, it will be a cumbersome process

TABLE 1.

**Countries Providing Priority Vaccination to PwSMI (Tier 1 is the Highest Priority Risk Comorbidities)**

Country	Level of Priority	Timeline	Additional Comments
United Kingdom	Tier 2	December 2020	Priority laid out for PwSMI and their caregivers (professional or unpaid/family carer role). <sup>25,26</sup>
Denmark	Tier 1	December 2020	After a Danish study revealed that SMI and use of antipsychotics are associated with increased mortality, <sup>27</sup> the Danish Health Authority urged healthcare professionals to refer patients with psychotic disorders and other individuals with complex, severe mental illness deemed to be at particularly high risk by the physician for priority vaccination. <sup>24</sup>
Netherlands	Tier 1	January 2021	Priority vaccination of patients with mental health issues that are treated in hospital (including forensic care) and the employees of the mental health crisis services. <sup>28</sup>
Germany	Tier 1	February 2021	Care workers who look after the mentally ill also given priority among various other priority groups. <sup>29</sup>

TABLE 2.

**List of Comorbidities Making 45- to 59-Year-Old Individuals Eligible for Vaccination in the Second Phase of the Vaccination Program in India<sup>32</sup>**

Heart failure with hospital admission in past one year
Post cardiac transplant/left ventricular assist device (LVAD)
Significant left ventricular systolic dysfunction (LVEF <40%)
Moderate or severe valvular heart disease
Congenital heart disease with severe PAH or idiopathic PAH
Coronary artery disease with past CABG/PTCA/MI AND hypertension/diabetes on treatment
Angina AND hypertension/diabetes on treatment
CT/MRI documented stroke AND hypertension/diabetes on treatment
Pulmonary artery hypertension AND hypertension/diabetes on treatment
Diabetes (> 10 years OR with complications) AND hypertension on treatment
Kidney/liver/hematopoietic stem cell transplant: recipient/on wait-list
End stage kidney disease on hemodialysis/CAPD
Current prolonged use of oral corticosteroids/immunosuppressant medications
Decompensated cirrhosis
Severe respiratory disease with hospitalizations in last two years/FEV1 <50%
Lymphoma/leukemia/myeloma
Diagnosis of any solid cancer on or after July 1, 2020, OR currently on any cancer therapy
Sickle cell disease/bone marrow failure/aplastic anemia/thalassemia major
Primary immunodeficiency diseases/HIV infection
Persons with disabilities due to intellectual disabilities/muscular dystrophy/acid attack with involvement of respiratory system/persons with disabilities having high support needs/multiple disabilities including deaf-blindness

for them to avail of the benefit. Hence, a discrete mentioning of a category for SMI should be ensured. This will also make the local authorities providing vaccination at the ground level aware of

it, who otherwise might not be able to appreciate this “invisible disability.”

In a populous country like India, where the lifetime prevalence of SMI is 1.9%,<sup>4</sup> leaving this population out would

be a big miss. Evidence has shown that the severity of outcomes due to SARS-CoV-2 infection in PwSMI is similar to that of people with cardiac, pulmonary, or autoimmune issues.<sup>23</sup> So, if the latter group of diseases can find a place in the aforementioned list, a provision for SMI should also be made. The highly prevalent stigmatization of PwSMI in India<sup>33</sup> further strengthens our recommendation for the need for the same.

A public interest litigation was filed to fight for the above cause; however, the same was termed “not desirable” by the Government of India.<sup>34</sup> The NEGVAC felt that “decision regarding prioritization is based on scientific evidence, principles of equity, WHO guidelines and hence there was no need to change or alter or modify the criteria for the present.”<sup>34</sup> However, the above-mentioned evidence pointed in this article certainly calls for a relook of the current policy.

**The Way Ahead**

Steps need to be taken at various levels to ensure priority delivery of the vaccines to PwSMI. As highlighted above, policy changes are warranted to explicitly mention this group of people in the priority list of vaccination. Various stakeholders in mental health care, including mental health professionals, user groups, caregivers, and representatives from nongovernmental organizations working in this field should be made a part of the committees involved in decision-making for the vaccination of this group in particular.

In addition, it is the responsibility of the mental health professionals to be “vaccine advocates” and update this population about the information for the need for vaccination and the safety and efficacy of the various available vaccines. They should also be prepared for various doubts and questions, especially regarding any specific side effects or possible drug interactions. In addition, advice should be provided for lifestyle modifications, like smoking cessation and measures to prevent and treat metabolic syndrome, so that the poor prognostic factors of COVID-19 are taken care of.<sup>35</sup> They should also ensure that COVID-appropriate behavior is followed at their institutes and that their health-care staff



is vaccinated and adequately educated about the precautions to be followed.<sup>35</sup>

The caregivers of PwSMI also need to be proactive in getting their patients vaccinated at the earliest. By virtue of their proximity, they are the best people to educate the patients about the need for vaccination and encourage a discussion about the same with their treating psychiatrist. Also, they should accompany these individuals to the vaccination centers, especially if they are actively symptomatic.

The challenges PwSMI might face during the entire process of vaccination also need to be addressed. If they don't have any caregivers, concerns about booking an appointment for the vaccination might be common because of their cognitive disability.<sup>36</sup> This can be overcome by keeping in place a simpler method for them to register for the same, where they should not have to go through a process that might be cumbersome for them. Also, a greater number of doses increases the likelihood of missing the subsequent doses. Hence, the use of vaccines like the Sputnik V should be considered, especially for this population, where a single dose can provide a partial protective effect.<sup>37,38</sup> The efficacy of these might not be equal to that of the other two-dose regimens, but it would still be better than not vaccinating this vulnerable group at all.

An American study that focused on vaccination in PwSMI reported increased vaccination rates if such drives were carried out at a mental health establishment.<sup>39</sup> This can be possibly extrapolated to the vaccination drives in other countries, including India, as well. Having these drives at such centers also ensures that floridly symptomatic patients can be managed appropriately by mental health experts if at all any urgent intervention is required. A vaccination drive was conducted at National Institute of Mental Health and Neurosciences, Bengaluru, for the chronically mentally ill PwSMI, majority of whom are long-stay patients. Personal communication with the institute revealed that as of June 2021, out of a total of 81 patients in the closed wards, 60 (74%) had been completely vaccinated, with an additional 15 (19%) having received the first dose of the vaccine. This can serve as an example for many other mental health establishments in

the country. Also, regularly reserving a particular number of vaccination slots at these establishments for PwSMI might help improve the vaccination rates in this underserved population. While this can be achieved relatively easily at long-stay facilities and rehabilitation homes, most PwSMI reside in the community, and hence our advocacy for proactive steps for them.

Also, learning from the global scenario (see **Table 1**), consideration should be given to prioritizing vaccination for the caregivers of PwSMI too. These caregivers should include the professional staff at various institutions and establishments and the nonpaid caregivers, who are family members in most cases. This will not only ensure that the caregivers are protected from the infection but also significantly reduce the chances of PwSMI getting infected.

The Mental Health Care Act in India, which is in place for the protection of the rights of the mentally ill, entitles the nominated representative (NR) to make treatment-related decisions for PwSMI if they do not have the capacity.<sup>40</sup> In a situation where the NR denies the vaccine for a PwSMI, then the further course of action is something worth pondering upon. If the PwSMI are found to have the capacity, they themselves take those decisions.<sup>40</sup> If they refuse to take the vaccine, then what would be the way ahead also needs to be thought of.

Another interesting but contrasting perspective on this can be illustrated from the consideration that lower vaccine coverage in high-risk groups does not always equate to the low impact of the vaccine program.<sup>41</sup> Expanding this finding to the COVID-19 vaccination program, even if the vaccine uptake falls short in the vulnerable group, health benefits may still be realized in terms of disease burden reduction. Having said that, this does not discount the fact that priority vaccination and special facilities for the same for vaccinating PwSMI is the need of the hour. This will benefit these individuals and help break the chain of transmission of SARS-CoV-2 in an efficient way.

Since May 1, 2021, all individuals above 18 are being vaccinated in India.<sup>42</sup> This is a welcome step since nearly three-fourths of mental illnesses have their onset by the age of mid-20s.<sup>43</sup> However,

since the supply of vaccines is limited, prioritization in this age group is also warranted.

A positive development is that some local authorities have started to recognize individuals with mental illnesses in the priority groups for vaccination, as is evident in a recent development in Bengaluru.<sup>44</sup> Similar steps need to be taken at the national level to ensure faster vaccine distribution to this vulnerable group. Efficient intersectoral coordination between the concerned governmental bodies, relevant nongovernmental organizations, and bodies of mental health professionals is warranted to achieve the said target.



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