



Trabalho, Educação e Saúde

Analysis of the educational needs of medical students in situations of emergencies, political crises, civil conflicts, or wars: the case of Myanmar

Análise das necessidades educacionais dos estudantes de medicina em situações de emergência, crises políticas, conflitos civis ou guerras: o caso de Mianmar

Análisis de las necesidades educativas de los estudiantes de medicina en situaciones de emergencias, crisis políticas, conflictos civiles o guerras: el caso de Myanmar

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Abstract

In Myanmar, during the civil war following the February 2021 military coup many medical students suspended their studies. The University of Parma is committed to organise alternative courses for Myanmar medical students. The aim of this study was to examine through a mixed method the current educational needs of Myanmar medical students and the feasibility of alternative training courses. The quantitative research revealed that many students can attend educational activities online. The main difficulty concerns training through clinical practice, although some of them believe in the possibility that online simulation can partially make up for this deficiency. The training areas of main interest are: Mental Health, Emergency Medicine, Public Health, Healthcare Management. The qualitative study revealed that the students are confident that foreign universities can provide online training activities not only during the civil war, but also when peace has been established, and that such activities may be legally acknowledged. These results, in addition to documenting the resilience of the students involved in this research, respond well to the need to direct training to the effective actual needs whilst addressing the need to understand the specific context in which students will have to benefit from training, even in war situations.

Keywords educational needs, medical students, training activities, innovative teaching, e-learning.

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Resumo

No Mianmar, após o golpe militar de fevereiro de 2021, muitos estudantes de medicina suspenderam seus estudos devido à guerra civil. A Universidade de Parma se comprometeu a oferecer alternativas de formação para esses estudantes. O objetivo deste estudo foi analisar, utilizando um método misto, as necessidades educacionais existentes entre os estudantes de medicina do Myanmar e a viabilidade de cursos alternativos de formação. A pesquisa quantitativa revelou que muitos estudantes podiam participar de atividades educacionais on-line. O principal desafio era o treinamento clínico prático, embora alguns acreditem que a simulação on-line possa, em parte, compensar essa deficiência. As áreas de maior interesse de aprendizagem foram: Saúde Mental, Medicina de Emergência, Saúde Pública e Gestão em Saúde. O estudo qualitativo mostrou que os estudantes confiavam que universidades estrangeiras poderiam proporcionar aprendizagem on-line tanto durante a guerra civil quanto após o restabelecimento da paz, e que essas atividades poderiam ser reconhecidas legalmente. Estes resultados não apenas documentam a resiliência dos estudantes, mas também destacam a importância de adaptar a formação às necessidades reais e efetivas, considerando o contexto específico em situações de conflito.

Palavras-chave necessidades educacionais, estudantes de medicina, atividades de treinamento, ensino inovador, ensino a distância.

Resumen

En Myanmar, tras el golpe militar de febrero de 2021, muchos estudiantes de medicina suspendieron sus estudios debido a la guerra civil. La Universidad de Parma ha decidido ofrecer alternativas de formación a estos estudiantes. Este estudio tiene como objetivo examinar, utilizando un enfoque mixto, las necesidades educativas existentes de los estudiantes de medicina de Myanmar y la viabilidad de cursos alternativos de formación. La investigación cuantitativa mostró que muchos estudiantes podrían participar en actividades educativas en línea. Sin embargo, el principal desafío era el entrenamiento clínico práctico, aunque algunos creen que la simulación en línea podría mitigar parcialmente esta deficiencia. Las áreas de mayor interés para el aprendizaje fueron: Salud Mental, Medicina de Emergencia, Salud Pública y Gestión en Salud. El estudio cualitativo reveló que los estudiantes confiaban en que las universidades extranjeras podrían proporcionar aprendizaje en línea durante la guerra civil y también después de que se establezca la paz, y que estas actividades podrían ser reconocidas legalmente. Estos hallazgos no solo documentan la resiliencia de los estudiantes, sino que también destacan la importancia de adaptar la formación a las necesidades reales y efectivas, teniendo en cuenta el contexto específico en situaciones de conflicto.

Palabras-clave necesidades educativas, estudiantes de medicina, actividades de enseñanza, enseñanza innovadora, aprendizaje en línea.

Introduction

On February 1, 2021, the Myanmar Army (Tatmadaw) staged an illegal military coup, which then vested power in a military junta. Across the country, people demonstrated their total rejection of the coup first through a Civil Disobedience Movement (CDM). Myanmar doctors and nurses abandoned public hospitals and provided aid to the population by mobile clinics in the streets and by free care in private and charity clinics (Lalley, 2021). An alliance between democratic and ethnic forces, representing most of the Myanmar population, has led to the formation of the National Unity Government (NUG), offering a democratic alternative to the military junta (D'Apice, Sarli and Soe, 2021).

Myanmar is experiencing an unprecedented humanitarian crisis (Chen et al., 2023) and the collapse of the health infrastructure (Soe et al., 2021) already largely destroyed by over 50 years of military dictatorship (Myint, Pavlova and Groot, 2019). All this is even more serious during a conflict when the health burden increases due to injuries suffered, violence, post-traumatic stress disorder, other illnesses,

and malnutrition, resulting by reduced access or availability of primary healthcare, food, water and sanitation (Eekhout, Geuze and Vermetten, 2016). Already in the past, Myanmar's military junta reported long-standing inequalities and a visible lack of health equity (Kobayashi et al., 2021), but before the coup the democratic government was working to improve the economic and health situation, and local clinics and hospitals could supervise people with healthcare needs (D'Apice and Suu Lwin, 2022). Now, this climate has pushed many Myanmar people to move to neighboring countries for their healthcare and has led those who cannot travel to disengage from their healthcare (Kobayashi et al., 2021).

Medical students also joined the CDM, refusing to attend medical schools controlled by the military, and collaborating with healthcare personnel to provide emergency care to the people. Furthermore, due to the spread of the Covid-19 pandemic, universities were closed and subsequently were not reopened largely due to the absence of the teachers who joined the CDM. The interruption of university medical studies, frequent in conflict zones (Barnett-Vanes et al. 2016), cause unavailability of new young graduates and reduction in the number of doctors. The consequences for the population (Dobiesz et al. 2022) are even more serious in the case of Myanmar due to the military's violence against those who joined the CDM (Soe et al. 2021).

The University of Parma has a long history of collaboration with the democratic authorities of Myanmar, and with some medical schools, with the aim of improving the healthcare organization of the country. Exchanges of teachers and students were active between the universities of the two countries before the coup, and the relationships initiated during these exchanges still last. For this reason, a project has been started aimed at making available online courses (Gillett, 2019) alternative to the institutional ones and supplementary to those organized by the NUG for Myanmar medical students who cannot attend medical schools. To organize these courses, for Gillett it is necessary in first place to evaluate their feasibility and to analyze the training needs of students who live in a context of civil war (Mayer et al., 2023).

The aims of this study were to examine the current training needs of Myanmar medical students and to assess the feasibility of alternative training courses in the context of the ongoing civil war.

Methods

The research was conducted with a mixed method consisting of a first phase of quantitative research and a second phase of qualitative research.

For the implementation of the first phase, a questionnaire was created to be administered online to Myanmar medical students. A questionnaire was applied to collect basic demographics of the students, their training path already undertaken before the coup and that following the coup, the possibility of taking advantage of an online course, and their perceived training needs. The questionnaire was validated in partnership with some Myanmar professors and a Myanmar medical student with whom we collaborated before the coup and with whom we remained in contact even after the coup. Full questionnaire details can be found in Table 1.

An informative letter was attached to the questionnaire to explain its purposes and to underline that privacy and anonymity would be guaranteed, together with a form requesting informed consent. At the end of the questionnaire, an invitation was included for respondents to contact a secure email address, created specifically, to participate further in the investigation with an in-depth interview. In October 2022, the questionnaire, the letter and the consensus form were distributed via the Google Forms platform which automatically records the data in an Excel folder. Our collaborators from Myanmar using social media and protected channels invited Myanmar medical students to complete the questionnaire.

From March to June 2023 a semi-structured interview was conducted with the students who agreed to take further part in the investigation. The semi-structured interview was designed considering the

results provided by the answers to the questionnaire to enrich and further expand the information previously collected. The outline of the questions that guided the semi-structured interview can be seen in Table 1.

Table 1 - Topics and guiding questions of the semi-structured interview administered to 10 Myanmar medical students, 2023.

Topics	Guide questions
Opinions on the training topics considered most relevant emerging from the survey	1. In your opinion, why were these topics chosen for the training courses? (<i>"Basic Science" "Emergency Medicine" "Mental Health" "Public Health" "Patient Safety" "Healthcare Management"</i>).
	2. Do you agree with the choice of the students?
	3. Which of these topics are the most important to you and why?
Expectations from the training proposed with the international contribution	1. What do you expect from the international contribution that will be proposed to you to integrate the lectures you currently carry out with your teachers?
	2. Do you think certification is necessary?
	3. If yes, what kind?
Opinions on the method of delivery of theoretical lectures	How would you prefer the lectures to be delivered?
Opinion on the remote delivery method for clinical practice	1. How do you think distance learning can also support you in clinical practice?
	2. Do you want to give examples of teaching strategies that you consider effective?
Closing	Are there any other things that came to mind during our interview that you would like to add?

Source: elaborated by the authors.

The interviews were conducted online in English or in Myanmar language, based on the preferences expressed by the interviewees. The interviewer was trained on how to conduct the interview, based on non-judgmental listening and mutual trust. For security reasons, at the express request of the interviewees, only the audio of the interview was recorded.

All interviews were transcribed and translated into English when necessary. Each of interviewee was given a code to ensure their anonymity. The transcriptions were analysed separately by the authors of this article through the inductive method. Anonymized data were collected using Google Forms, organized in Excel and statistical analyses were applied using GraphPad V.5. The thematic analysis was conducted as reported by Kiger and Varpio (2020) with the identification of the units of meaning, aggregated into sub-themes and the comparison between the interpretations of the researchers.

The research protocol was approved by the Ethic Review Committee (ERC) of the National Unity Government (NUG) of Myanmar on 20 September 2022.

Results

Current training needs of Myanmar medical students

A total of 298 students responded to the questionnaire: 197 females (65.9%) and 98 males (32.8%), 3 did not provide any response. Not all students answered all the questions in the questionnaire, therefore, the results are reported in percentages. The number of students who answered each question is reported

in Table 2. More than half (55%) respondents were aged between 19 and 23, 44% were between 24 and 29 and only 1% was aged 30 or over. All of them spoke the official language of Myanmar, 76.9% also spoke English and 12.1% also spoke other languages. The great majority (98.3%) had not yet graduated and 75% were still enrolled in a university. A total of 69% of them were enrolled in the last three years of the six-year course, 25% in the first three years. Among the students, 89% considered it useful to continue their studies online and expressed their opinion on the technical methods of conducting online teaching: 28.9% preferred a synchronous mode, 17.8% preferred an asynchronous mode and 62.4% preferred a mixed approach.

Table 2 - Google Forms questionnaire utilized for the quantitative evaluation and number of students who answered each question. Myanmar, 2023. (N = 298)

Questions	Number of respondents	%
Personal data		
Age	298	100.0
Gender	295	99.0
Languages	298	100.0
Have you already graduated?	298	100.0
If so, what year did you graduate?	289	97.0
If not, have you enrolled in a university?	280	94.0
Which?	281	94.3
Which year are you attending?	298	100.0
Are you continuing your studies in any way?	193	64.8
If not, do you think it would be useful to continue your studies online?	199	66.8
If yes, how?	298	100.0
What was the teaching method used? (You can tick more than one answer)	297	99.7
Do you have the opportunity to do clinical practice?	141	47.3
If so, where can you practice?	294	98.7
Have you ever done simulated practical activities?	298	100.0
Have you had any online learning experience?	278	93.3
If so, what type of online learning have you experienced?	287	96.3
Which online learning method do you prefer?	266	89.3
In your training journey so far, what have been the topics that you consider most important? Which courses would you like to attend?	298	100.0
What would you change in the training course you attended?	176	59.1
Social context		
Where do you live?	289	97.0
What type of device do you have available?	118	39.6
Do you have access to a secure connection (VPN...)?	298	100.0
Do you have access to a stable connection?	298	100.0
What type of connection can you access?	298	100.0
Does it support video lectures?	297	99.7
Other information		
Please feel free to add any other relevant information.	74	24.8

Source: elaborated by the authors

The topics of greatest interest addressed in the academic courses previously attended were anatomy, physiology, emergency medicine, surgery, forensic science, clinical practice. This was an open question and the 266 students who responded indicated multiple subjects, therefore it did not seem useful to us to calculate the percentage values of each topic. Almost all participants (297 out of 298) answered the question concerning their preferences about the courses they would like to be provided to them online

as part of the project (Table 3). The frequency of these responses varies in the population of 74 students enrolled in the first three years compared to the 205 enrolled in subsequent years, 18 students did not report their year of enrollment at university (Table 3).

Table 3. Percentage of preferences of medical students about the courses they would like to be provided (number of students). Myanmar, 2023.

Courses	All students (n = 297)	Students of the first 3 years of the course (n = 74)	Students of the last 3 years of the course (n = 205)
Emergency Medicine (n = 231)	78%	93%	79%
Healthcare Management (n = 169)	57%	59%	61%
Basic Science (n = 149)	50%	55%	53%
Public health (n = 129)	43%	55%	39%
Mental Health (n = 124)	42%	53%	39%
Patient safety (n = 106)	36%	36%	37%

Source: elaborated by the authors

A great majority of 82% of respondents would like some changes to the training course of study undertaken. For them, the medical course should include: fewer boring lectures, more practical activity on the patient or simulated, more interaction, discussions between students and teachers, problem solving activities, small group activities. Learning methods should provide: less rote learning from books and student discussion groups. It would also be necessary: greater flexibility in compulsory classes, changes to the examination methods, longer intervals between tests, international recognition of the qualification, free internet for all students, more scholarships and financial aid for students in financial difficulty.

The feasibility of alternative training courses in the context of the ongoing civil war

After the coup, 96.3% students benefited from the provision of some online lectures: specifically, 15.5% experienced synchronous learning, 23.7% asynchronous learning and 75.9 % a mixed mode. In 24.5% cases online lectures were integrated with face-to-face lectures. Only 21.1% were able to avail themselves of simulated practice and 17.4% of virtual reality exercises. A total of 40% had the opportunity to practice in private clinics, in hospitals, in mobile clinics, or in the field; 91% of students declared they lived in areas controlled by the army, 4.5% in liberated areas, 4.5% took refuge abroad. 2 students (0.7%) preferred to answer generically that they lived in Myanmar. The great majority (94.6%) of students have a secure connection and 86.6% have access to a stable connection; 93.6% can connect through WIFI while 44.5% can connect through mobile data. More than half (58.5%) had access to a PC, 43.2% to a tablet and 89% to a mobile phone. Finally, 99% of respondents stated that their connection supports video lectures.

Ten students (five males and five females), aged between 23 and 25 years, accepted to undergoing a semi-structured interview. From the in-depth analysis of the interviews' transcripts and their thematic analysis, the overarching themes and subthemes summarized were defined:

Theme 1: context

Framing perception of difficulties in the current state

Responses highlighted a deep concern about the suspension of studies due to the conflict: “I was expelled from the university because of my great involvement in the political revolution” (cod. 1.2).

The students say they found themselves in very difficult times to deal with due to several factors: “I’m a final year medical student and my education has been postponed due to covid and the military coup for about three years. It’s been almost three years. So, it’s really difficult” (cod. 5.1).

The concern also regards the risk that being a medical student entail: “There is also an option to practice in private hospitals, but the military could easily arrest you if that were the case” (cod. 3.7).

Resilience, extracurricular courses

Despite the difficulties and worries, however, the students appear resilient and work hard to deal with the situation in the most profitable way, although recognizing: “My life is not as bad as those who fight on the field as soldiers (cod. 7.13).”

Some students are attending online classes and extracurricular courses that have aroused their interest, provided by universities other than those in which they were enrolled. In fact, they said: “I noticed some extracurricular courses at IUC. And I took an emergency course on Combat Blast Injury, basic life support, advanced life support, something like combat medical training” (cod. 10.12).

Thoughts on present and future times

The interviews also reveal that the students’ commitment is above all oriented to the present situation, but some do not give up thinking about the future: “As a final year student, I have many ambitions and goals for the future. But right now, in addition to doing what I want, I have to do what’s right. Keeps my mind healthy” (cod. 10.2).

Theme 2: Overview of student training options

Learning method currently used

The preference of students for online learning in the current conditions clearly emerges. Most students said they are attending online theory classes provided by Interim University Council (IUC) or directly by the NUG, and they declared: “So, now I am attending MOE (Ministry of Education) of NUG online classes” (cod. 3.2). No students attended courses provided by the military government.

Students’ opinion on e-learning mode

Among the advantages of online learning are saving time on the journey from home to university; the duration of the video classes which are less long than those in person, the possibility to: “...they can share the screen and for interesting topics or topics where we are behind, we just need to take a screenshot” (cod. 8.7). As for the ease and speed of finding teaching material, students affirmed: “When it comes to online classes, we don’t need to prepare to attend our classes. For example, I can get out of bed and attend classes immediately.” (cod. 8.7); “I like the ease and relaxed nature of online courses.” (cod. 10.7).

All students underlined the difficulty of learning online the practical part of the medical profession: “I’m currently at home. So, I don’t have the chance to learn clinical practice...I’m studying some lectures online...so I got virtual learning but not real practice.” (cod. 6.6).

Among the negative sides of online learning, we find technical network problems, which do not allow students to follow the lectures as best as possible; lack of human contact with other students

and professors; difficulty in concentrating which affects the quality of learning: “The downside is that we can’t make eye contact with the professors; therefore, concentration may decrease, and we cannot concentrate more” (cod. 8.9).

Supplementary training opportunities and possible future developments

Some interviewees believed that online teaching is not effective for learning clinical practice: “In person absolutely. It is very important that clinical practice is in person. For theories, you can learn from any online lecture or textbook, but you can’t learn how to cure a patient or do some treatments.” (cod. 6.8)

One student said he volunteered as a doctor; another student said her sister is a doctor and could learn clinical skills from her; another said he had followed a group of expert doctors for a week. However, there are also those who have found it useful to practice by watching videos of simulations and clinical cases on the internet or those who are waiting for the activation of an application called ‘Virtual Clinical Examination’: “...of a virtual clinical experience in which the instructor examining the patient wears a camera and the student can see how a patient is examined and managed...” (cod. 5.5).

Attending hospitals in the liberated areas of the country or at some non-governmental or community-based organizations, when practicable, was considered the best possibility for clinical practice. There are also private hospitals, but they were considered unsafe because the military could arrest the professionals who work there: “I think we could if we went to a liberated area...UM1 and UM2 are also trying to build a school...We might be able to contact some NGOs...There is also an option with private hospitals, but the military could easily arrest if so.” (cod. 3.7).

Theme 3: Opinion on the training areas considered

If in the quantitative survey students clearly expressed their preference for the areas of emergency medicine, mental health, public health and basic sciences, in the qualitative interviewees the students confirmed an interest in these areas except for Basic Sciences on which no interviewee focused.

Mental health

The topic of greatest interest was mental health. This interest is primarily linked to one’s own personal need. The social and political situation in which the country founded itself had an important impact on the psychological balance of the students, their families and friends, and this topic recurs in most of their narratives: “Regarding mental health, we are all having problems during this time of crisis” (1.7); “Psychology is very important and nowadays there are many mortality rates and depressions. There could be jobs for many people in the future” (3.12).

It was also highlighted that taking care of oneself is essential to be able to help others one day: “...most people in Myanmar suffer from many psychological problems, firstly to control themselves and secondly to help others suffering from medical trauma” (cod. 8.17).

Emergency medicine

Similarly, the interest expressed in Emergency Medicine appeared conditioned by the ongoing political tensions and the perceived social instability: “earning to manage the emergency is a necessity because these days we don’t really know what will happen, so it would be the first priority.” (cod. 6.11)

Political tensions mixed with the impact of the Covid-19 pandemic in the perception of some students who underlined the importance of this training area to give them the opportunity to support their communities: “there was a third wave of covid that hit our country hard and as a medical student...

we did our best. Emergency medicine can be very useful for medical students who are on the front lines in border camps and IDP camps.” (cod. 5.7)

Public health

The choice of Public Health, in addition, emerged as linked to the need to be able, in the future, to be useful for the reconstruction of the country: “Public Health is very useful for the future...I think we might need it” (cod. 4.13). The choice of Healthcare Management was considered in the same way: “Definitely Healthcare Management because thinking about the reconstruction of the country is becoming very popular these days” (cod. 6.12).

Other training areas

Finally, it is useful to note that the interviewees showed interest in other training areas. One student showed interest in an in-depth course on ECGs, another would like to delve deeper into the cardiovascular field.

Theme 4: Expectations relating to the contribution of the international project

Inter-university training and collaboration

Inter-university collaboration is viewed with great favour: “I think it is a hope of light in this terrible situation” (cod. 4.15); “I welcome these contributions. I am grateful for these contributions and hope that many more courses can be opened with universities in Myanmar.” (cod. 5.10)

Students referred many expectations regarding the possibility of having contacts with foreign universities in the hope of being included in networks and take part in international exchanges: “...we only expect that some universities in other countries will welcome us and give us the opportunity to continue our studies in their universities and offer us a degree” (cod. 8.20); “...I think these collaborations would bring many possibilities for students for their future...I think it would be wonderful. Especially if I could attend from home or at most if we could go to their universities, it would be fantastic” (cod. 10.17).

Recognition of credits and/or certification

Internationally recognized certifications was a topic very close to the hearts of those interviewed. International recognition of the skills acquired would give them the possibility of entering the labour market after the coup, and even the possibility of continuing their studies abroad without running the risk of retaliation from the military:

The main benefit is career development... But after getting the diploma... I am worried about my safety because the military might arrest us... if the schools cooperate with international schools, we could get the diploma certificate from those schools... So it might be safer for us to find and apply for jobs. (cod. 3.14).

...I would like a guarantee that the project includes internationally recognized certificates to be able to continue my studies, that would be fantastic. (cod. 2.13)

Discussion

The aim of this study was to examine the current training needs of Myanmar medical students and the feasibility of alternative training courses in the context of the ongoing civil war. It is important to underline the considerable difficulties of carrying out qualitative interviews given the uncomfortable situation in which the conversation took place. It is also necessary to underline the importance of having relied on an interviewer from Myanmar, both to find contacts and to create a good level of cultural attunement during the interviews.

The few years of democratic ruling had started a process of improvement of Myanmar's healthcare organization, however many crucial issues remained unresolved (Han et al., 2018). The time available was too short to correct the damage of over 50 years of military dictatorship (Mosca et al., 2020) which had led Myanmar's healthcare system to be at the bottom of the world rankings (Tandon et al., 2000). To the destruction of infrastructure, arrest and killing of healthcare personnel was also added the closure of local educational structures (Soe et al., 2020). Health systems depend on local educational structures to facilitate training of an adequate supply of health professionals. Inadequate levels of physicians are associated with increased population disease burden and a reduction in health system performance (Crisp & Chen 2014). For this reason, in agreement with NUG, we planned to contribute via e-learning to the training of Myanmar medical students who do not attend medical schools.

This study constitutes the first phase of this project and had the aim of identifying the training needs and the main difficulties encountered by Myanmar medical students in the context of the civil war. The effectiveness of e-learning for healthcare education has been demonstrated in various contexts, such as the Virtual Learning Environment of the Brazilian Health System (AVASUS), which has shown positive results in training health professionals (Valentim R. et al., 2022). The training difficulties faced by medical students in war situations are known (Dobiesz et al., 2022; Gillett, 2019), with students often participating in the medical response to war (Barnett-Vanes et al., 2016; Dobiesz et al., 2022;) and are similar to those experienced by Myanmar medical students. While most of these are retrospective, in this study the students were able to describe their situation during the conflict.

The number of participants to our quantitative analysis was high, especially considering the difficulties inherent to the situation, with the military persecuting those students who joined the CDM. The use of the Google Forms platform which guarantees the anonymity of the responses has been a facilitating factor as well as the participation in the study of a medical student from Myanmar who had the contacts necessary to inform his fellow students of the possibility to participate in the study. The opinion expressed on the courses they had attended before the coup was overall positive, although many students complained about an excess of theoretical lectures and a lack of practical education, as well as the insufficiency of economic measures aimed at encouraging the continuation of studies for less well-off students. In the questionnaires most of students indicated a high degree of psychological stress but has not given up the ambition of continuing their studies. To this aim, they are resorting to extracurricular courses available online, useful in these situations (Gillett, 2019; Jain et al., 2022a), and are using e-learning to follow courses organized by the NUG or by NGO operating on the territory or borders of the country.

Myanmar students reported that the Internet connection is strong enough and that they have the necessary devices to navigate online. Only a few students had the opportunity to follow face-to-face courses, especially with practical exercises, organized in areas of the country no longer under military control. At the time the questionnaire was sent, the areas the NUG's control were few, today they have increased considerably and access to in-person courses is probably possible for a greater number of students.

The training areas most requested by the students were areas directly connected with the needs of the ongoing war such as emergency medicine, mental health, and areas such as public health and medical care management which testify the hope of the students that the situation can change and

can undergo improvement. The need for emergency training is easily understandable. The students witnessed violence by the military against civilians and many of those interviewed were available to help health workers by providing care to the wounded. Medical students are rightly convinced that more in-depth training on emergency situations would enable them to be more helpful to civilian victims of conflict (Jain et al., 2022b).

The usefulness of training on trauma management caused by weapons of war has been highlighted by the “Traum’cast”, an ambitious online training project (Boutonnet et al., 2021), and some authors believe that it should be part of the study plans regardless of the presence of ongoing wars (Abramovitch, 2013). Equally understandable is the need expressed by students for mental health training. It is in fact known that armed conflicts lead to neuropsychological problems (Jain et al., 2022a) and that medical students can play a central role in mitigating the burden of psychiatric illnesses in their local communities (Latifeh et al., 2021). Alterations in mental health persist even after wars have ended (Kovess-Masfety, 2021) and specific training can allow them to better cope with these situations (Dobricki et al., 2010). During the war students also suffered from posttraumatic stress disorder (Fadakar et al., 2023) and the interviewees in this study confirm this. The repression on the part of the military was particularly harsh on healthcare personnel, and students who joined the CDM (Soe et al., 2020) and this awareness fuels the need for specific training. Information of this type highlights the need for greater space for mental health in the curriculum of medical study courses (Latifeh et al., 2021). The interviewees also proposed changes to the study path in support of the consideration that wars can even be opportunities to improve the training of medical students (Batley, Makhoul and Latif, 2008).

The Myanmar students did not express the desire to leave their country to continue their studies (Barnett-Vanes et al., 2016) but described the methods they are adopting to be able to train independently. The availability of courses on the web (Boutonnet et al., 2021) has highlighted the usefulness of e-learning. Participants, as in other experiences (Mayer et al., 2023; Taylor et al., 2023), described distance learning as a helpful measure used when teaching was interrupted. A recent systematic review (Taylor et al., 2023) documented that self-directed learning, in addition to being useful in lifelong learning (Matsuyama et al., 2019) and in permanent education in health (Ceccim, 2023), can also be useful in undergraduate health professions education. In this context, massive education initiatives, such as those observed in the Brazilian prison system, have demonstrated the impact of large-scale health education programs on marginalized populations (Valentim J. et al., 2022, 2023). These experiences underline the potential for e-learning and online courses to address gaps in education and training in challenging environments.

In the liberated areas under the control of the NUG, students still have the possibility of following online courses organized by the Ministry of Education and Health of the NUG to which our project would like to provide some training contribution. Unlike what was described in other less recent war situations, they did not encounter difficulties in accessing the net or in the availability of equipment for accessing the platforms reported in the past (Abramovitch, 2013). All the students underline however the difficulty of learning online clinical and practical practice. Some have had the opportunity to practice in private clinics or collaborate with street clinics made available to the population, however in areas still under military control these training resources carry the risk of military persecution. As a solution to this problem, in accordance with other experiences in the literature (Ismail et al., 2023) some students shared the experience they had with simulation and recommended to use it. Simulation in medical education has been tested using appropriate software (Hu et al., 2022) and has proven useful for training in war situations (Dobiesz et al., 2022) or natural disasters (Duan et al., 2019).

The interviewed Myanmar medical students showed a good resilience and among the topics they would like to explore further in their training they indicated those connected with healthcare organization, a need linked to the need to be able, in the future, to be useful for the reconstruction of the country. Most of students want to stay in their country, be adequately trained and have a role in the health system’s reconstruction when the situation allows it. To do this, however, they want their

training efforts to be recognized and that this recognition can be considered valid in their country and possibly also abroad. The recognition of qualifications or, at least, internationally recognized certifications is a topic that is very close to the hearts of those interviewed.

Conclusions

This study, conducted with interviews during the civil war in Myanmar, helped identify the most urgent educational needs of medical students after the military coup. These results will be able to contribute to a distance learning project agreed with the NUG ministers through supplementary online courses and video simulations on the topics of emergency, critical care, mental health, and public health. The courses can be followed by students both in areas controlled by the military and in liberated areas, if internet connection is possible, and the students have the appropriate equipment. The agreements with the ministers of the NUG could favor in the future the recognition of the training activity of the students who will participate in the project and the international partners will be able to favor agreements for the post-graduate integration of the training course abroad. The results of this study may also be useful to those who in the future want to encourage the training of medical students both in Myanmar and in other war zones, as it suggests which methods to follow, while highlighting favorable and hindering methodological elements.

As for limitations of this study, the semi-structured interviews were short, for the students interviewed found themselves in uncomfortable conditions, sometimes at risk, sometimes in dangerous areas, for which they could make little time available. Although adequately trained, it was the interviewer's first experience with qualitative interviews. Nonetheless, the study is of interest as it offers insights for conducting remote fieldwork in an area experiencing civil war.

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Author's contribution

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 Data curating: CD
 Data collection: CD
 Data analysis: CD
 Writing - original manuscript: CD, AVS
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Conflict of interests

We declare no competing interest.

Ethical aspects

The research protocol was approved by the Ethic Review Committee (ERC) of the National Unity Government (NUG) of Myanmar on 20 September 2022.

Research materials and/or data available from repository

The raw data supporting the conclusions of this article will be made available by the authors upon request.

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