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Exploring the impacts of COVID-19 on Rohingya adolescents in Cox's Bazar: A mixed-methods study

Silvia Guglielmi[a,*], Jennifer Seager[b], Khadija Mitu[c], Sarah Baird[b], Nicola Jones[a]

[a] Gender and Adolescence: Global Evidence (GAGE), Overseas Development Institute, 203 Blackfriars Road, London SE1 8NJ, United Kingdom
[b] Department of Global Health, George Washington University, 950 New Hampshire Ave NW, Washington DC 20052, United States
[c] Department of Anthropology, University of Chittagong, Chittagong University Rd, Chittagong 4331, Bangladesh

A R T I C L E I N F O

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A B S T R A C T

This article explores how intersecting vulnerabilities faced by Rohingya adolescents living in Cox's Bazar, Bangladesh, have been exacerbated during the COVID-19 pandemic. Both the direct health impacts and the indirect repercussions of COVID-19 mitigation strategies have served to heighten pre-existing risks, preventing adolescents from reaching their full capabilities. This article provides empirical mixed-methods data from the Gender and Adolescence: Global Evidence (GAGE) longitudinal study, drawing on phone surveys adolescents aged 10–14 and 15–19 (1,761), qualitative interviews with adolescents aged 15–19 years (30), and key informant interviews (7) conducted between March and August 2020 with both Rohingya and Bangladeshi adolescents residing in refugee camps and host communities, respectively. While this article focuses on displaced Rohingya adolescents' experiences during COVID-19, we contextualize our findings by drawing on data collected from Bangladeshi adolescents who serve as comparators. Findings highlight that the pandemic has lead to a decline in Rohingya adolescents' reported health status, exacerbated food insecurity, educational and economic marginalization and bodily integrity risks, amongst both girls and boys. This paper concludes by reflecting on the policy implications necessary to safeguard refugee adolescent trajectories in the context of COVID-19.

Introduction

The course of the COVID-19 pandemic, including its health effects and the economic and social mitigation efforts to limit its spread, are not experienced equally across populations. Research from previous epidemics has demonstrated that vulnerable population groups can be most at risk of transmission, and of being left behind by economic and social recovery schemes after the disease has peaked (United Nations Development Programme (UNDP), 2014; Diwakar, 2020; Fallah et al., 2015). The already precarious lives of displaced populations, including refugees, are no exception. The pandemic has worsened refugees' lives and exacerbated their pre-existing vulnerabilities, including those stemming from economic poverty, age, gender, marital and disability status (Lau et al., 2020; Kluge et al., 2020; Baird et al., 2020). Rigid lockdowns and movement restrictions have adversely affected displaced populations worldwide for whom loss of income, a reduction of social protection benefits, a fall in remittances and dwindling savings have led to deterioration in their already precarious living conditions (Gorevan, 2020). Moreover, more than 7 million people who are currently living in refugee camps and informal settlements are at greater risk of infection due to high population density and limited basic services and infrastructure such as health, water and sanitation (Altare et al., 2019; Truelove et al., 2020). Coupled with direct health risks, indirect risks – including the disruption of ordinary camp supply chains, a restructuring of humanitarian staffing and the redirecting of resources to enable an adequate response – all have the potential to overpower systems in fragile contexts (Lau et al., 2020).

Cox's Bazar, Bangladesh, is home to nearly 1 million Rohingya refugees living in cramped conditions in two registered and 32 unregistered camps, alongside impoverished host communities where thousands of vulnerable Bangladeshis live. This environment puts both populations at extreme risk of an outbreak (Khan et al., 2020; Islam et al., 2020; Islam and Yeasir Yunus, 2020). Although the scale-up of Bangladeshi COVID-19 testing capacities has seen documented cases rise, testing remains limited and heavily concentrated in Dhaka, which means that the magnitude of the virus's spread is likely to be underreported (Vince, 2020). This is particularly evident in the camps, where the World Health Organization (WHO) reported that as of 10 November 2020, only 15,175 tests had been conducted (World Health Organization 2020).

* Corresponding author.
E-mail addresses: s.guglielmi.gage@odi.org (S. Guglielmi), jseagermuz@gwu.edu (J. Seager), sbaird@gwu.edu (S. Baird), n.jones@odi.org.uk (N. Jones).

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Pre-COVID-19, Rohingya refugees were already suffering from insufficient essential services such as food, education, water and sanitation, and basic health care (Banik et al., 2020; Islam and Nuzhath, 2018). For adolescents, the focus of this paper, previous mixed-methods research in Cox's Bazar found that Rohingya adolescent girls and boys are a particularly marginalised subpopulation that is failing to develop their full cognitive, emotional and social capabilities due to their precarious displacement status (Gender and Adolescence: Global Evidence (GAGE) 2020; Guglielmi et al., 2020a; 2020b; 2020c; 2020d; Bakali and Wasty, 2020). Rohingya and Bangladeshi adolescents living in Cox's Bazar face a multitude of challenges, including age- and gender-based violence, disrupted educational prospects (particularly for older adolescents), widespread psychosocial distress and worry, and limited health service uptake (Gender and Adolescence: Global Evidence (GAGE) 2020; Guglielmi et al., 2020a; 2020b; 2020c; 2020d; Bakali and Wasty, 2020). Understanding the impact of the COVID-19 pandemic on adolescents is especially important, given the potential for long-lasting and multidimentional effects on young people's well-being in the short and medium term.

Drawing on recent research in Cox's Bazar nested within the larger Cox's Bazar Panel Survey (CBPS)[1] (Guglielmi et al., 2020e), this article explores the direct and indirect impacts of containment policies put in place by the Government of Bangladesh, as well as the wider changing environmental context due to COVID-19, on the lives of Rohingya adolescents. We report on data collected from both Rohingya and host Bangladeshi adolescents from May – June 2020. While this article focuses on the experience of displaced Rohingya adolescents, we also present data on the experience of Bangladeshi adolescents to put the Rohingya experience in context of the broader environment of Cox's Bazar. We find that rates of hunger and food insecurity among Rohingya adolescents have increased during COVID-19 and that self-reported health has deteriorated. Rohingya adoelscents are also more likely to report experiencing violence from police and military related to the pandemic and to report that participation in education and paid employment has decreased. These impacts serve to further compound preexisting marginalization and hamper the future trajectories of Rohingya adolescents.

Methodology

This article utilises data on nearly 2000 Rohingya and Bangladeshi young people who are part of the Gender and Adolescence: Global Evidence (GAGE) programme's longitudinal research in the Middle East, East Africa and South Asia. Our sample includes two cohorts: younger adolescents (10–14 years in 2019) and older adolescents (15–19 years in 2019).

The quantitative findings come from a sample of 692 Rohingya adolescents living in camps and 1069 Bangladeshi adolescents living in host communities who were surveyed by telephone from May to June 2020. The sample is derived from a baseline of 1071 Rohingya adolescents and 1209 Bangladeshi adolescents (an overall sucess rate of 77%) who were surveyed from March to August 2019 as part of the CBPS, which surveyed a representative sample of Rohingya and Bangladeshi host community households within 60 km of refugee camps in Cox's Bazaar.[2]

In addition to the quantitative data, 30 older cohort adolescents were engaged via in-depth qualitative telephone interviews. To inform the pandemic response and contribute to efforts aimed at ensuring that gender- and age-specific experiences are taken into account, other social characteristics (including disability and marital status) are also captured in our sample, and we report disaggregated findings by gender, age and other intersecting dimensions. To preserve respondent confidentiality, the quotes highlighted in this paper anonymise the camp locations (referred to as sites 1, 2 or 3). Seven key informant interviews were also conducted with experts from education, public health and site management in the camps to understand the measures taken by the government, United Nations agencies and non-governmental organisations (NGOs) in response to the ongoing pandemic. See Table 1 for the sample breakdown.

While our findings focus on displaced Rohingya adolescents in camps in Cox's Bazar, we supplement our findings with data from Bangladeshi host community adolescents as comparators. At baseline in 2019, Bangladeshi households in host communities are better off than the Rohingya households in the camps. On average, Bangladeshi households have 6 members, 45% of household heads are literate, 87% of households own a cell phone, and 23% own a television. Rohingya households are of similar size on average (6.3 members), but only 20% of household heads are literate, 73% of households have a cell phone, and only 4% have a television. Likewise, while 20% of Bangladeshi adolescents were hungry in the four weeks prior to survey due to lack of food, this was true of 40% of Rohingya adolescents. Additional information on differences between Rohingya and Bangladeshi adolescents is detailed in a series of policy briefs published by the GAGE program (Gender and Adolescence: Global Evidence (GAGE), 2020; Guglielmi et al., 2020a; 2020b; 2020c; 2020d; Bakali and Wasty, 2020). Keeping in mind the lower socioeconomic status of the Rohingya refugees even before the onset of the COVID-19 pandemic sets the stage for the burden of any negative impacts from the pandemic.

We present findings from a set of indicators constructed from the quantitative data to capture the breadth of experience of Rohingya and host community adolescents in the thematic areas of education and learning, bodily integrity, economic empowerement, health and nutrition, and psychosocial well-being; outcomes likely to be most affected by the containment policies put in place by the Government of Bangladesh. For all outcomes, we explore differences by gender, age and location and assess whether these differences are statistically significant. All differences in the text are significantly different at p<0.05, unless otherwise noted. Quantitative analysis was performed using Stata SE 16. A team of researchers undertook qualitative data collection, data management and data analysis. Interview transcripts were initially transcribed from audio file recordings, and translated from Chittagonian into Bangla and subsequently into English. Raw transcripts were read and coded using the qualitative analysis software package MAXQDA, following a codebook shaped around the GAGE conceptual framework and the research tools (GAGE consortium 2019). It is also important to note that the qualitative research team held debriefing sessions during the data collection phase in which emerging findings were followed up on in subsequent interviews and also used to inform the codebook. During qualitative data analysis, care was taken to identify cross-cutting themes while also allowing space for unique voices more specific to individual experiences to emerge. Thematic saturation was achieved when the research team concurred that all available codes coincided with both the interview

[1] The Cox's Bazar Panel Survey (CBPS) is a partnership between the Yale Macmillan Center Program on Refugees, Forced Displacement, and Humanitarian Responses (Yale Macmillan PRFDHR), the Gender and Adolescence: Global Evidence (GAGE) programme, and the Poverty and Equity Global Practice (GPVDR) of the World Bank.

[2] CBPS surveyed 5,044 households divided equally between refugee (2,509 households) and host (2,535 households) communities; the GAGE sample comprised all households with at least one qualifying adolescent with the CBPS whole sample. The host sample covers six upazilas in Cox's Bazar District (Chakaria, Cox's Bazar Sadar, Pekua, Ramu, Teknaf, and Uhkia) and one upazila in Bandarban District (Naikhongchhori). Within these upazillas, a random sample of 66 mauzas were selected. These mauzas were divided into segments of roughly 100-150 households and about 200 segments were drawn for household listing. Thirteen households were selected for survey from each segment. Camp households were drawn from the 32 unregistred camps and the camps are divided in to 1,954 blocks by the Needs and Population Monitoring Round 12 (NPM12) from the IOM. 200 blocks were randomly selected for household listing. Thirteen households were randomly selected from each block for survey.

Table 1
Virtual research sample.

	Quantitative fieldwork		
	Refugee camps	Host communities	Total
Fieldwork sites	32	57	89
Total no. of respondents	692	1069	1761
No. of married girls	*69*	*48*	*117*
No. of adolescents with disabilities	*29*	*29*	*58*
Total attempted sample (% successful)	1071 (65%)	1209 (88%)	2280 (77%)
	Qualitative fieldwork		
	Refugee camps	Host communities	Total
Fieldwork sites	3	2	5
Total No. of adolescent respondents	21	9	30
No. of married girls	*6*	*0*	*6*
No. of adolescents with disabilities	*2*	*2*	*4*
Total No. of key informant interviews (KIIs)	7	0	7

transcripts and their insights regarding the data gathered (including information which was captured off tape).

Context

While necessary to curb the virus's spread, containment policies put in place by the Government of Bangladesh have affected key areas of service provision in Rohingya refugee camps, with women and girls particularly adversely affected (UN Women 2020). In Cox's Bazar district, there is widespread concern about both the health and economic repercussions that prolonged lockdown will have, and the World Food Programme (WFP) has reported that COVID-19 has 'severely impacted the food security and livelihoods situation of the population, further compounded by the market fluctuations affecting prices of staple commodities such as rice, lentils, and oil' (World Food Programme 2020). It is imperative to investigate the impact of COVID-19 on rates of hunger and food insecurity amongst adolescents. Malnutrition experienced during such a critical period of personal growth and development can have long-term consequences not just for physical and mental health but also for educational attainment (Alderman et al., 2006; Galler et al., 2017; Golberstein et al., 2019; Fore, 2020). Moreover, food insecurity and inability to purchase essential foods may be a potential determinant of susceptibility to the disease (Lopez-Pena et al., 2020).

In an effort to significantly reduce the humanitarian footprint in the camps, the government's Refugee Relief and Repatriation Commissioner issued guidelines that led to the closure of essential protection and education services, deemed not critical in response to the pandemic (Refugee Relief and Repatriation Commissioner, 2020). Menstrual hygiene management and sexual and reproductive health services have either shut down completely or have become difficult to access (Inter-Sector Coordination Group, Care International 2020). Girl- and women-friendly spaces were used as COVID-19 prevention hubs, and gender-transformative programming has been suspended, including 'leadership and skills building… strategies to end harmful practices and abuse, such as early, forced and child marriage and GBV [gender-based violence]… livelihoods and education opportunities for women and girls, broader community engagement, behavioural change, awareness-raising, advocacy and engaging men and boys in accountable practices' (Inter-Sector Coordination Group, Care International 2020). Further exacerbating girls' marginalization, Rohingya women and adolescent girls are seldom able to make automonous decisions in the household (Inter-Sector Coordination Group, Care International 2020) and, although this has not changed as a result of the pandemic, the closure of services that have benefited women means that women and girls risk remaining isolated indoors and voiceless.

The closure of learning centres, child- and adolescent-friendly spaces and other protective environments are anticipated to have negative impacts on educational attainment and increase children and adolescent's exposure to protection risks such as sexual exploitation, child labor, neglect, and physical and emotional abuse that could negatively affect child development, especially among adolescent girls (UN Women 2020). The lockdown-related disruptions to education and paid work also have long-term impacts on the future income trajectories of adolescents as well as future generations (Agüero and Ramachandran, 2020). It is important to understand the compounding impacts of multiple traumas on displaced adolescents, and this article seeks to add to this evidence base.

Findings

Direct effects of COVID-19 pandemic on adolescent capabilities

Containment policies

Our findings indicate that the stay-at-home orders and mandatory wearing of face masks when going out in public during lockdown are both strictly enforced, including via physical force from the police, and this strict enforcement has impacted normative adherence. In terms of complying with preventive measures, 38% of adolescents in camps stayed at home in the past seven days, with girls significantly more likely to do so than boys (68% versus 15%). The most common reasons that adolescents reported for leaving the home were to buy food and to attend a religious service. In qualitative surveys, a 19-year-old married Rohingya girl in site 1 explained, *'[Men] wear masks. Police will hit people if they don't wear [them].'*

Despite government containment and enforcement measures having far-reaching impacts on adolescents' lives, none of the Rohingya adolescents in our qualitative sample expressed negativity towards the government's response to the pandemic. All agreed that although they were suffering from the stringent containment measures, they were enacted to protect them :

[The] government is doing this for our betterment. (17-year-old Rohingya male, site 1)

[The response] is good for us. We aren't infected. [But] we cannot go through life happily. Now I can't go to school. Before I went [to] learn tailoring. [Now] I can't go out, so I have to stay in home, can't learn the work. Before I had the income and at least I could manage the expenditure of daily shopping. But now I can't go out. I have no brother, no father, how will I manage? So [the government's actions are] good for the disease, but not good for our availability of food and our general well-being. (15-year-old Rohingya girl, site 1)

Likewise, our quantitative data finds that adolescents believe that the lockdown policies are justified, with 94% of older adolescents believing that all shops should close during the pandemic and 84% believing that people should not participate in religious gatherings.

Sources of information

The containment measures have also altered and, at times, further restricted information flow within the camps. The most common sources of information on COVID-19 in the camps are: information campaigns referred to as 'miking', whereby a mobile vehicle carrying a loudspeaker makes announcements (30% of adolescents report receiving information in this way); hearing from friends/neighbours/acquaintances (25%); and being informed by NGOs (22%). Qualitative data showcases that the latter may take several forms, with site volunteers travelling door-to-door to share information and NGOs organizing meetings. A 17-year-old married Rohingya girl in site 1 explained,

Some people came to give information. They gave us soap and cloth to wash our hands. They told us to stay neat and clean, not to be dirty. They gave us the cloth to clean our hands three times a day. Not to eat or touch anything without washing hands… I'm doing everything as they told us. Allah is blessing us. They are the volunteers.

An 18-year-old Rohingya boy living with a disability in site 2 explained, *'Some visitors came and told me to maintain distance, wash hands with soap, wear a mask, to stay away – all these things. A person from an NGO came in my house.'*

While 'miking' was prominent during the initial outbreak of COVID-19 and in the first weeks of lockdown, it has since dissipated, and adolescents have been left with limited and fragmented information flows. Rohingya adolescents do not have television at home, yet boys and men used to gather at local shops or tea stalls to watch television. With COVID-19, this practice is now forbidden. A 15-year-old Rohingya boy from site 3 said, *'I used to watch TV in a local shop. When the police come, they don't let us watch TV there since at the time when news is broadcast, a lot of people gather over there.'* Moreover, Rohingya adolescents mentioned that due to the prolonged internet shutdown across the camps, they cannot access online news or social media. While a minority of adolescents mentioned finding creative ways to go online – *'I use Facebook somehow going up on the hill'* (18-year-old Rohingya male, site 2) – many more described how compounding factors (such as not owning a mobile phone and internet suppression in the camps) had created gaps in their information flow.

While Rohingya adolescents do exhibit knowledge of COVID-19 and best practices for mitigating its spread, our findings suggest that limited access to information may contribute to the sustained presence of misinformation about the disease in the camps. Across camp locations, both our quantitative and qualitative data found that adolescents who had heard about COVID-19 could mention accurate symptomology. Among adolescents in camps, our survey shows that 70% of adolescents identified either coughing (35.4%) – mostly dry cough (26.6%) – or fever (35%) as the most common symptoms, and most respondents in our qualitative interviews also mentioned coughs and fevers. Data from our quantitative survey also finds that 74% of Rohingya adolescents know that COVID-19 can be spread even if the infected person has no symptoms.

Nevertheless, our qualitative findings point to occasional erroneous information on symptoms and preventive measures circulating among adolescents. A 17-year-old married Rohingya girl from site 1 explained, *'We boil water to drink now'*; a 17-year-old boy also from site 1 claimed, *'[We] can get infected by sitting over insects… People infected die within 14 days'*; and a 15-year-old female again from site 1 described how *'I've seen the hair of the infected person fall [they are] bald… Their body swells, they become mad, their body almost curved.'* Married girls were found to have the most limited knowledge of the disease. A 17-year-old married Rohingya girl in site 1 noted: *'There is a disease. But I don't know much about it. I just heard from the people here. I didn't see it with my own eyes… I don't know [the name of the disease].'* A 19-year-old married girl also from site 1 said, *'I don't know the name [of the virus]. I don't know anything, as I don't go out. [Even before] I never went out of the house.'* Moreover, the qualitative data underscores that many adolescents believe catching COVID-19 will lead to certain death.

In terms of knowledge about how to prevent the spread of the disease, the quantitative and qualitative data both find that the most commonly mentioned preventive measure is handwashing – with our quantitative survey indicating that 38% of Rohingya adolescents wash their hands at least five times a day and 40% of respondents in qualitative interviews mentioning that they wash their hands for more than 20 s. Staying at home and maintaining social distance, ideally at least *'three hands*[3] *away from people'* (15-year-old Rohingya male, site 2) were also commonly mentioned.

Indirect effects of COVID-19 pandemic

Health and nutrition

Most Rohingya and Bangladeshi adolescents report their health to be 'good' or 'very good' (92% and 87% respectively). However, across locations, 10% (8.5% Rohingya and 10.2% Bangladeshi) of our sample reported that their health had deteriorated since COVID-19, with boys nearly twice as likely to report this as girls (12% and 7% respectively). Linked to this, 16% (12.9% in camp and 16.8% in host communities) reported having one COVID-19-related symptom in the two weeks prior to the survey.

Our qualitative data presents a mixed picture as to whether COVID-19 has restricted health service uptake in the case of non-COVID-19 pathologies or illness. While adolescents seem to be aware that they should go to a hospital if they are experiencing symptoms, fear of contracting COVID-19 acts as a barrier to access. A 15 year old boy from site 2 acknowledges, *'[the] government said if someone has fever, cold and cough, then he/she should be taken to hospital.'* Likewise, a 17-year-old married Rohingya mother stated, *'Yes, the hospital is open. I take [my daughter] there. They give medicine.'* However, a 17-year-old Rohingya boy from site 3 claimed: *'We cannot go to the hospital if we are sick. Earlier we used to go to IOM [International organization for Migration] Hospital, but now we are not allowed to go there. Now, when someone goes there, they say that he/she has contracted the coronavirus. That's why people are not willing to go to the hospital.'* A site manager from site 3 also discussed reluctance of Rohingya to visit health centers:

At the beginning, [Rohingyas] used to say, "They will [need to] shoot us [before we go] to the isolation centres" and we saw that caseloads reduced… They were afraid [that] either they would be kept in isolation for fever and cough, or they may catch corona[virus] from the hospitals. For these two reasons they came less.

The same site manager also explained that after liaising extensively with camp focal points from the Rohingya community (*majhis*) as well as religious and community leaders, they were able to disseminate accurate information to the community, and health care uptake subsequently increased.

Findings from interviews with adolescents with disabilities underscore that certain vulnerabilities persist with or without COVID-19 measures. A previously cited 18-year-old Rohingya boy in site 2 with a physical impairment commented:

Everything is like before. I mostly lie around all day… I am unable to walk so I don't go out. I haven't gone out from my house for about two years. If the NGO would have taken me to a hospital for treatment, it would be better. I am [sad about it]. There [are hospitals] but they don't take us. They didn't take [us before either]. They come only to talk with me.

Our mixed-methods data highlights that food insecurity is one of the most severe and concerning impacts of COVID-19 across both camp and host households. Nearly all of our qualitative interviews reported decreased availability of food, both in terms of reduced rations – thus reducing selling of in-kind aid for cash[4] – and a reduction of food purchased, as a result of loss of income. A 17-year-old Rohingya boy in

[3] This local measurement unit considers the size of an adult man's elbow to fingertip, such that 1 hand = 1.5 ft and 3 hands = 4.5 ft.

[4] The practice of selling portions of in-kind assistance received by humanitarian partners, and/or items redeemed with vouchers in local markets in or-

site 1 explained his worries, *'Having food is too hard now [because] we can't work.'* Quantitative data shows that 21% of adolescents claimed they felt hungrier in the past four weeks as a result of COVID-19, with Bangladeshi adolescents more likely to report this compared to Rohingya adolescents (23% and 18% respectively). Gender differences were also stark. In the camps, girls are more likely to report hunger due to COVID-19 (22% compared to 14% of boys). Similarly, in host communities, girls are more likely to report going hungry (27% versus 18%). Turning to the qualitative data, a 17-year-old married Rohingya girl in site 1 recounted the changes in her household since COVID-19:

Sometimes we have to eat rice only with salt. We could sell food and buy something for us before. But [now] they give us food like we are beggars. The potatoes were 15–16 taka before. Now the price has risen to 30–32 taka. They used to give eight eggs per person, but now they give five eggs.

Similarly, a 19-year-old Rohingya married girl in site 1 noted, *'They give us less rations now… in the past month, every food item has decreased,'* and a 15-year-old Rohingya male in site 1 said, *'[In the past] we could have three meals per day. But we struggle with having two meals now.'*

Our survey data shows that 58% of Rohingya households reported cutting back on food served to boys and/or girls. Moreover, households across locations (camp and host communities) exhibit a high degree of food insecurity. On average, households have experienced at least one of three types of extreme food insecurity in the past four weeks: 49.5% report not having any food in the household because of a lack of resources; 17.2% report having at least one household member go to sleep at night hungry because there was not enough food; and 3.7% report one household member going a whole day and night without eating anything at all because there was not enough food. With regards to protein intake, 87% of adolescent respondents state that they are less likely to eat meals containing protein, and while there were no significant differences by location, girls were more likely to report this than boys (92% versus 82%). A 15-year-old Rohingya girl in site 1 explained, *'We have no money so we cannot buy raw food items like vegetables, fish and meat. We can't eat fresh food.'*

Education and learning

In surrounding host communities, 75% of our sample was enrolled in formal school before COVID-19, with no significant differences by gender. In the camps, by contrast, 41% of the adolescents in our sample were enrolled in any schooling before COVID-19, with significant differences by gender, age, and disability status.[5] Rohingya boys were twice as likely to be enrolled than girls (53% versus 29%) and younger adolescents were three times as likely to be enrolled than their older counterparts (62% versus 20%). Although Rohingya girls are disadvantaged irrespective of age, their marginalization from learning intensifies as they grow older. Among the older cohort, only 6% of girls were enrolled compared to 35% of boys, while among the younger cohort, girls were three-quarters as likely to be enrolled as boys (53% versus 69%). After COVID-19, 7% of boys report still being enrolled in schooling, whereas 0.8% of girls do. Another key dimension of vulnerability in education relates to disability status. In camps, only 17% of adolescents with disabilities reported being enrolled in schooling prior to COVID-19, and no adolescent with disability reported being enrolled in schooling after COVID-19, compared to 4% of adolescents without disabilities. Among the enrolled adolescents in our sample, Rohingya adolescents were generally hopeful about resuming school, with only 5% worrying about not returning even when restrictions end.

Across gender and age, while less than 1% of adolescents enrolled in informal school report using the internet or media to continue learning during the pandemic, 70% reported receiving family support for learning. The closure of learning facilities in the camps has affected adolescents' younger siblings, as a 17-year-old boy in site 2 explained: *'Now there are many difficulties in education in the camp. While studying in class 1 and class 2, the children's year is over. Previously they were tested at the end of the year. Now [this won't happen] either.'*

Rohingya adolescents were twice as likely to be receiving religious education prior to the outbreak of COVID-19 compared to Bangladeshi adolescents (24% and 13% respectively), with important differences by gender and age. In camps, Rohingya boys are nearly twice as likely to be enrolled in religious education than girls (30% versus 17%) with most enrolled students across both genders in the younger cohort (39% versus 8% in the older cohort). Our qualitative data shows that when boys enrolled in religious education were interviewed, they lamented the loss of learning opportunities due to the closures, and this negatively impacted their well-being. A 15-year-old Rohingya boy in site 2 epitomised this sentiment: *'I do study. Since the mosque-madrasa cannot be opened, as the government has closed it, I am not able to study [now]. That's why a lot of sadness is in my mind.'* With regards to job or skills training courses, survey data reveals that 2% of Rohingya adolescents are engaged in such courses, and girls are more likely to be engaged in skills training than boys (3.7% versus 0.3%), although overall numbers remain very low, with just 1% of boys and 1.5% of girls reporting participation in such courses.

Finally, school closures appear to have impacted the amount of time adolescents spend on household chores and childcare, both in the camps and in host communities. Across locations, the survey indicates that 93% of adolescents – regardless of age or gender – reported an increase in time spent on chores and childcare. Our qualitative data, however, highlights a gender divide, with girls reporting more time and effort on household chores compared to boys. For Rohingya married girls in particular, this does not seem to be linked to COVID-19, but is rather an ongoing aspect of their lives. As an 18-year-old Rohingya married girl in site 3 explained, *'I cook and serve food to everyone. That's all I do… We are women. There is no change in our work. We do the same work we used to do before.'*

Bodily integrity

In camps, boys report concerns around escalation of police and military violence when enforcing lockdown measures (38% of boys versus 22% of girls). Qualitative data highlights that socio-cultural mobility restrictions placed on older Rohingya girls primarily explain why they are less likely to encounter police abuse, as they spend most of their time at home – even prior to the pandemic. An 18-year-old Rohingya married girl in site 1 explained, *'[I didn't go out of home earlier and] I don't go out now either. [My husband] goes to the nearest shop and has conversations with people sometimes. He can't go to the big bazar of the camp. There are soldiers there… They hit people if they see anyone in the big bazar,'* while a 15-year-old Rohingya girl in site 1 explained, *'The army hit people if they go out and if they don't wear a mask.'*

Across locations, 8% of adolescents reported an increase in gender-based violence in the community during the pandemic. Our data points to mixed findings as to whether COVID-19 has exacerbated child marriage or not. Among the older cohort in camps, 19% of girls worry about marrying earlier (compared to 11% of boys), yet at the same time older girls are twice as likely as older boys to say that pressure to marry has decreased since COVID-19. Among the younger cohort, gender differences are far less pronounced, with 6% of girls reporting worries about marrying earlier compared to 5% of boys, and 14% of girls feeling that pressure to marry has decreased compared to 11% of boys. This may highlight an unexpected protective effect of the pandemic for some adolescents, which will be the topic of future research. This being said, a female key informant from site 2 mentioned that the limited humanitarian presence in the camps may lead to a surge in child marriage :

We all know that child marriages get extended during any disaster. As I can't go to the camps now, I don't know and [can't say for certain]. But, in

der to obtain cash needed for other essentials, occurs in the Rohingya context (United Nations High Commissioner for Refugees 2018).

[5] Rohingya children and adolescents do not have access to formal education and access non-formal learning in predominately NGO and UN-run learning centres (Magee et al., 2020, United Nations Children's Fund 2020).

global or Bangladeshi contexts, I can say that child marriages [are likely to] be extended in the camps too.

While not measuring adolescents' direct exposure to violence due to privacy concerns, data does suggest that married girls may be at greater risk of gender-based violence than their unmarried counterparts during the pandemic. For example, both Rohingya and Bangladeshi married girls are more than twice as likely as unmarried girls to report that gender-based violence has increased in their community during the pandemic (22% married girls report this compared to 9% unmarried girls).

Involvement in paid work

Across the Bangladeshi and Rohingya samples, 10.3% of adolescents were engaged in paid work prior to COVID-19, with boys four times more likely to be working than girls (17% versus 4%). However, paid work has either stopped or decreased for 85% of the working sample, with 57% of the Bangladeshi sample reporting not having restarted work compared to 75% of the Rohingya sample. Only 2% of our sample – nearly all males – had engaged in new work since the onset of the pandemic.

Qualitative data showcases that the loss of paid work, either personal income or at household level, is a cause of worry for most adolescents in our sample, as described by an 18-year-old boy in site 2: *'We could earn money then [before COVID-19]. Now we can't. My elder brother used to work [at Médecins Sans Frontières]… now he can't… Depression comes as we can't earn money now.'* His sentiments were echoed by a 15-year-old Rohingya girl in site 1, who commented, *'The people who used to go out of the camp for work can't go now. Transports are off. As this is the month of Ramadan, the problem has increased even more.'*

Psychosocial well-being

Across camp and host communities, only 4.4% of adolescents exhibit signs of moderate-to-severe depression, measured using the Patient Health Questionnaire-8 (PHQ-8), with adolescents in camps more likely to exhibit signs than host community adolescents (6.2% versus 3.7%, $p = 0.051$).[6] This number is low compared to global data, which suggests that 10%–20% of adolescents experience mental illness (World Health Organization 2019). As such, this deserves further analysis, and given the qualitative findings we suspect it reflects under-reporting and/or normalization of extreme disadvantage.

Although moderate-to-severe depression as measured through the PHQ-8 is low, according to our survey, 78% of adolescents are highly or moderately worried and anxious about COVID-19. A 17-year-old Rohingya boy from site 1 expressed this fear: *'I can't go anywhere as I'm getting afraid [of catching the disease.] I can't move anywhere, I just sit inside the house. I used to go outside and gossip with friends… now it's impossible to do so.'* The qualitative data also suggests that due to cultural mobility restrictions placed on females – primarily in camps – boys appear to be most impacted by lockdown orders, lamenting a loosening of friendships: *'I have to be alone all the time, which makes me sad. I am losing myself for all these disturbances and troubles'* (15-year-old Rohingya boy, site 2), with some feeling the strain of a lack of freedom to *'go everywhere'* (17-year-old Rohingya boy, site 1). In terms of friendships, host community adolescents are more able to maintain contact with their friends on mobile phones and by interacting with them through social media.

Our data also highlights that adolescents are both receiving and giving less support due to COVID-19 (defined as helping with problems, chores or health needs). In camps, Rohingya boys are much more likely than girls to report receiving less support (60% versus 37%) and more likely to report giving less support (52% versus 34%).

Many adolescents appear to find solace in prayer and in the resoluteness of Allah to decide the virus's course, wherever that will lead. A 15-year-old boy in site 1 stated, *'How the virus will demolish is dependent on the order of Allah'*; a 15-year-old Rohingya boy in site 2 said, *'Coronavirus is the wrath of God'*; while a 17-year-old married girl explained, *'We are just living by the grace of Allah.'* A previously cited 18-year-old Rohingya boy living with a disability in site 2 said :

[Coronavirus] is from Allah. Allah does everything for the betterment of people, nothing to hamper us. If we pray he will give us rizik [sustenance]. None but Allah can cure the disease, so pray to Allah. Everybody has to die one day. Let it be coronavirus if Allah wishes. No one can escape death.

Echoing this, our quantitative survey found that 64% of Rohingya adolescents believed that Allah will protect them from COVID-19.

Discussion

Mixed-methods data underscores that while both Rohingya and Bangladeshi adolescents are facing increased food insecurity, the higher baseline level of food insecurity faced by Rohingya adolescents prior to COVID-19 makes this increase of particular concern in the camps. More specifically within the camps, while accurate health information seems to have been efficiently disseminated in the initial weeks of the response, findings indicate that some adolescents have since been left without reliable and accessable information. Additionally, the decision to define education as non-essential activity and the closure of protection services exacerbated already stark inequities with regard to access to education in the camps and limited access to safe spaces for adolescents who are facing increased violence.

These findings point to several policy priorities. Notwithstanding the continuation of blanket food assistance to all Rohingya refugees in Cox's Bazar by the food security sector, the increased food insecurity experienced by adolescents must be urgently addressed. Scaling up and increasing in-kind and voucher food support in the camps, informed by a detailed gender- and age-sensitive needs analysis, can mitigate the risks of families resorting to negative coping mechanisms that can adversely affect adolescent boys and girls. An effort should be made to provide a steady stream of information throughout the pandemic so that adolescents can protect themselves from contracting the virus. In light of reduced education and training programs, it is even more critical that education sector humanitarian partners also renew efforts to initiate the Myanmar curriculum pilot for grades 6–9 (paused due to COVID-19), so that Rohingya students can obtain educational certification for their schooling. Finally, strengthening awareness-raising, reporting and mitigation of age- and gender-based protection risks during the pandemic will be crucial for Rohingya adolescent girls in particular, following the closure of essential protection services in the camps. Public communication messaging and home-based awareness sessions for adolescents and their families on age- and gender-based protection risks that may be exacerbated by COVID-19 – including child marriage– need to be extended to reach all families.

The empirical results reported here should be considered in light of some strengths and limitations. The mixed-method research approach aims to produce more complete outcomes than using either method independently, and findings around health, nutrition and food security here reported demonstrate particularly strong results consistency across both methodologies symbolizing a strength of the paper. However, authors acknowledge several limitations. While the intended quantitative sample included a representative sample of Rohingya and Bangladeshi adolescents, we were less likely to reach Rohingya households due lower access to cellphones in the camps. A complete mixed-methods comparison on COVID-19 impacts between younger cohort (10–14) and older cohort (15–19) adolescents cannot be drawn, as qualitative interviews were conducted with older cohort adolescents only as the research team were concerned about the comfort and ability of younger adolescents to respond to in depth interviews virtually. Morover, authors acknowledge that specific nuances singular to the Rohingya language may have been lost in translation in both data collection and analysis phases. Although enumerators, interviewers and the qualitative coding team are fluent in

[6] PHQ-8 is a modification of the PHQ-9 clinical diagnostic questionnaire that excludes the question about suicidal ideation. A score of 10 or higher characterises moderate-to-severe depression.

the Chittagonian dialect of Bangla, which bears great similarity to the Rohingya language, some discrepancies exist. Assimilating specific Rohingya vocabulary can help us design tools for linguistic relevance in future data collection rounds.

Conclusions

Our findings underscore significantly heightened vulnerabilities facing adolescent girls and boys in Rohingya refugee camps in Cox's Bazar in the context of the COVID-19 pandemic. This evidence intersects with literature reporting that health crises, coupled with educational and economic disruptions in humanitarian contexts, have compounding negative impacts on adolescents and their life-course trajectories. While efforts to contain the spread of the virus continue to be of paramount importance, the full breadth of adverse impacts affecting adolescents must be understood and tackled to avert the risks of increased child marriage, severe educational marginalization, poverty and gender discrimination, and their long-lasting impacts on present and future generations.

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Declaration of Competing Interest

The authors of this paper report no known conflict of interest.

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