

## Original research

# Implementation of a community-based referral project to improve access to emergency obstetric and newborn care in Rohingya population during COVID-19 pandemic in Bangladesh

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Received 17 August 2021  
Accepted 28 April 2022  
Published Online First  
23 May 2022



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**To cite:** Barua M, Saha A, Chowdhury S, et al. *BMJ Innov* 2022;**8**:247–254.

## ABSTRACT

**Introduction** The delay in seeking emergency obstetric care leads to significant maternal morbidity and mortality and can worsen during pandemics, especially in humanitarian conflict settings with low uptake of obstetric services. To mitigate the challenges related to the second delay caused by lack of transport in the COVID-19 pandemic, the organisation United Nations Population Fund implements a community-based referral project called Referral Hub in the Rohingya refugee population in Bangladesh. The objective of the paper is to describe the implementation process of the Referral hub and present clients' utilisation and perception of the service.

**Methods** Findings from part of a larger mixed-method study, the analysis of the standard operating protocol of the intervention, secondary data of routine utilisation of the 12 referral hubs between January and August 2020, 21 key informant interviews and a community survey among 100 pregnant women are presented in this paper.

**Results** The findings show an increasing trend in the referral hub utilisation and a strong recommendation of the service.

**Conclusion** Due to a robust referral mechanism by collaborating with the community and engaging accessible and free of cost transport service, the intervention has high potential to improve access to facility care in low-resource and humanitarian contexts, especially during pandemics.

## WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Lack of access to transport for emergency obstetric services is one of the contributing reasons for poor utilisation of obstetric services among the Rohingya refugee population.

## WHAT THIS STUDY ADDS

⇒ This study describes a community-based transport intervention that addresses the second delay associated with seeking emergency obstetric and neonatal care in humanitarian settings by providing free transport with ambulatory facilities and offering a robust referral mechanism.

⇒ Free transport and strong community involvement can increase emergency obstetric and neonatal service utilisation in humanitarian settings where uptake of these services is low, especially during the COVID-19 pandemic.

## HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE AND/OR POLICY

⇒ Strong referral mechanisms incorporating free transport services and strong community partnerships can improve access to obstetric and neonatal care in low-resource and humanitarian settings to reduce maternal morbidity and mortality.

⇒ Due to travel restrictions and shutdown imposed by pandemics, interventions like referral hubs are helpful to improve access to the facility during a pandemic and meet the needs of facility care.

## INTRODUCTION

Around more than half of the refugees living in fragile humanitarian settings worldwide are women and girls of reproductive age who are the most vulnerable when pregnant.<sup>1</sup> However, they continue to be at risk of poor pregnancy outcomes owing to the disparities in the use of maternal and reproductive health services, affecting long-term maternal morbidity and mortality,<sup>2,3</sup> in addition to psychological and physical strain from displacement and resettlement.<sup>4</sup> In general, most maternal deaths occur due to preventable pregnancy-related complications. Therefore, delay to seek care is a significant contributing factor to fatalities in low-income countries, as established in the literature.<sup>5</sup> According to the 'three delay model' conceptualised by Thaddeus and Maine, the delay associated with maternal mortality occurs at three different stages.<sup>6</sup> The first delay is the delay in deciding to seek care; the second delay is in reaching the health facility; the third and final delay occurs in receiving quality care.

Notably, the three delays are more likely to occur during the COVID-19 pandemic for reasons including a hesitancy to seek care due to fear of infection, limited access to transportation because of movement restrictions and lockdown, and reduced availability of obstetrical facilities.<sup>7</sup> Past epidemics such as Ebola have revealed a drastic reduction in facility utilisation for antenatal visits, delivery and postnatal care, thereby leading to a 34% increase in maternal mortality and 24% increase in stillbirths, as a study in Sierra Leone shows.<sup>8</sup> This situation is worse for humanitarian settings where resources are diverted, and basic survival needs related to security, food and water are prioritised over sexual and reproductive health services.<sup>9</sup> Therefore, girls and women living in refugee settings bear the brunt of the double conflict of displacement and pandemics. The second delay is a significant hindering factor of uptake of emergency obstetric services, especially during the COVID-19 pandemic that imposes travel restrictions and leads to disrupted or absence of use of life-saving services, including emergency obstetric and newborn care (EmONC).<sup>10</sup> Such has been the case of the Rohingya refugees in Bangladesh, where the COVID-19 pandemic has impacted the already low uptake of obstetric services and overwhelmed the overall weak health system.<sup>11,12</sup>

Rohingya refugees, also identified as Forcibly Displaced Myanmar Nationals by the Government of Bangladesh, are one of the largest displaced populations in the world. At present, more than 9 115 666 Rohingyas are living at two remote upazilas of Ukiya and Teknaf in the Cox's Bazar district. Despite ensuring the provision of a wide array of Sexual and Reproductive Health services by humanitarian actors in the response, several barriers hinder the uptake of those services by the refugees.<sup>13</sup> Only 17% out of 200 health facilities have 24/7 access, and data shows that 47% of babies in the camps were delivered at healthcare

facilities in 2018.<sup>14</sup> Moreover, due to lack of safety and gender-based violence, women's ability to access 24/7 facilities at night is further limited.<sup>15</sup>

In addition to the reluctance among the conservative Rohingya refugees to give birth at facilities due to their bitter experiences in Myanmar and mixed-gender spaces at facilities,<sup>16</sup> poor roads and infrastructural conditions within the camps discourage the use of facilities for maternal and neonatal services.<sup>17</sup> Women needing emergency obstetric care services either need to walk to a transport or be carried in make-shift stretchers, resulting in much physical and mental distress.<sup>18</sup> Therefore, women prefer to deliver at home to avoid such journeys, often living with complications for days, thus risking their lives and their child to be born.<sup>19</sup> Furthermore, delays could worsen when facilities that provide emergency service are not open 24/7 and transport is absent or limited, as in the COVID-19 pandemic.<sup>19</sup> Access of several international humanitarian groups to the camps have also been stopped, leading to discontinuation of their services.<sup>20,21</sup> Therefore, to access emergency services, emergency patients need a means of transport, especially during the pandemic to reach a facility that is accessible 24/7, this reducing the second delay associated with maternal and neonatal deaths.<sup>22</sup>

Several interventions are implemented in refugee settings to improve access to EmONC, but mostly at facilities.<sup>2</sup> There is limited information on community-based transport interventions. This paper describes one such a transport intervention that can aid in increasing the utilisation of EmONC in low-resource humanitarian settings, not just during pandemics. The community-based referral project 'referral hub' (RH) is set up to meet the critical EmONC referral needs 24/7, especially during the movement restriction of the COVID-19 pandemic, in the Rohingya refugee camps. The description of the intervention is followed by the clients' nature of utilisation and perception.

## METHOD

This paper presents findings of a larger study exploring the barriers and facilitators of implementing RH. The larger study had a sequential explanatory mixed-method design comprising a quantitative phase (household survey) and a qualitative one (in-depth interviews and key informant interviews). The quantitative phase analysed the secondary routine data of utilisation and a short survey among the clients to explore the utilisation of the hub. The qualitative phase constituted of key informant interviews with implementors to understand the fidelity of the implementation (paper vs actual implementation) and associated facilitators and barriers. However, this paper describes the implementation process of RH to inform about the intervention. It also presents data on its utilisation of the clients to show a potential increase in access to and use of facilities.

### Sampling

The routine data of women who used the RH services between January and August 2020 was collected to capture the utilisation of RHs during the first wave of COVID-19. A household survey was conducted among the women who used the RH services in July to explore when and how they used the RH transport and whether they would recommend the service, and why. A focus only on July helped assess the utilisation of both old and new RHs. Those who were pregnant during the survey or had delivered their baby 6 weeks prior were included. A total of 342 women accessed the old and new RHs in this period and made up the sampling frame. Of these, 102 women were selected using proportionate sampling to represent the varieties of obstetric services they received at the facilities. However, the data collectors could reach only 100 women as two moved to a different camp.

### Data collection

Due to the ongoing pandemic and movement restrictions, BRAC James P. Grant School of Public Health (BRAC-JPGSPH) team who led the research could not travel to the study site. Therefore, the survey was conducted by ten field officers (hereafter referred to as data collectors) of another partner organisation of United Nations Population Fund (UNFPA) who work in the camps. They received training from the BRAC-JPGSPH researchers over a virtual platform.

The data collectors identified the mothers in the community with the help of the community health volunteers (CHVs) during the survey. The survey used a structured questionnaire to explore when and why women used the RH and whether they would recommend the RH, and why. As part of the larger study, to understand the fidelity of the implementation of the RH and the associated barriers and facilitators in providing the services, staff who have different responsibilities concerning the hub were interviewed. On request, UNFPA's partner organisation International Rescue Committee (IRC) provided a list of 12 CHVs, 4 RH team leaders (RHTL), 4 drivers and 1 RH manager. Out of 12 CHVs, the BRAC-JPGSPH researchers conducted KIIs with 6 CHVs (of Bangladeshi nationality) over the telephone, and the data collectors interviewed 4 CHVs (of Rohingya nationality). Due to data saturation, more CHVs were not recruited.

Verbal consent was taken for telephone interviews and when interviewing participants of Rohingya origin. From past experiences of doing research in this population, Rohingya refugees are usually suspicious and distrustful of strangers who ask for signatures, especially on written consent forms. Therefore, only verbal consent was sought to avoid conflicts. The respondents were informed of the voluntary nature of participation and that all potential identifiers will be removed during the presentation of findings.

### Data analysis

Descriptive analysis was conducted for the quantitative data, calculating frequencies and percentages. All audio files of the interviews were transcribed into Bangla. Two qualitative researchers repeatedly read the transcripts to familiarise themselves with the data. Content analysis was done based on both deductive and inductive coding. Using the deductive coding approach, researchers formulated preset coding schemes. Researchers set up the codes and defined them according to the source (eg, literature review). Once the coding scheme was established, the researcher applied the codes to the text. After completing deductive coding, inductive coding was done on the newly emerged information.

### Patient and public involvement

No patient was involved in the study.

## RESULTS

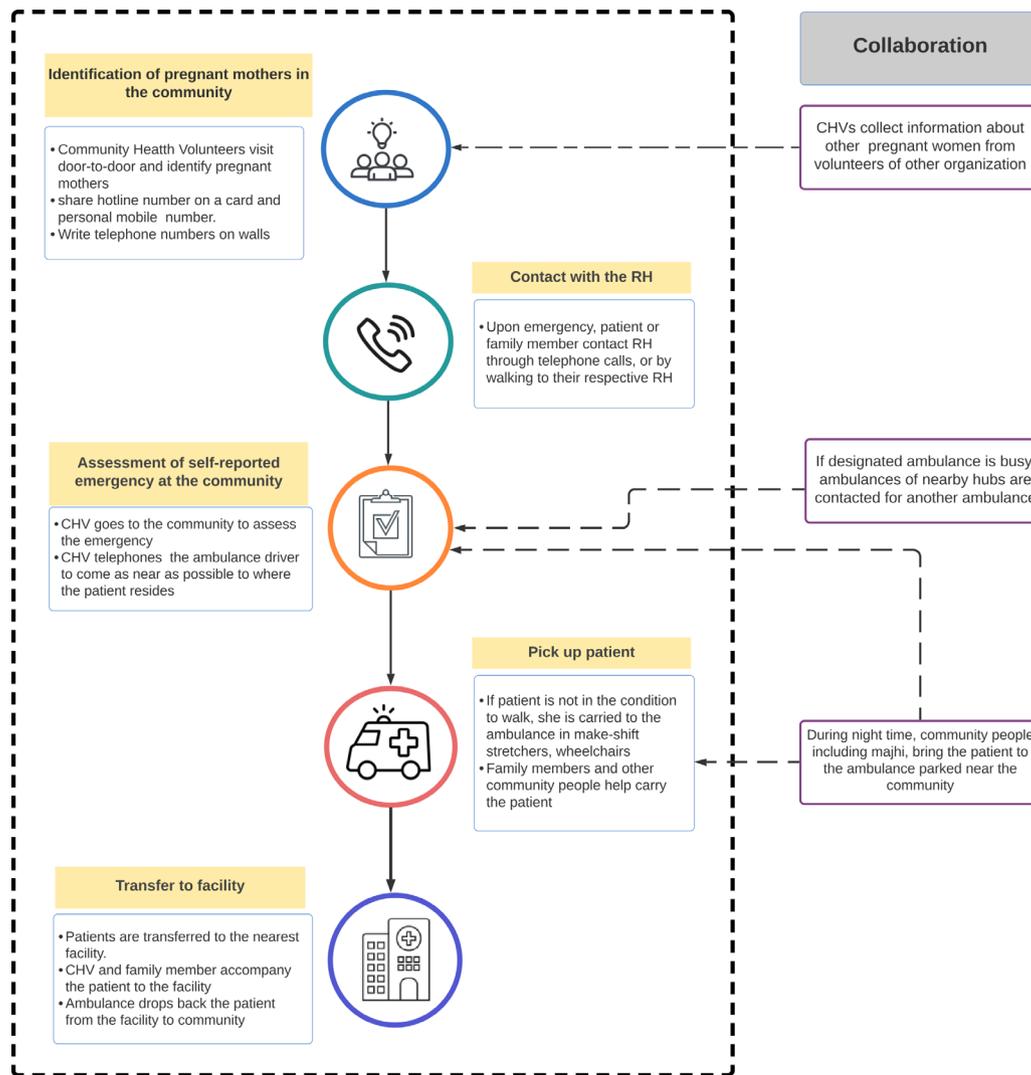
### Description of the implementation of RH

The RHs are small structures with cemented floors and roofs made of bamboo and are located in hard to reach geographical areas that serve both the host and Rohingya communities. These RHs are established by UNFPA through their implementing partner, IRC. There are 12 RHs out of which 8 was set up in January 2019 and the rest in July 2020, anticipating the impact of the first wave of COVID-19. The criteria for selecting the locations for these hubs were that there would be little to no static healthcare facilities and a high rate of home deliveries within the camps. Each RH has an RHTL who supervises the CHVs and coordinates the referrals. The CHVs are male volunteers from both the host and the Rohingya community who disseminate messages on RH and assist in transferring emergency patients to the facilities. An RH manager oversees the work of RHs and supervises the RHTLs. The clients are taken to the facilities in ambulance-like vehicles, which are available 24/7 for all kinds of health emergencies, particularly with a strong focus on EmONC, which this paper emphasises.

The implementation process of an RH usually consists of six broad steps (figure 1).

1. **Identification of pregnant mothers in the community:** As part of community mobilisation, the CHVs identify pregnant women during their door-to-door visits and inform them and their families about RH and the pick and drop facilities of the ambulance service. While doing so, they motivate the pregnant women to use the transport service whenever there is an emergency. The CHVs also disseminate the messages through the community leaders called *majhis* and the imams. Furthermore, they share the hotline number of their respective hubs and their mobile phone numbers. In addition, they also write the phone numbers on a wall of the house of the pregnant mother.

We counselled them to call the hotline number when emergency services are needed for mothers or anyone. We told them that the focus is more on



**Figure 1** Implementation process of a referral hub. CHV, community health volunteer; RH, referral hub.

emergency obstetric services now. They are also getting used to this now. They will only call when some emergency arrives.” (CHV\_08\_IRC\_RH\_I4\_N3)

They are being sensitized about aspects like the pandemic and the importance of hospital delivery compared to home delivery. They are being told about the bad aspects of home delivery. We have written the hotline number on the wall of every house that we visited. Hence, our number will be there as long as the house stays. (RHTL\_11\_IRC\_RH\_I2\_N5)

- Contact with the hub:** The pregnant woman or her family member establishes contact with the hub when there is an emergency. The communication is made either by calling the hotline number, mobile number of the CHV or walking to the RH.
- Assessment of self-reported emergency at the community:** A CHV visits the pregnant woman to assess the emergency after getting the call. After the primary evaluation is complete, he calls the driver and informs about the pick-up location closest to the woman’s residence.

When we had paramedics working 24/7 on a roster basis in the RH, they used to visit the houses of the client from whom we received a call. Because they had a minimal medical background. They would assess the client’s situation, whether they need to be sent to the HF, or if they required sterilized procedure, the paramedics would do it. Sometimes we had to take a client from the PHC to the secondary hospital. If sterilization was needed in between the travel, it was done by the paramedics too. Now, we do not have them anymore, and we are not taking anyone from PHC to secondary HF too. We only provide the ambulatory service. (RHTL\_03\_IRC\_RH\_I2\_N5)

- Pick up patient:** If the patient cannot walk, the CHV uses either a stretcher or a wheelchair to carry her to the ambulance and helps in boarding. Usually, family members or other community members also help during this process. The CHV, as well as a family member, accompany the patient in the vehicle. The CHV fills up the referral form on the way and keeps it with him until they reach the facility.

5. **Transfer to facility:** Patients are transferred to the nearest facility. If the obstetric complications cannot be treated at the primary facility, the patient is immediately taken to a tertiary facility. The ambulance driver comes back with the patient, provided there is a scope. However, if there is another emergency call or delay at the health facility, the ambulance returns to the RH immediately after dropping the patient off. If the client requests a ride back home, the ambulance picks up the client from the facility and drops her back home.

Collaboration efforts between the RH and the community, and other organisations ease the implementation process of the RH. As [figure 1](#) indicates, there is a partnership at three different levels. The first is a collaboration with other organisations in the camps. As several other organisations are working inside the camps, the CHVs also collect information about pregnant mothers from the volunteers or community health workers of those organisations. Second, the RH also partners with a neighbouring RH to send its ambulance, if available, when its designated ambulance is engaged to carry another emergency patient. The third type of collaboration is between the RH and the community. The community leader, referred to as *majhi*, plays a crucial role in such a collaboration. Majhis often convince pregnant women, who are otherwise reluctant to give birth at facilities, to use the RH services. A *majhi* also facilitates communication and transfer of a patient to the ambulance as people living outside the camps are not allowed at night. He would also inform the RH about emergencies, especially those at night and arrange to bring the patient to the ambulance.

#### Utilisation of RH services

The secondary data reveals that a total of 3330 referrals were made through RH service between January and August 2020 from the coverage area of the intervention. Out of these referrals, 2040 (61%) referrals

were related to obstetric, and 1290 (39%) were non-obstetric conditions.

[Figure 2](#) shows the overall increasing trend of obstetric referrals from January till August, with a temporary plateau in the middle. In January, there were 203 obstetric referrals. Following a non-increasing trend, the monthly number of obstetric referrals reached 184 in April and steadily increased to 250 in June. On introducing the four new RH in July, there is a further increase in the number of obstetric referrals (342). Overall, almost all the RHs saw an increase in the flow of obstetric cases from July to August.

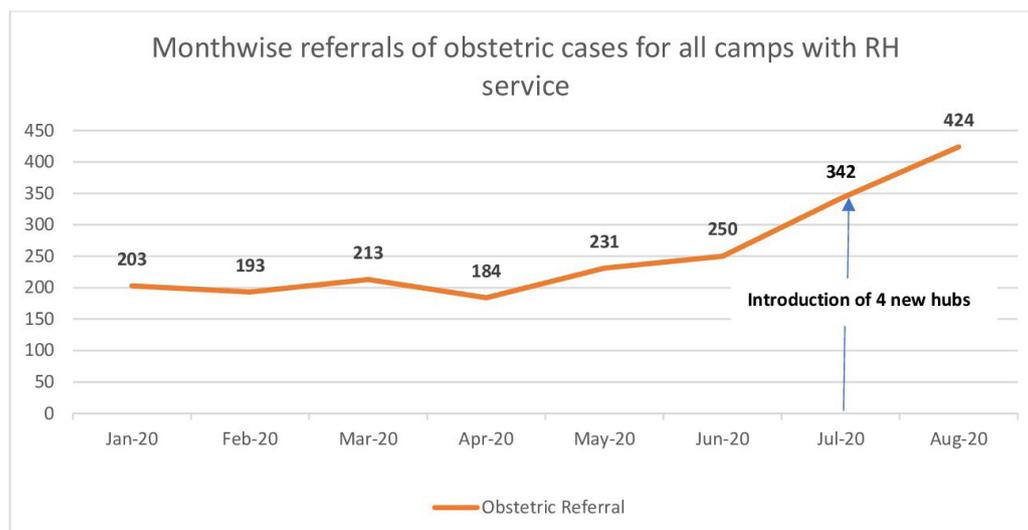
#### Sociodemographic information of mothers

One hundred women who used the RHs in July were pregnant or delivered their baby 6 weeks prior at the time of the survey. Out of the 100 women, 25 were pregnant at the time of the survey, and the rest had given birth in the past 6 weeks or more. The women interviewed had a median age of 23 years (range: 16–35 years). The majority of them belonged to the 21–25 years age group (42%). The women had a mean number of 2.43 children (currently alive). Most of the mothers reported having at least two living children (29%). The majority of the women lived with their husbands (96%) and children (81%) at the survey.

#### Reasons for recommending the RH transport service from the survey

Out of the 100 women, 9 reported being referred by RH to nearby facilities but did not use the ambulance. Therefore, findings from 91 women who used the RH ambulance for their emergencies are presented in this section.

Ninety-one women who used the transport service were asked if they would recommend it to others. All of them said ‘yes’, and their reasons are presented



**Figure 2** The monthwise trend of obstetric referrals from January to August 2020. RH, referral hub.

**Table 1** Reasons for recommending referral hub service by mothers

Reasons	n (%) (N=91)*
Transport is available 24/7	69 (75.82)
Transport came timely	75 (82.42)
Good behaviour of staff	54 (59.34)
Availability of staff	27 (29.67)
Free/ no cost	19 (20.88)
No comment made	1 (1.10)

\*N is the number of mothers who were asked this question and gave at least one response.

in table 1. The most common response was that the transport was available when needed (82%), followed by the availability of the transport 24/7 (76%). The mothers also cited the good behaviour of staff as a reason for recommending the service (54%). Nineteen mothers also pointed out free service being a reason. Only one woman did not comment on her recommendation of the service.

## DISCUSSION

The RH is a timely innovation that enables women in the Rohingya community to access healthcare facilities during obstetric emergencies via a free 24/7 transport system, mainly during the COVID-19 pandemic. Past experiences from other epidemics have shown that the epidemics themselves contribute to preventable maternal mortalities due to disruption of services and access to health facilities.<sup>9</sup> Therefore, the initiative addresses the second delay, an important reason for maternal death, a less explored issue in the refugee crisis, particularly during a pandemic.

As revealed in the secondary data analysis, a significant increasing trend in the number of mothers who utilised the service, except for a slight drop in April, reflects its acceptance. However, this drop could be linked to the COVID-19 pandemic rampant in the country then with the nationwide lockdown in April. Nevertheless, the overall increasing trend paints a picture of the demand for such a transport facility. This shows that there could considerably be more maternal deaths due to delays in receiving emergency care in the absence of the intervention.

As reported in the local media and newspapers in Bangladesh, fewer clients were visiting the facilities due to the COVID-19 pandemic, which was partially due to the limited availability of public transport during the lockdown, and partly due to false rumours; for example, the Rohingya refugees feared being taken away and killed in suspicion of having COVID-19.<sup>12</sup> In this situation, an RH's free transport and counselling by CHVs and community leaders could have contributed to the uptake of the services of the facilities. According to a feature by the freelance journalist Marty Logan, UNFPA in Bangladesh has observed a rise in the percentages of births in the health facilities

in the Rohingya camps from 41% in 2019 to 70% in 2021.<sup>23</sup> However, future studies could investigate whether the increase in utilisation could be attributed to the transport provision and compare with camps that do not have the service. Nevertheless, it is noteworthy that such has been the case in other settings, such as Ghana, Uganda and Pakistan, that reported community-based interventions having free transport and community involvement, leading to higher utilisation of maternal and child care services and greater sustainability of those interventions.<sup>24–26</sup>

Apart from being free of cost, mothers also highlighted unhindered 24/7 availability and punctuality of transport in their recommendations that reflect on their experiences and satisfaction around the services. The fact that they primarily highlighted these reasons shows that the RHs met their timely transport system needs, thus reducing the second delay.

Several steps in the RH implementation address delays in timely care due to poor roads.<sup>27</sup> The assessment of emergencies at the community level is one good example. Previously paramedics and RH team leader conducted this examination at the hub after the patient was brought in. This change is crucial as much time would be spent on the way to the hub given the poor road, and therefore, would lead to further delay in transferring the patient to the facility on time. In case of a shortage of ambulances, such a preassessment also provides a sense of whether transport is needed and allows necessary phone calls to neighbouring hubs for free ambulances. Similarly, sharing personal mobile numbers of CHV and writing on walls is an essential step, as a poor telephone network is often a barrier to communication.<sup>28</sup> Thus, not only the women have access to ambulatory services 24/7, but they can also reach the health facilities and receive timely care whenever they needed. This study highlights the importance of assessment and consultation with the community to address the real need and provide comprehensive maternal health services, as also evident elsewhere.<sup>29</sup>

Similarly, collaborating with volunteers of other organisations and community leaders contributed to the utilisation of the transport. Notably, the partnership with *majhis* is a crucial component of the implementation process, given the high prevalence of crime and violence within the camps and distrust in service providers.<sup>17 30</sup> Due to security reasons, no outsiders visit the camps at night, nor are they allowed to. *Majhis* can quickly inform and arrange to transfer the emergency patient to the ambulance parked outside the camp. Overall, as reported in a previous study, they use their influence as community leaders and form a communication bridge between the Rohingya community and implementors.<sup>30</sup> By involving the community leaders and the community, the RH also addresses the fourth delay mentioned in the literature, which occurs when there is no collective action in the community to enable the pregnant mother to reach the facility.<sup>31</sup>

Overall, unhindered availability of free and accessible transport and strong community support is sorely needed for the potential successful scale-up of RH implementation.

### Strengths and limitations

There are several strengths to the current study. This is the first study that explores the implementation mechanism of a transport intervention in a Rohingya refugee setting in Bangladesh. It also captures insights of diverse stakeholders involved in the implementation. However, there are limitations too. One of the primary reasons is that the BRAC JPGSPH research team could not travel to Cox's Bazar due to the COVID-19 pandemic. Therefore, the training and supervision were done online. The time constraint was also vital for providing quick feedback to the implementers for adaptation of programme implementation.

### CONCLUSION

The RH is a timely innovation to increase access to emergency obstetric care in the Rohingya population even during the COVID-19 pandemic. Moreover, it is a boon to the Rohingya community that otherwise lack proper and easy access to transport facilities, especially during an emergency. The success is evident from the increasing utilisation and recommendations from clients. The community-based RH innovation has the potential to improve access to facility care in low-resource and humanitarian contexts by a strong referral mechanism by collaborating with the community and arranging pick and drop free transport service.

**Acknowledgements** The authors would like to thank data collectors who collected the data diligently despite the heavy rain, challenging roads, and most notably during the pandemic. They would also like to extend their gratitude to the study participants who shared their experiences and agreed to participate in such a critical time.

**Contributors** MB contributed to data collection, analysis and writing. AS contributed to data collection and data analysis. SrC contributed to data collection and qualitative data analysis, SaC (UNFPA) and SHS contributed to writing. MS contributed to study design, analysis and writing. MB is the guarantor of the study.

**Funding** The study has been funded by United Nations Population Fund.

**Competing interests** None declared.

**Patient and public involvement** Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

**Patient consent for publication** Not applicable.

**Ethics approval** This study involves human participants and was approved by Institutional Review Board of BRAC James P. Grant School of Public Health of BRAC University (IRB 24 July'20 -035). Participants gave informed consent to participate in the study before taking part.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data availability statement** Data are available on reasonable request. Data will be available on reasonable request to the corresponding author.

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