

# Comparing the Need for Recovery in the Operating Room Practitioners with and Without Covid-19 Infection History

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## Abstract

**Background:** Healthcare staff are at the heart of the covid-19 pandemic and play an important role in controlling this disease. Operating room practitioners could be contaminated by a coronavirus, which imposes a high pressure on them, affecting their need for recovery from work. This study aimed to compare the need for recovery in the operating room practitioners with and without covid-19 infection history.

**Methods:** This cross-sectional study was conducted in the operating room department of a public hospital on 217 operating room practitioners, including Operating room technicians, anaesthesiologists, and service staff. The data collection tools were a demographics questionnaire and the need for recovery scale. Descriptive statistics, independent sample t-test, and one-way ANOVA were used for data analysis.

**Results:** The mean and standard deviation of the need for recovery score in the studied population were  $71.30 \pm 21.40$ . The practitioners with covid-19 infection history had a significantly higher need for recovery ( $P=0.001$ ) than those without covid-19 history. In addition, the service staff had a higher percentage of covid-19 infection and had more need for recovery than operating room technicians ( $P=0.014$ ).

**Conclusion:** The operating room practitioners with a history of covid-19 infection had a significantly higher need for recovery than those without a history of infection. Therefore, protecting the operating room practitioners against covid-19 infection is the first step in preventing the excessive need for recovery levels. In addition, increasing the number of operating room staff, reducing the number of working hours, and paying more attention to their work-life quality can help reduce their need for recovery.

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## Introduction

The Covid-19 pandemic is one of the most stressful events in the current century.<sup>1</sup> The Coronavirus outbreak is a public health emergency that affects many people and causes deaths worldwide.<sup>2</sup> In addition to health-related problems, this virus has caused financial issues and economic

crises, and psychosocial problems.<sup>3</sup> The covid-19 has caused the hospitalization of the infected people because of pneumonia-type syndromes,<sup>4</sup> so healthcare systems could become full of patients.<sup>5</sup> Hospitals are hot zones for treating and transmitting this disease.<sup>6</sup> This virus outbreak has affected health centers significantly by changing rules and overwhelming the capacity of resources.<sup>7,8</sup>

Healthcare workers have a high risk of infection and death due to covid-19.<sup>9</sup> Healthcare workers are the most exposed working group to the covid-19,<sup>10</sup> who are directly involved in the care of infected patients.<sup>1</sup> They are at the heart of the covid-19 crisis and face many challenges.<sup>11</sup> Operating room practitioners risk coronavirus infection,<sup>5</sup> as their workplace is a high-risk zone for transmission of respiratory infections such as covid-19.<sup>6</sup> Contamination of operating room practitioners during surgery is a known issue that could be prevented.<sup>12</sup> The covid-19 pandemic has imposed many challenges on operating room practitioners.<sup>13</sup> Physical and mental problems, such as fatigue, burnout, and sleep disturbance<sup>14, 15</sup> can affect healthcare staff beyond the risk of infection during the covid-19 pandemic, so protecting them is a priority.<sup>16</sup>

The workplace's stressful situation, high workload, and fatigue can affect healthcare practitioners' work and personal life.<sup>17</sup> The need for recovery is one of the most critical factors that affect the mental and physical conditions of the workforce.<sup>18</sup> Through recovery, workers' functional system returns to pre-work or pre-stress level.<sup>19</sup> Recovery from work is the time when a person needs to return to a normal level of function after working time<sup>20</sup> and is directly related to short-term effects of fatigue and workload.<sup>21</sup> The need for recovery load reaction can be pictured as a temporary feeling of overload, reduced performance, lack of energy, irritability, and social withdrawal.<sup>22</sup> Incomplete recovery from work results in a high need for recovery and could result from high job demands.<sup>21</sup> Furthermore, excessive need for recovery could result in health complaints and work accidents.<sup>23</sup> The study of psychological burden and exhaustion in healthcare staff is important because it can lead to medical errors, decreased productivity, and a lack of empathy in treating patients.<sup>24</sup> Due to the difficulties that covid-19 infection poses to the healthcare staff, in this study, we assume that the need for recovery in the healthcare staff with covid-19 infection history is more than those without infection history. There is no similar study addressing this issue. Therefore, we aimed to compare the recovery need between the operating room practitioners: groups with and without a history of Covid-19 infection.

## Methods

This cross-sectional study was conducted in the operating room of a public hospital during the 2021 winter. This hospital was selected because of many covid-19 positive cases among operating room personnel that enable us to make a better comparison between the practitioners with and without a history of Covid-19 infection. All the operating room practitioners were invited to participate in this study. The trainees were excluded because they do not regularly work in the surgical parts. The operating room technicians, anaesthesiologists, and service staff

agreed to participate. The inclusion criterion was a willingness to participate in the study. From all 281 practitioners of these working groups in the selected hospital, 220 agreed to participate in this study. Finally, data were collected from 217 participants who fully completed the questionnaires.

The data collection tools were two questionnaires. The demographics questionnaire was used to obtain information about age, work experiences, gender, academic education level, and the history of Covid-19 infection. The need for recovery scale was the other tool utilized to assess the need for recovery in the studied populations. This scale is a part of the experience and evaluation of work questionnaire (VBBA) designed by Valdhoven and Meijman.<sup>25, 26</sup> This valid and reliable tool<sup>27, 28</sup> includes 11 questions with a two-option "yes" and "no" answer for each. Each "yes" has 9.09 points, except for question number four where "no" answer has 9.09 points. The maximum score is 100. An overall score of 45.45 or higher reflects a high need for recovery in a worker.<sup>29</sup> The Persian version of the tool has shown enough validity and reliability in a previous study.<sup>30</sup>

The researchers asked for necessary permissions before starting data collection. The ethics committee of Shiraz University of medical sciences approved this study. Then, the researchers presented themselves and described the aim of the study to the operating room practitioners. The researchers explained to the study population that they were free to participate and that there was no obligation. They assured the participants that their data and personal information would remain confidential. Then, the questionnaires and informed consent forms were distributed among the studied population. After two weeks, the questionnaires were collected.

The data analysis was conducted using SPSS software version 22. Mean and standard deviation were used to describe the need for recovery scores. The one-way ANOVA test was used to compare the need for recovery scores in different working groups. The independent sample T-test was used to compare the need for recovery scores between the practitioners with and without a history of covid-19 infection. The significance level was 0.05.

## Results

The mean and standard deviation of age and work experience were  $33\pm 7.23$  and  $7.15\pm 5.69$  years, respectively. Table 1 shows the demographics of the studied population based on Covid-19 history.

The mean and standard deviation of the need for recovery scores for the studied population were  $71.30\pm 21.40$ . Furthermore, 203 participants (93.5%) had a high need for recovery. Table 2 shows the scores of the need for recovery in two studied groups

**Table 1:** Demographics of the studied population based on Covid-19 history

Demographics	Total	With history	Without history
Mean age (SD) year	33±7.23	33.54±7.24	32.38±7.20
Mean work experience (SD) year	7.15±5.69	7.89±6.01	6.31±4.00
Gender-no. (%)			
Men	102 (47%)	58 (50.4%)	44 (43.1%)
Women	115 (53%)	57 (49.6%)	58 (56.9%)
Academic degree-no. (%)			
Diploma	59 (27.18%)	50 (84.74%)	9 (15.26%)
Associate's degree	20 (9.21%)	11 (55%)	9 (45%)
Bachelor's degree	132 (60.82%)	51 (38.63%)	81 (61.37%)
Master of sciences	6 (2.76%)	3 (50%)	3 (50%)
Job title-no. (%)			
Operating room technician	99 (45.62%)	40 (40.40%)	59 (59.60%)
Anaesthesiologist	47 (21.65%)	18 (38.3%)	29 (61.7%)
Service staff	71 (32.71%)	57 (80.28%)	14 (19.72%)

**Table 2:** Comparison of the need for recovery scores between two studied groups

Item	NFR** With Covid-19 history	NFR** Without Covid-19 history	Independent sample T-test result (Sig.)
I find it difficult to relax at the end of a working day.	73.04	58.74	0.019*
By the end of the working day, I feel really worn out.	93.91	86.27	0.064
Because of my job, I feel rather exhausted at the end of the working day.	68.70	57.74	0.098
After the evening meal, I generally feel in good shape.	73.91	67.65	0.312
I only start to feel relaxed on the second non-working day.	66.09	58.80	0.341
I find it difficult to concentrate in my free time after work.	73.04	55.78	0.008*
I cannot really show interest in other people when I have just come home.	69.57	51.96	0.008*
Generally, I need more than an hour before I feel completely recuperated after work.	93.91	90.20	0.318
When I get home from work, I need to be left in peace for a while.	73.04	71.57	0.880
Often, after a day's work, I feel so tired that I cannot get involved in other activities.	74.78	70.59	0.491
A feeling of tiredness prevents me from doing my work as well as I normally would during the last part of the working day.	73.91	58.82	0.019*
Total Score	75.81	66.22	0.001*

\*Statistically significant;\*\*Need for Recovery

separately for each questionnaire item. The results of the independent sample T-test for each item are included, too. The need for recovery mean score was significantly higher in the participants with a history of Covid-19 infection ( $P=0.001$ ). Approximately, 97% of the participants with a history of infection suffered a high need for recovery. This amount for those with no history of Covid-19 infection was 89%.

The service workers had the highest need for recovery compared to the other two working groups. The comparison of the need for recovery in the participants from triple job titles by the One-way ANOVA test showed that the service staff had a significantly higher need for recovery than operating room technicians (between-group sig.=0.014, and Bonferroni posthoc test sig=0.018).

## Discussion

This study aimed to compare the need for recovery between the operating room practitioners with and without covid-19 infection history using the need for recovery scale. The practitioners with covid-19 infection history had a significantly higher need for recovery than

those without a history of infection.

The results showed that the studied population had a high need for recovery. This result is similar to the studies on emergency physicians<sup>31</sup> and emergency department staff,<sup>32</sup> that reported a high need for recovery after work. It seems that the healthcare staff, especially those who work in emergency wards and operating rooms, feel more exhausted than others and need more recovery after work. These similar results could be due to the entity of the work situation that is stressful and demanding. However, our results are not in line with the studies on nurses in different hospital wards<sup>33</sup> and other professions or populations<sup>30, 34, 35</sup> that reported a low need for recovery levels. The operating room practitioners experience more mental and physical pressure than other working populations. The higher need for recovery in service staff could be due to their more physical duties than the other two studied working groups. Maybe their level of education and psychosocial support can be the reasons for these findings.

In this study, the operating room practitioners with a history of covid-19 infection reported more need for recovery than those without a history of infection. We

did not find any similar research comparing these two groups. However, it has been revealed that fatigue is the most common symptom which could persist after acute covid-19 infection.<sup>36</sup> The need for recovery is an early measure of fatigue.<sup>37</sup> Therefore, it seems that covid-19 infection causes fatigue and related symptoms that can increase the need for recovery among survivors. Persistent fatigue following a covid-19 illness is a common symptom that impacts the healthcare system staff and their quality of life.<sup>38</sup> Therefore, it is very important to protect the operating room practitioners against covid-19 infection to reduce their need for recovery and fatigue. Increasing the awareness of healthcare workers, using sufficient personal protection equipment, and having proper preparedness, could help lower the risk of infection.<sup>39</sup>

As the need for recovery is more in the personnel with a history of covid-19 infection, the operating room managers could pay more attention to them in decreasing their need for recovery. The operating room practitioners with a history of covid-19 infection could feel more over-worked than others and may be more prone to errors that could be fatal in the operating rooms. Medical systems should ensure that the healthcare staffs have enough time to rest,<sup>40</sup> so reducing the number of working hours could be helpful. Policy-making solutions in the operating room wards and increasing the number of working staff can be useful in lowering the need for recovery. Good teamwork among the operating room practitioners can help facilitate their duties.<sup>41</sup> Decreasing the physical and mental demands of work in the operating room can be facilitated by reducing the number of elective surgeries, as emergency surgeries pose a high burden to the operating room workers.<sup>12</sup> Improving coping strategies in the operating room practitioners could help them deal better with the stressors and fatigue. Paying attention to the existing recommendations to minimize the effects of the covid-19 pandemic on surgical practice could help protect the operating room practitioners against infection.<sup>13</sup>

This study had several limitations. As this research was a cross-sectional study, the cause and effect of the relationship between the variables could not be determined. Furthermore, we did not study other occupational groups working in the operating room, such as surgeons. Future research can be conducted on all operating room practitioners and could use laboratory tests to know the causes of the need for recovery.

## Conclusion

The operating room practitioners with a history of covid-19 infection had a significantly higher need for recovery than those without a history of infection. Therefore, protecting the operating room practitioners against covid-19 infection is the first step in preventing the excessive

need for recovery levels. In addition, solutions such as reducing the working hours, increasing the number of operating room personnel, improving coping skills, reducing the number of elective surgeries, and following the recommendations that could keep the operating room practitioners safe against infection can be useful.

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