


ORIGINAL ARTICLE

The association between attitude towards facemasks, quality of donation experience and relationship with healthcare providers: A cross-sectional exploratory study

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Abstract

Background and Objectives: Facemasks represent an essential measure of prevention against the spread of infectious diseases; however, they lessen the ability to convey and understand emotions through facial expressions. In blood donation settings, facemask wearing could interfere with professionals' tasks, reduce the satisfaction of blood donors and affect their future blood donation behaviour. This preliminary cross-sectional study explored the association of mandatory facemask wearing with the quality of the blood donation process at the end of the coronavirus 2019 (COVID-19) pandemic.

Materials and Methods: A sample of 615 voluntary unpaid Italian blood and plasma donors completed an online survey assessing their attitude towards facemask wearing, the perceived distress due to facemasks in the different steps of the donation process, self-reported vasovagal reactions after donation and the intention to donate again.

Results: Nearly 24% of donors reported a worsened quality of the donation process due to facemask wearing, and 36% reported moderate to severe distress during the donation itself. Donors with a more negative attitude towards facemasks reported a worse donation experience, mainly related to the interactions and the communication with physicians and nurses, and a higher probability of experiencing vasovagal reactions at their last donation. No significant correlations were observed between negative facemask attitudes towards facemask wearing, distress or future intention to donate blood/plasma.

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Conclusion: Facemasks have worsened the quality of blood and plasma donations for one fourth of donors, confirming the interference with the quality of communications and relationships with healthcare professionals.

Keywords

adverse reactions, blood donation, communication, distress, facemasks, intention to donate

Highlights

- Facemasks have worsened the quality of the donation experience, especially regarding communications with healthcare providers.
- Donors with negative attitudes towards facemasks are more likely to report vasovagal reactions after donation.
- Facemasks do not reduce the intention to donate in the following 6 months.

INTRODUCTION

Blood and blood products are essential resources for healthcare systems worldwide. During times of crisis and health emergencies, the demand for these products becomes much more compelling. During the coronavirus disease 2019 (COVID-19) pandemic, a serious shortage of blood products due to a reduction in active blood donors was registered [1] with up to a 38% decrease in blood donations [2]. Donors who adhered to COVID-19 preventive measures were less likely to donate blood [2]. Studies focusing on motivational factors demonstrated differences between COVID-19 convalescent and non-convalescent plasma donors, with higher donor-return rates among the latter [3]. Donor satisfaction remains a crucial factor influencing future donations during COVID-19 [4, 5], with donors who felt unsafe reporting lower intentions to return to donate [6]. It is well-established that critical factors related to donor satisfaction include the quality of healthcare interactions and the detection and prevention of adverse reactions. In particular, studies have indicated that the good interpersonal skills of nurses and the availability of social support can reduce the likelihood of adverse reactions and improve the likelihood to return for future donations, among blood donors [7, 8]. Furthermore, research suggests that adverse reactions experienced during initial donations can forecast donor dropout and reduce the likelihood of subsequent donations, especially among new donors [9, 10].

Until May 2023, several measures were implemented to reduce the risk of COVID-19 infections and to guarantee the health of both blood donors and recipients. These measures included scheduling donations and registration procedures, limiting the number of donors in waiting rooms, spacing out chairs and beds, regularly sanitizing donors' hands, disinfecting equipment and mobile units and minimizing close contact between donor and medical staff. However, the measure that mostly impacted the donation process was the mandatory use of facemasks for donors and healthcare professionals [11]. Although facemask mandates played an essential role in curbing the spread of the virus, they also profoundly impacted the quality of communication and relationships between healthcare providers and

patients in many healthcare contexts [12–15] by limiting the ability to identify people and express and recognize emotions and interfering with communication processes. Specifically, facemasks have been proven to hinder the ability to recognize the identity of a known person [16, 17]. This aspect can be relevant in healthcare settings where personal acquaintance between providers and patients can facilitate trustful interactions; when considering the blood donation context, facial recognition can be considered fundamental, as regular donors are often known by healthcare staff. Furthermore, facemasks can disrupt emotion recognition [18, 19], which has a pivotal role in general human interactions, and more specifically in healthcare where the ability to properly recognize emotions can be important to recognize patients' discomfort, anxiety and distress and promptly address them. In blood donation settings, it is particularly relevant to correctly and promptly detect anxiety, often linked to fear of needles or blood, and early signs of side effects, such as vasovagal reactions.

Facemasks may also impact verbal and non-verbal communication. Specifically, facemasks interfere with acoustic vocal expression [20], leading individuals to raise their voices or repeat information to ensure clarity. Moreover, they hinder non-verbal cues [21], which are crucial during many stages of the blood donation procedure, including donor counselling and donation monitoring. Only two previous studies have assessed the impact of facemasks on the donation process. The first one [12] reported that facemasks impaired clinicians' ability to communicate with donors. The second one [22] reported higher vasovagal reaction rates among blood donors in 2020 and 2021 compared with previous years, linking these data to facemask wearing during the COVID-19 pandemic. Despite these worrying figures, data exploring the donors' perspective on the facemask mandates during the COVID-19 pandemic are missing.

This exploratory cross-sectional study aimed to evaluate the association of the mandatory facemasks policy on different aspects of the donation process from the donors' perspective. In particular, it sought to address the following questions:

1. Did the implementation of mandatory facemask wearing lead to a decline in the quality of the donation experience? Which stages of

- the donation process were perceived as more affected by the introduction of mandatory facemask usage?
2. Did donors who hold negative attitudes towards facemasks show a decreased likelihood of donating within the next 6 months? Additionally, did they report experiencing more adverse post-donation reactions?
 3. Did donors who hold negative attitudes towards facemasks are more likely to wear surgical facemasks compared to Filtering Face Piece (FFP2)?

METHODS

Participants and procedure

All the voluntary unpaid whole blood and plasma donors who donated whole blood or plasma between September 2022 and February 2023 at the blood donation centre of Associazione Volontari Italiani del Sangue - Italian Association of Blood donors (AVIS) Provinciale Bergamo ($n = 16,811$) were invited by email to participate in the study. AVIS Provinciale Bergamo sent the email invitation (as part of their monthly newsletter) only to donors that had donated whole blood or plasma within the previous 6 months. The invitation included a study description and the Google form link for participation. Before completing the survey, participants were asked to sign the informed consent form digitally. The average time to complete the survey was 15 min. This study was approved by the Ethical Committee of the University of Milano-Bicocca (protocol no. 624/2021).

Measures

The survey included the following assessments:

1. Subjective vasovagal symptoms after the most recent donation were assessed using the four-item version of the Blood Donation Reactions Inventory (BDRI) [23] that include four sensations (faintness, dizziness, weakness and light-headedness) rated on a 6-point Likert scale from 'not at all' to 'to an extreme degree' with higher scores indicating greater symptoms.
2. Attitude towards facemasks was assessed using a 12-item scale [24], rated on a 7-point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree. The scale provides a global measure of negative attitudes towards facemasks. It includes six domains (ineffectiveness of facemasks, mask-wearing as an inconvenient habit, masks as aesthetically unappealing, masks as an interpersonal barrier and physical inconvenience—difficulty breathing and overheating).
3. The distress of wearing a facemask was measured through an ad-hoc developed item ('How much distress did you feel when wearing a facemask?') rated on a 7-point Likert scale ranging from 1 (not at all) to 7 (very much). This question was asked for each of the four steps of the donation process (i.e., waiting room, welcoming procedure, medical visit, donation).

4. Attitudes towards maintaining facemasks in blood/plasma donation services in the future for donors, healthcare providers (physicians and nurses) and administrative staff were assessed on a 7-point Likert scale ranging from 1 (not at all) to 7 (very much).

A subset of questions focused on the impact of facemasks on different aspects of the donation experience was also completed by those participants who had made at least one donation before the introduction of mandatory facemasks:

1. 'How has your donation experience changed after the introduction of facemasks?' rated on a 7-point Likert scale ranging from 1 (strongly worsened), 4 (not changed), 7 (strongly improved).
2. 'How has the length of the welcoming procedure/medical visit/donation changed after the introduction of facemasks?' rated on a 7-point Likert scale ranging from 1 (strongly lengthy) to 7 (strongly shortened).
3. 'How has the quality of communication/relationship with doctor/nurse changed during the medical visit/donation procedure after the introduction of facemasks?' rated on a 7-point Likert scale ranging from 1 (strongly worsened), 4 (not changed), 7 (strongly improved).
4. Finally, participants indicated the type of facemask mainly used for the donations (surgical vs. FFP2) and indicated their intention to donate again answering the question 'How likely is it that you donate blood or plasma in the next six months?' on a 7-point Likert scale ranging from 1 (very unlikely) to 7 (very likely).

Analysis

The descriptive analysis determined the study variables' mean values and standard deviations. Pearson's zero-order and partial correlations were conducted to explore the associations between variables. *T*-tests were employed to compare donors who utilized a surgical facemask with those who used an FFP2 facemask. Cohen's *d* was computed to assess effect sizes for the *t*-tests. The significance level was set at $p < 0.05$. All statistical analyses were conducted using SPSS 26.

RESULTS

In total, 632 donors—out of the 16,811 donors who received the invitation email—filled in the survey. However, 18 did not provide informed consent, and therefore, 615 donors (64.1% males, whose most recent donation was of whole blood for 67.0% and plasma for 33.0%) were included in the analysis (response rate 3.66%).

The mean age of donors was 45.42 ± 11.80 years (range, 18–70 years).

All were Italian, 6.9% made 1–2 donations, 8.5% 3–5 donations, 9.3% 6–10 donations and 75.5% more than 10 donations.

Effects of facemasks wearing on donation experience

About 70% of donors reported no effect of the introduction of mandatory facemask wearing on the donation experience, whereas 23.9% reported negative effects. Interestingly, affected donors are younger ($F = 7.930$; $df = 2$; $p < 0.001$; $\eta^2 = 0.028$), reported higher BDR scores ($F = 10.481$; $df = 2$; $p < 0.001$; $\eta^2 = 0.037$) and have a worsened attitude towards facemasks ($F = 68.161$; $df = 2$; $p < 0.001$; $\eta^2 = 0.20$). No gender difference emerged between affected and not-affected donors ($\chi^2 = 0.403$, $df = 2$, $p = 0.817$). Nevertheless, 41% of donors reported moderate to intense distress due to facemask wearing during the overall donation process. When considering the different steps of the donation process (waiting room, administrative procedure, medical visit, donation), the most impacted step was the donation itself, with 36% of donors reporting moderate to intense distress. When asked about the effect of facemask wearing on specific aspects of the donation process, nearly 20% of donors reported worsened communication and relationships with physicians and nurses. The effect of facemasks on the length of donation procedures was further reduced, and nearly 10% of donors reported an increase in the time needed for the donation processes (Table 1). Furthermore, about 55% of donors reported a moderate to strong agreement for maintaining facemasks for healthcare providers (physicians and nurses), while they were less willing to keep them for donors and administrative staff.

A correlation matrix was calculated to verify the relationship between facemask attitude and the quality of the donation experience (Table 2). Significant negative correlations were observed between facemask attitudes, facemask distress and donation experience change (with worse facemask attitudes and higher facemask distress correlated with a worsened donation experience).

The same pattern emerged regarding the quality of doctors' and nurses' relationships and communication with donors: poorer attitudes towards facemasks and higher facemask-related distress correlated with a decline in the quality of healthcare provider-donor communication and relationship.

Finally, a strong positive correlation emerges between age and change in donation experience ($r = 0.166$, $p < 0.001$), with older donors reporting better donation experience. Conversely, a negative correlation was found between age and attitude towards the facemask-physical inconvenience subscale ($r = -0.160$, $p < 0.001$), with older donors reporting a more positive attitude.

Effect of attitudes towards facemasks wearing on donation intention and adverse reactions

A partial correlation matrix was calculated to verify the relationship between facemask wearing, the intention to donate again in the following 6 months and subjective vasovagal reactions at the most recent donation, controlled by the age of donors. Although none of the variables considered correlated with the intention to donate, there was a strong correlation between BDR total score, and the attitudes towards facemasks-physical inconvenience (Table 3).

TABLE 1 Descriptive statistics of the impact of facemasks on donation and willingness to maintain facemasks.

| | Mean \pm standard deviation | % |
|--|-------------------------------|--|
| Change of donation experience after introduction of mandatory facemasks ^a | | 23.9% (worsened, ≤ 3) |
| | | 70.1% (the same, =4) |
| | | 6.0% (improved, > 4) |
| Distress facemask-related | Mean \pm standard deviation | % distress moderate/intense (≥ 4) |
| Total distress | 3.16 \pm 2.105 | 41.1% |
| Distress in the waiting room | 2.66 \pm 2.060 | 29.2% |
| Distress during welcoming procedure | 2.65 \pm 2.055 | 29.1% |
| Distress during medical visit | 2.67 \pm 2.053 | 29.3% |
| Distress during donation | 3.06 \pm 2.203 | 36.5% |
| Quality of relationship and communication | Mean \pm standard deviation | % worsened quality (≤ 3) |
| Quality of doctor-donor relationship | 3.82 \pm 0.897 | 17.3% |
| Quality of nurse-donor relationship | 3.82 \pm 0.929 | 19.2% |
| Quality of doctor-donor communication | 3.77 \pm 0.918 | 19.3% |
| Quality of nurse-donor communication | 3.80 \pm 0.941 | 19.7% |
| Length of donation procedures | Mean \pm standard deviation | % increased length (≤ 3) |
| Welcoming procedure | 3.89 \pm 0.763 | 12.0% |
| Medical visit | 3.89 \pm 0.634 | 10.0% |
| Donation | 3.93 \pm 0.586 | 8.0% |
| Maintenance of facemasks | Mean \pm standard deviation | % agreement moderate/high (≥ 4) |
| For blood donors | 3.55 \pm 2.204 | 47.0% |
| For physicians | 3.93 \pm 2.199 | 55.1% |
| For nurses | 3.95 \pm 2.213 | 55.6% |
| For administrative staff | 3.44 \pm 2.144 | 45.0% |

Note: Higher values indicate higher levels of distress.

^aOnly participants who donated before and after the introduction of facemasks were included in the analysis.

Type of facemasks, attitudes towards them and changes in the donation experience

Donors using surgical facemasks reported higher distress in all the stages of the donation process, along with a more negative attitude towards facemasks and a worsened overall donation experience. No significant differences were observed in communication and relationships with healthcare providers or subjective post-donation vasovagal reactions (Table 4).

TABLE 2 Zero-order correlation matrix between attitude towards facemasks, facemask-related distress and impact on donation experience.

| | Donation experience change (N = 548 ^a) | Doctor relationship change | Doctor communication change | Nurse relationship change | Nurse communication change |
|--|--|----------------------------|-----------------------------|---------------------------|----------------------------|
| Attitude towards facemask—total | −0.392* | −0.262* | −0.230* | −0.219* | −0.219* |
| Attitude towards facemask—ineffective | −0.462* | −0.276* | −0.250* | −0.245* | −0.240* |
| Attitude towards facemask—inconvenient habit | −0.474* | −0.231* | −0.215* | −0.219* | −0.204* |
| Attitude towards facemask—unappealing | −0.341* | −0.186* | −0.161* | −0.157* | −0.161* |
| Attitude towards facemask—interpersonal effect | −0.295* | −0.284* | −0.262* | −0.251* | −0.248* |
| Attitude towards facemask—physical inconvenience | −0.496* | −0.275* | −0.275* | −0.250* | −0.247* |
| Facemask distress | −0.550* | −0.313* | −0.287* | −0.284* | −0.282* |

^aOnly participants who donated before and after the introduction of facemasks were included in the analysis.

* $p < 0.001$.

TABLE 3 Partial correlation matrix controlled by age between attitude towards facemask, facemask distress, future donation intention and BDRI.

| | Likelihood to donate again in the next 6 months | BDRI |
|--|---|--------|
| Donation experience change | −0.038 | −0.077 |
| Attitude towards facemask—total | 0.012 | −0.003 |
| Attitude towards facemask—ineffective | 0.023 | 0.001 |
| Attitude towards facemask—inconvenient habit | 0.013 | 0.050 |
| Attitude towards facemask—unappealing | −0.007 | −0.036 |
| Attitude towards facemask—interpersonal effect | −0.004 | −0.022 |
| Attitude towards facemask—physical inconvenience | 0.039 | 0.155* |
| Facemask distress | 0.039 | 0.052 |

Note: N = 615.

Abbreviation: BDRI, Blood Donation Reactions Inventory.

* $p < 0.001$.

DISCUSSION

To the best of our knowledge, this study represents the first exploration of the association between the attitudes towards facemask wearing with the quality of blood donation process from the donors' perspective. It provides important insights into donors' experiences and attitudes towards facemasks, showing distress, more vasovagal reactions and a worsened quality of the donation experience (mainly in the relationship with healthcare providers) due to facemask wearing.

Although strongly recommended by the Centro Nazionale Sangue [25], currently, the use of facemasks in blood collection sites is no longer mandatory in Italy. However, in hospital settings, facemask mandates may be enforced during certain periods of the year, such as the seasonal flu peak. For these reasons, the data provided by this study could prove invaluable in formulating strategies to enhance blood donors' retention when facemasks must be used, independently of the COVID-19 infection.

While wearing facemasks has not significantly changed the overall quality of the donation experience for the majority of blood and plasma donors, they have been found to have a detrimental effect on nearly one fourth of donors, particularly among younger individuals, with higher BDRI score, and less favourable to maintaining facemasks for themselves, and healthcare professionals. This effect is most pronounced during some specific steps of the donation process. Areas related to communication and relationships with physicians and nurses appear to be the most affected, confirming the results of a qualitative study on healthcare providers in blood donation settings [12].

The positive correlations between BDRI scores and negative attitude towards facemasks (in particular due to the physical inconvenience caused by facemasks such as difficulty to breathe or overheat) suggest that individuals experiencing greater difficulties with facemasks may be at a heightened risk of vasovagal symptoms. A similar pattern was reported in a wide retrospective study on vasovagal reactions [22], which found an increase in vasovagal reactions during 2020 and 2021 compared with previous years, probably due to COVID-19 restrictions such as facemask mandates. Bani et al. [12] reported that nurses perceived a reduction in their ability to detect early signs of vasovagal prodromal symptoms (such as lips and face paleness) in blood donors wearing facemasks. The majority of donors expressed support for the continued use of facemasks by healthcare professionals, beyond the pandemic emergency. However, they were less inclined to endorse the maintenance of facemasks for themselves and administrative staff. These results underscore the recognition among donors of the utility of facemasks in terms of protection and perceived safety, aligning with perspectives previously reported by professionals [12].

TABLE 4 Comparison between facemask types.

| | Surgical (N = 363) M (SD) | FFP2 (N = 241) M (SD) | t | p value | d |
|--|---------------------------|-----------------------|--------|---------|------|
| BDRI | 1.61 (2.81) | 1.39 (2.70) | 0.950 | 0.342 | - |
| Facemask distress | 15.18 (10.34) | 12.32 (8.73) | 3.537 | <0.001 | 0.29 |
| Facemask distress—waiting room | 2.85 (2.15) | 2.29 (1.78) | 3.363 | 0.001 | 0.28 |
| Facemask distress—welcoming procedure | 2.85 (2.15) | 2.28 (1.76) | 3.424 | 0.001 | 0.29 |
| Facemask distress—medical visit | 2.87 (2.15) | 2.29 (1.75) | 3.431 | 0.001 | 0.29 |
| Facemask distress—donation | 3.27 (2.26) | 2.67 (2.01) | 3.341 | 0.001 | 0.28 |
| Donation experience change | 3.60 (0.86) | 3.99 (0.94) | -4.971 | <0.001 | 0.43 |
| Doctor relationship change | 3.78 (0.92) | 3.92 (0.79) | -1.777 | 0.076 | - |
| Doctor communication change | 3.77 (0.92) | 3.82 (0.85) | -0.704 | 0.482 | - |
| Nurse relationship change | 3.80 (0.98) | 3.90 (0.79) | -1.332 | 0.183 | - |
| Nurse communication change | 3.77 (0.98) | 3.88 (0.83) | -1.348 | 0.178 | - |
| Attitude towards facemask—total | 2.32 (1.59) | 1.62 (1.13) | 5.878 | <0.001 | 0.51 |
| Attitude towards facemask—ineffective | 2.69 (1.79) | 1.85 (1.27) | 6.340 | <0.001 | 0.54 |
| Attitude towards facemask—inconvenient habit | 3.35 (1.93) | 2.73 (1.67) | 4.093 | <0.001 | 0.34 |
| Attitude towards facemask—unappealing | 1.79 (1.33) | 1.43 (1.01) | 3.537 | <0.001 | 0.31 |
| Attitude towards facemask—interpersonal effect | 1.84 (1.31) | 1.55 (1.06) | 2.857 | 0.004 | 0.24 |
| Attitude towards facemask—physical inconvenience | 3.51 (1.90) | 2.99 (1.69) | 3.383 | 0.001 | 0.29 |

Note. N = 612 (only three subjects reported to use 'reusable facemasks' and were excluded by this analysis).

Abbreviation: BDRI, Blood Donation Reactions Inventory; FFP2, Filtering Face Piece 2; M, mean; SD, standard deviation.

Regarding the effect of facemask mandates on the perceived duration of the donation process, only a minority of donors noticed an increase in the length of the procedures; most reported that the duration remained unchanged. This perception contrasts with that of physicians and nurses, who reported an increase in the duration of the donation process [12].

Facemask wearing can significantly affect the communication process including giving information, listening to and understanding blood donors, especially when both professionals and donors wear facemasks. Yet, if only professionals wear facemasks, the effect is confined to one member of the interaction, thereby reducing the overall impact on communication.

Physicians and nurses reported that wearing facemasks negatively affected their ability to relate and communicate with blood donors, describing these interactions as less empathic, more impersonal and experiencing overall relational impoverishment [12]. These results are corroborated by the donors' perspective, regardless of the type of facemask used (surgical vs. FFP2). However, it is interesting to note that donors using surgical facemasks reported worse attitudes and higher discomfort towards facemasks compared to those wearing FFP2 masks. This result seems counterintuitive considering the higher distress associated with FFP2 masks [26, 27]. Furthermore, previous studies comparing the impact of different facemasks on acoustic voice measures suggest that surgical masks may be the better choice to minimize the impact on verbal communication [20]. Similar results were reported in other studies [28, 29] that demonstrate that different types of masks generally yield similar accuracy in environments with low levels of background noise, but differences between masks

become more apparent in environments characterized by high levels of noise mainly for homemade cloth masks and N95 respirator.

However, it is possible that donors with a worse general attitude towards facemasks, if forced to use them, may prefer to use the surgical ones, therefore explaining the higher aversion towards FFP2 masks reported by our donors. If this hypothesis proves to be true, it would suggest that surgical facemask wearing could serve as an indirect indicator of donors with more negative attitudes towards facemasks. Consequently, more attention should be directed towards donors wearing surgical facemasks.

Overall, the present work underscores the need to strengthen the relationship between healthcare staff and donors both before and after blood donation to mitigate the detrimental effect of facemask wearing on relational aspects. Although no significant relationship emerges between facemask attitudes and intention to donate in the near future (6 months), the potential long-term impact of facemasks on future donations and donor retention. Our study warns that younger donors are at higher risk of experiencing the detrimental effects of facemask mandates on the donation process.

Some limitations must be considered. First, the sample size is limited to one blood collection centre, and this limits the generalizability of the results. Another limitation is the low response rate, which can be due to the inability to send reminders to participants and the inclusion of the invitation in a general newsletter email from the association involved in the recruitment. These factors can limit the visibility of the research proposal. A further limitation lies in the cross-sectional design of the study that limited the reliability of the donors perception of the use of facemasks on donation experience, and a longitudinal

study is warranted to detect a reliable impact. However, the abolition of the mandatory facemask use makes it impossible for a longitudinal study as well as a replication of a cross-sectional study until the eventual replication of similar conditions.

It is important to note that this survey was done at the end of the COVID-19 pandemic, and the familiarity of participants with the facemasks wearing could have reduced the contrast of the perceived quality of the donation experience.

Another limitation relies on a possible recall bias, as donors were asked to answer to the survey thinking about their most recent donation in a 6 months period.

Finally, the exclusive use of self-reported measures represents another limitation; this is particularly important for the intention to donate in the future, and an objective measure (donation attempts recorded by the donation centre) should be considered in future longitudinal studies. Furthermore, future studies should include objective measures of blood donation side effects (such as registered side effects).

Considering the pivotal role that donor satisfaction has in influencing future donations, particularly among new donors [4, 6, 30, 31], it is extremely important to intensify efforts aimed at balancing the effects of facemasks. This may involve enhancing the level of care provided to donors cultivating the communication and relational aspects of the process, such as dedicating more time to interactions, asking more frequently about their well-being and implementing closer post-donation monitoring.

In conclusion, wearing facemasks worsened the blood donation experience for one fourth of donors, mainly due to difficulties in communication and relationships with physicians and nurses. The long-term effect of facemasks on donor retention requires further exploration. Meanwhile, more efforts are needed to monitor the quality of the donation experience when facemasks are worn.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The study data are not publicly available. Reasonable, Institutional Review Board-approved requests may be addressed to the corresponding author.

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