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# The experiences of medical and pharmacy students participating in a collaborative online international learning on social accountability and global health: a qualitative study

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## Abstract

**Background** Social accountability aims to promote a collective ethic that upholds the fundamental values of equity, efficiency, solidarity, and social justice in healthcare and is now considered as a critical mission of academic health centers. Collaborative Online International Learning (COIL) is a pedagogical approach that uses digital technology to provide experiential international learning, specifically for increasingly diverse and multicultural healthcare work environments. The SOLID'AIRES program is an innovative French-language COIL that aims to set up international exchanges and workshops on social accountability between health sciences students. The aim of our study was to assess the impact of participation in the SOLID'AIRES program on medical and pharmacy students.

**Method** Five universities in four different countries were involved in SOLID'AIRES. We conducted a qualitative study by performing individual, semi-directed interviews with students who participated in the program from 2021 to 2022. A thematic analysis was conducted in five chronological phases: (1) reading, (2) descriptive coding, (3) conceptual coding, (4) identification of themes and (5) production of a coherent thematic structure.

**Results** After including sixteen student participants, 13 medical and 3 pharmacy students, we identified four main themes related to the impact of participation: (1) previous experiences in social accountability and international learning, (2) perception of the program, (3) perceived impacts of the program, and (4) difficulties encountered and avenues to improve the program. Overall, the program was well received by all participants who reported the advantages and limitations of the online learning format. The primary advantage of this format was its feasibility. The participants noted both professional and personal benefits of the program for their current and future practice, including greater reflexivity towards health sciences practice. Based on the challenges faced during the program, particularly in coordinating group work and communication, participants suggested increased supervision of group

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projects by collaborators, and organizing at least one in-person meeting for future editions. The participants reported encountering difficulties during the COIL and suggested ways of improvement.

**Conclusion** Participating in a COIL on social accountability appears to be an effective way to adopt a reflective approach to medical practice and should be implemented and evaluated in other educational contexts.

**Keywords** Social accountability, Global health, Social justice, COIL

## Introduction

Social accountability aims to create a collective ethic that respects the basic values of equity, efficiency, solidarity, and social justice. It refers to the potential consequences of the actions or inactions of individuals, organizations, or companies. In 1946, the World Health Organization stated that every human being has the fundamental right to enjoy the highest attainable standard of health, regardless of race, religion, political belief, economic or social condition [1, 2]. This definition highlights the universal and fundamental nature of the right to health. To promote and standardize this right globally, the concept of Global Health has been developed over the past decade. Beaglehole & Bonita [3] defined Global Health as 'transnational collaborative research and action to promote health for all people around the world.' The aim of Global Health is to promote equitable, community-oriented health systems through an educational approach that emphasizes social accountability [3].

Given the increasing significance of the social dimension of health, academic health centers must reflect on their capacity to address health concerns, realign their objectives, and take actions that have a greater societal impact [4]. The World Health Organization defined social accountability of medical schools as their obligation to direct their training, research, and services towards the major health problems of the community, region, and/or nation they serve [5]. The concept of social accountability in health encompasses identifying the health needs of the population and verifying the impact that medical schools can have on meeting those needs. This concept is based on four fundamental principles: relevance, quality, equity, and efficiency [6, 7]. Boelen et al. [6–8] have described the growing interest of medical schools in social accountability as a result of three phenomena: (1) questioning the proper functioning of institutions, (2) the need for transparency and traceability of the effects produced on society, and (3) the idea that everyone can contribute to the well-being of all in their own way. A meta-analysis published in 2021 evaluated the factors influencing medical students' intention to work with underserved populations [9], reporting that international exchanges and community interventions with disadvantaged populations during medical training may strengthen students' interest in social accountability and encourage a commitment to caring for the underserved [9]. However, the study also

noted a lack of research evaluating international educational programs for medical and pharmacy students.

Collaborative Online International Learning (COIL) is a pedagogical approach that uses digital technology to provide experiential international learning without requiring travel abroad. COIL facilitates web-based, cross-country intellectual exchange, which helps prepare students for increasingly diverse and multicultural healthcare work environments globally [10]. COIL may facilitate the development of students' intercultural competence, ensuring that all students have the opportunity to develop these skills [11]. COIL focuses on learning through social interaction, which is essential for developing intercultural competence [12]. Despite an emerging literature on the topic [13], there remains a paucity of experimental studies investigating the experience and effects of COIL among medical or health sciences students [14–16].

The SOLID'AIRS program is a French-language COIL initiative that promotes international exchanges and workshops on social accountability and Global Health for medical and pharmacy students. Launched in 2021, the program involves five faculties in four countries around the world: Lyon-Est and Rouen in France, Laval in Quebec, Alassane Ouattara (Bouaké) in Côte d'Ivoire, and Mahajanga in Madagascar. The aim of our study was to assess the immediate impact of participation in the SOLID'AIRS program on medical and pharmacy students. In particular, the study aimed to determine whether a COIL on social accountability is an effective method for encouraging a reflective approach to health sciences practice among students.

## Method

We conducted a qualitative study based on individual semi-directed interviews with students who participated on a voluntary basis in the SOLID'AIRS Program from 2021 to 2022.

### SOLID'AIRS Program

The SOLID'AIRS Program consisted of six videoconference sessions held between January 2022 and April 2022. Each session was divided into two parts. The first part featured a guest speaker who discussed a predefined topic related to social accountability and Global Health. For this inaugural edition of the SOLID'AIRS program,

the COVID-19 pandemic was used as a relevant topic to prompt participants to reflect on the various challenges facing global healthcare during this period. At the end of the session, small groups of students were given a second opportunity to share and discuss their thoughts and approaches on the presented theme. In addition to the video conferences, the SOLID'AIRS Program included group-works aimed at producing a tool to raise awareness on social inequality and precariousness among healthcare professionals, using the COVID-19 pandemic as an example. This tool could take the form of a podcast, poster, video, blog, or other supports. The objective of the tool was to propose concrete actions to assist health sciences students and healthcare professionals in addressing social inequalities in health in their daily practice. This was to be achieved either by providing knowledge on the social determinants of health or by proposing helpful actions for daily practice. Medical or pharmacy students from France, Quebec, Madagascar, and Côte d'Ivoire participated in the program on an optional basis. To attend the program, they were required to submit a letter of motivation and undergo individual interviews with the medical teachers involved in the program.

#### **Recruitment**

Participants were recruited between October 2021 and May 2022 by offering to take part in the study during videoconference working sessions. Potential participants were invited to participate via email. Inclusion criteria required being a selected student in the SOLID'AIRS program who provided consent for participation. Non-inclusion criteria included refusal to participate in the study.

#### **Semi-structured interviews**

The first author conducted the interviews via videoconference between May and July 2022 due to the COVID-19 pandemic and logistical reasons, as participants were located around the world. Prior to the interviews, an outline was prepared. The interviewer collected the following sociodemographic information from participants at the beginning of the interviews: age, gender, country of residence, academic cursus, and years of study. The semi-structured interviews lasted between 30 and 45 min and began with the following opening question: 'the SOLID'AIRS program is coming to an end, how did it go for you?' This was followed by exploratory questions on the motivations for taking part in the program, the profile of the participating students, what they had learnt as a result of the program, and possible areas for improvement in training towards social accountability in health sciences education. The content of the interviews was recorded and anonymized. The interviews were driven, transcribed, and analyzed in French. The verbatims were

translated into English through an English language editing service especially for the article.

#### **Data analysis**

The first (AER) and the last author (EL) conducted a thematic analysis in five chronological phases as presented by Sibeoni et al. [17]: (1) reading, (2) descriptive coding, (3) conceptual coding, (4) identification of themes and (5) production of a coherent thematic structure (Table 1). The data were analyzed manually. The interviewer examined the apparent messages through repeated reading of the transcripts to achieve immersion and obtain an idea of the whole. In addition, this initial reading made it possible to define themes and formal categories that would be relevant for the subsequent coding of the verbatims. The units of meaning were then independently identified, categorized, and related to each other to identify cross-cutting axes of meaning. This process offered a possible classification of the elements as well as a simplified representation of the raw data.

#### **Bias mitigation control**

To reduce bias in the qualitative data collection, two main actions were implemented: triangulation and saturation. Triangulation involved using multiple methods or data sources in qualitative research to gain a comprehensive understanding of phenomena. Denzin [18] and Patton [19] identified four types of triangulation ((1) data triangulation; (2) investigator triangulation; (3) theory triangulation; and (4) method triangulation). The investigator and theory triangulation was used in our analysis. The interviews were conducted by the first author (AER), a resident in family medicine who was not directly involved in the SOLID'AIRS program as a teacher. The other authors are medical academics and researchers from different disciplines (family medicine, public health, psychiatry, philosophy and anthropology) who were directly involved in the program as teachers. The authors adopted an inductive approach to the data collection and analysis. The analysis was summarized and then discussed between the interviewers.

Saturation is a methodological approach that ensures the reliability and representativeness of data collected through qualitative research. The process involves continuing data collection until new data no longer provide new information on the study's results [20]. Saunders et al. [20] developed a taxonomy that defines four types of saturation: (1) theoretical saturation, (2) inductive thematic saturation, (3) a priori thematic saturation, and (4) data saturation. Theoretical saturation refers to the development of theoretical categories, while inductive thematic saturation refers to the emergence of new codes or themes. A priori thematic saturation measures the extent to which the identified codes or themes are illustrated

**Table 1** Thematic analysis adapted from Sibeoni et al. [17]

Stages	Activities	Rationale	Actions
Stage 1	Repeatedly read each interview, as a whole	Obtain a global picture of the interview and become familiar with the interviewee's verbal style and vocabulary Each new reading of the transcript might also provide new perspectives	Reading the 16 interviews
Stage 2	Code the transcript by making notes corresponding to the fundamental units of meanings	Pay particular attention to linguistic details and the vocabulary used by the participant, for instance when he/she uses a metaphor to explain or name a phenomenon, in order to make inductive descriptive notes using the participant's own words	Exhaustively coding the interviews to identify all the units of meaning reported by the 16 participants
Stage 3	Make conceptual notes through processes of condensation, abstraction, and comparison of the initial notes	Categorize initial notes and reach a higher level of abstraction	Identifying subthemes by compiling the codes collected during Stage 2
Stage 4	Identify initial themes Provide text quotes that illustrate the main ideas of each theme	Themes are labels that summarize the essence of a number of related conceptual notes. They are used to capture the experience of the phenomenon under study	Identifying general themes by compiling the subthemes that were created during Stage 3
Stage 5	Identify recurrent themes across transcripts and produce a coherent ordered table of the themes and sub-themes	Move from the particular to the shared across multiple experiences Recurrent themes reflect a shared understanding of the phenomena among all participants During this more analytic stage, researchers try to make sense of the associations between the themes found	Producing a narrative synthesis through a coherent table and narrative of themes and subthemes using the investigator triangulation Making sense of all the units of meaning and of the diverse experiences collected throughout the interviews

in the data, and data saturation measures the extent to which the new data repeat what was expressed in the previously collected data. Based on a recent systematic review, qualitative studies typically achieve saturation with a sample size of 9 to 17 participants [21]. Considering the homogeneity of the sample (i.e., health sciences students participating in SOLID'AIRS), a total of 15 to 20 participants was required to reach saturation.

The analysis was concluded after the inclusion of 16 participants, three out of four types of saturation having been reached. Indeed, no new codes or new themes emerged during the last two interviews (theoretical and inductive thematic saturation) and the data collected during these two interviews repeated what had previously been reported by the other participants (data saturation).

The results are presented in accordance with the COREQ checklist [22].

### Ethical approval

The study received ethical approval from the Ethics Committee of the Université Claude Bernard Lyon 1 (France) in February 2022 (n° IRB 2022-02-08-01).

## Results

### Participants

Of the 22 students involved in the SOLIDAIR'S Program, 16 were included in our study (72.7%). Of the seven students who did not take part in the study, 3 were students

in North Universities (Laval, Lyon and Rouen) and 4 in South Universities (Bouake, Mahajanga).

Most of the study participants were women ( $n=12$ ) and medical students ( $n=13$ ). A total of 11 were from France, 2 from Côte d'Ivoire, 2 from Madagascar and 1 from Canada. Most participants were in the 20–25 age group ( $n=10$ ). They were mainly students in their fifth year of study ( $n=9$ ). The characteristics of the participants are listed in Table 2.

### Identified themes

Four themes emerged from the analyses: (1) previous experiences in social accountability and international learning; (2) perception of the SOLID'AIR program; (3) perceived impacts of the program; and (4) difficulties encountered and avenues for improvement. These themes and their identified sub-themes are described below and illustrated with participants' quotes.

### Previous experiences in social accountability and international learning

#### Perception of social accountability

For the majority of participants, the concept of social accountability was new, and previous knowledge in this area was vague or non-existent. The participants agreed that it is critical to consider psychosocial factors in a care pathway, and, in their definitions of social accountability, the notions of 'duty', 'commitment' and 'ethics' were used to express the objective of guaranteeing the right of

**Table 2** Characteristics of the participants

Participants	Gender	Age range	Country of residence	Education	Curriculum year
P1	Female	18–20	France	Pharmacy	3
P2	Female	25–30	Ivory Coast	Medicine	7
P3	Female	20–25	Canada	Medicine	5
P4	Female	20–25	France	Pharmacy	3
P5	Female	25–30	Madagascar	Medicine	7
P6	Male	20–25	France	Pharmacy	3
P7	Male	25–30	Madagascar	Medicine	7
P8	Female	20–25	France	Medicine	5
P9	Female	25–30	France	Medicine	5
P10	Female	20–25	France	Medicine	5
P11	Male	20–25	Ivory Coast	Medicine	6
P12	Female	20–25	France	Medicine	5
P13	Female	20–25	France	Medicine	5
P14	Female	20–25	France	Medicine	5
P15	Male	30–35	France	Medicine	5
P16	Female	20–25	France	Medicine	5

accessing healthcare. The terms ‘solidarity’, ‘mutual aid’ and ‘exchanges’ also recurred in the participants’ conceptions of social accountability.

*“When I signed up for the program, I didn’t really have a very clear idea of what social accountability was.” (E11)*

*“For me, social accountability means considering the psychosocial factors in patient care, so the sociological aspect that we don’t deal with at all in medicine. A person with such background in such a social environment, how can we discuss and work with him/her to treat him/her through the healthcare relationship.” (E9).*

*“Health is not a luxury, it’s a right for everyone and it means being able to ensure this right to everyone.” (E10).*

*“Social accountability made me think that being able to share with others, to learn from others and that we can all learn from each other. It’s about raising awareness on topics that will concern us all because social accountability also matters in health.” (E12).*

#### Previous experiences in social accountability

Half of the participants reported involvement in community work as previous experiences of social accountability. Travelling on humanitarian missions and charities were other examples given of previous experiences.

*“I was also an active member for 3 years in the office of a charity that helped migrants and refugees.” (E9).*

*“When I was still in Cambodia, we did a bit of voluntary work, like visiting orphanages, spending the day with them and helping to set things up.” (E1).*

It could also be a question of more theoretical experience, through participation in training and education. Referring to their past experiences of social accountability, the participants agreed that they had taken part in these actions before SOLID’AIRS, without knowing the principle of social accountability and without knowing that these experiences could be part of this concept.

*“Afterwards, when I was doing the educational program on discrimination and health last year, it’s true that we did have a few points relating to the notion of social accountability.” (E16).*

*“Looking back, I’m thinking that maybe it did fit in [social accountability]. And it’s something I really loved, but we didn’t know it was social accountability.” (E14).*

#### Expectations about the COIL

All the students reported to be unfamiliar with the COIL as an educational program before taking part in the program. The participants imagined the COIL as a place conducive to freedom of expression as well as a place for exchange on societal issues between individuals of different geographical and cultural origins. Most of the participants’ expectations of this COIL were freedom of learning and a different approach to the usual learning methods.

*“It’s a kind of platform where people from the four corners of the world, or from different regions, or from different ethnic backgrounds, communicate to*

*talk about a theme and do research with the aim of improving society.” (E5).*

*“Everyone is free to take on the knowledge they want, when they want, and assimilate it at their own pace. It’s not really formal, it really gives everyone the opportunity to learn and develop without necessarily complying with learning standards with a final objective that absolutely has to be achieved.” (E4).*

### **Motivations for participating in SOLID’AIRS**

The participants reported several motivations to participate in the program. Especially, all the participants reported the notions of encounters, international collaboration and cultural exchanges within the program. Another motivation was the innovative nature of the program. The students said they were curious to find out more about the SOLID’AIRS program, perceived as an educational program different from usual learning methods. Some students were honored to have been chosen to try out the first edition of this restricted-access program. Finally, another wish put forward by the participants was to undertake or further training in social accountability and the social sciences in general. They hoped to acquire the tools they needed to take better care of underserved populations, with whom they might feel powerless.

*“What motivated me was that we would have to work as an international team, so there had to be an exchange of cultures.” (E11)*

*“The way we were told about it, that it wasn’t just another lecture and that it was more interactive, with lots of people involved, I thought it was innovative.” (E1).*

*“First of all, what motivated me to take part in the program was the theme addressed, social accountability, because I really wanted to understand what it was all about.” (E11).*

*“It was precisely because I wanted to have experience in the human sciences, because up until now I’ve tended to work in fundamental sciences in all my activities apart from medicine, so I wanted to have more of a humanities and social sciences perspective.” (E13).*

### **Perception of their participation in the SOLID’AIRS Program**

#### **Participants’ general perception**

Participating in the COIL was globally appreciated by the participants. The participants also emphasized the feeling of being listened to and valued by the COIL teachers. The program’s strength also appeared to lie in the diversity of perspectives that were brought to the fore during

the interactions between the teachers and students. The participants described a good understanding within the teams when it came to carrying out the group projects.

*“I really enjoyed the sessions, they were great fun and I really encourage this kind of program because I find it really stimulating and interesting from my point of view.” (E4)*

*“We had very good interactions with the teachers, they were welcoming, friendly and available to help us. Whenever we had difficulties, we could send them emails and they would get back to us at any time.” (E11)*

*“What I really liked was the fact that there were different meetings with different people each time. That was very good because it allowed us to get different points of view.” (E8).*

However, some aspects of the COIL were less appreciated by the participants. Some expressed their disappointment at not having been able to complete their project, mainly due to a lack of time and coordination within the teams. Some also stressed their frustration at not being able to devote more time to the program.

*“I’m maybe a bit disappointed about the lack of time, which means that in the end we have a bit of a hard time finishing and handing in something, because it’s silly to put so much effort into something and then not finish it.” (E14).*

*“Just that it’s great that there are initiatives like this and that it’s a bit frustrating not to be able to give them more time. It’s true that I would have liked to have been able to get more involved in the project and do more things, but it was complicated.” (E16).*

#### **Positive experiences of online learning**

The participants reported several positive points about the format used for the COIL, in particular by means of videoconferencing. Firstly, it was an opportunity to meet people who were very far apart geographically. The exchanges and interactions between participants and teachers were also maintained during the videoconferences. The online learning format was also appreciated by the participants because of the logistical facilities inherent in this format: it provided ease of organization, with the comfort of home, all while being protective in the context of the COVID-19 pandemic.

*“Distance learning enabled us to meet people we might not otherwise have been able to meet.” (E15)*

*“Remote access didn’t necessarily interfere with the contact we had with others. It wasn’t necessar-*



*ily a limitation that there was no physical contact between students to work in a group.” (E1).*

### **Negative experiences of online learning**

However, the participants reported some negative aspects toward the online format of the COIL. Notably, technical connection problems affected the exchanges between participants. Some participants also questioned the quality of exchanges and interactions between individuals in videoconferencing: lack of spontaneity, lack of human contact, disappearance of non-verbal language, distractions at home. The paperless format also had an impact on group work. The participants tended to compare online learning with in-person format, agreeing that online learning had made this international program feasible, but still reporting a preference for in-person learning. Finally, the participants admitted to be done with online learning format after a full year of online learning since the start of the pandemic.

*“There were other people who had more connection problems and so it was a bit frustrating sometimes when not all the members of the group could be present to take part in the exchange.” (E8).*

*“Afterwards, with online learning, there’s a bit less human contact and interaction, because having a course isn’t just about the course itself, there’s all the interaction that goes on during the course, all the discussions.” (E15).*

*“I also think that seeing each other face-to-face also would have helped the complete the project because we did everything by messages, so there’s always a latency in response that there wouldn’t be in real life.” (E13).*

### **Perceived impact of the SOLID’AIRS Program**

#### **Professional benefits**

Firstly, participating in the COIL was an opportunity for students to acquire or develop their ability to work in a group and to communicate within an international team of healthcare professionals. The participants reported the willingness to strive to manage patients as a whole, with a patient-centered approach in their future practice. The program was also perceived as an opportunity to exchange about professional practices, and even to help in their choice of future practice. Lastly, participating in the program enabled participants to gain a better understanding of how the COVID-19 pandemic was managed in the various countries taking part, in a Global Health approach.

*“What I really appreciated was that SOLID’AIRS added the dimension of group work that was missing from our school curriculum.” (E1).*

*“If I take two specialties, neurology and infectiology, does my institution really need a neurologist or an infectiologist? I’d like to become a neurologist, that’s true, but is it something that my society needs? There are a lot of things I’ve learnt, but that really struck me.” (E7).*

*“It enabled me to understand that, beyond pathologies and care, it’s about comprehensive care and that you have to take the patient in all their dimensions and try to support them as best you can, in their day-to-day life.” (E8).*

*“The fact of communicating with people from outside, finding out how they practice medicine in their own countries, their vision, was really very interesting.” (E5).*

*“It reinforced my desire to go into public health. Also, discovering people who are passionate about what they do is very inspiring, we had teachers who were quite passionate about what they did and that made me want to do it.” (E13).*

*“We were able to see the pandemic from a different point of view thanks to the various presentations that were given and to understand how other people had experienced it, what other strategies they had put in place and how they had dealt with it.” (E8).*

#### **Personal benefits**

For the participants, the COIL was an opportunity to meet many people: people, students, but also cultures. SOLID’AIRS also enabled them to discover the diversity of learning methods. Through this program, the participants agreed that they were able to strengthen personal skills such as their ability to synthesize, their rigor, productivity, organization and communication skills. The COIL was also an opportunity for them to develop certain personal values such as open-mindedness, curiosity, creativity and self-confidence.

*“It’s really enriching to see culturally what is and what isn’t in each country.” (E6).*

*“It was learning, but learning through dialogue and interaction, learning that was anything but academic, innovative and united in its differences.” (E13).*

*“They proposed activities that seem very simple to us, but in fact once we were there, it wasn’t at all as simple as it looked, but it was interesting to see other ways of doing things and to see a little bit how teaching could be done elsewhere.” (E16).*

*“The challenge each time was to be as clear as possible in communicating, to regularly ask if everyone had understood.” (E13).*

*“But I think that, in any case, open-mindedness and curiosity, we’ll always use them whatever our way of doing things and I think that it helped to nurture that and also to nurture the desire to go and see what’s going on elsewhere.” (E14).*

*“I realized that, in fact, my ideas were no less valuable than anyone else’s, even if I lacked a great deal of experience, and over time I learnt to trust myself.” (E1).*

#### **Practical applications of the program in the medical field**

For some participants, one possible application of SOLID’AIRS is to put into practice and disseminate the projects created by the students in order to popularize the concept of social accountability and train healthcare professionals in this field. For others, the aim of the COIL was essentially to have an impact on the participants and that, by disseminating their projects, there would be no spin-offs for professionals who did not take part.

*“I think that the projects we are setting up with the different groups should be disseminated to our peers, to other people like us who may not necessarily have the same awareness of all this.” (E12).*

*“Train future healthcare professionals in all these issues [...] so that they can be better healthcare professionals.” (E4).*

*“I feel that creating a video or a pamphlet based on what people are doing has less impact than just the effect of the COIL on the participants and what they will be able to bring back to the community.” (E3).*

*“I would have preferred it if it had stayed a large group and then we could have developed something that would have an impact on each of us individually, instead of trying to have an impact on someone else.” (E16).*

#### **Difficulties encountered and avenues to improve the program**

##### **Difficulties encountered in SOLID’AIRS**

First of all, the participants emphasized the difficulty of coordinating and synchronizing to carry out the group work. Another difficulty encountered by the participants was agreeing on a common direction for their group project. There were also logistical difficulties, essentially hindering communication within the working groups. The participants also agreed that it was a time-consuming program. Lastly, some participants noted that the

students’ involvement in the working groups was uneven, and that some of them lost sight of what was going on.

*“The slightly more negative part for me was really the collaboration with the group because it was very laborious and it was complicated to get together to work together.” (E8).*

*“We changed the project a lot, everyone gave their ideas, we couldn’t manage to find a single direction.” (E1).*

*“There was a kind of plurality of views and as a result it was difficult, it took us weeks to change our project each time.” (E15).*

*“Often, the period when we had to participate in the training coincided with our course or work placement periods. So it was often difficult to find the time to attend the training.” (E11).*

##### **North/South balance of interventions**

The participants’ opinions differed as to the distribution of interventions by the participating countries. Nearly half the participants described the distribution of each country’s contributions as balanced. However, for the other half of the participants, this distribution of speakers was unbalanced: the countries of the North seemed to them to be over-represented in the speeches, whereas the countries of the South seemed to be under-represented.

*“Everyone had pretty good visibility, and each country was able to make its contribution.” (E6).*

*“I thought it was fine. I thought it was pretty well done, that there wasn’t just one country speaking.” (E14).*

*“But I think that the courses were mainly given by French and Quebec teachers in fact.” (E10).*

*“I had the impression that it was like 50% France then 50% the other countries, I would have liked more of a 25% of each, I would have liked to have even more opinions from Africa.” (E3).*

##### **Avenues to improve the program**

First of all, the participants raised the need to adapt the logistical arrangements for the COIL to local technical possibilities in order to avoid unequal access to the program. In terms of methodology, the participants would have liked to see better planning and more supervision of group work, and suggested that some of the COIL sessions be devoted to group work. The participants also suggested encouraging face-to-face meetings between students, at least from the same country, and forming working groups according to their interest in the same project in order to encourage team cohesion. Finally,



all the participants would have appreciated to have the opportunity to go on an international mobility trip to one of the participating countries in order to see the local reality of the country and get feedback from each trip.

*“The first thing is to find a system where everyone can connect at the same time for all the countries involved.” (E9).*

*“I liked the program a lot but I really think we should add more periods without teachers, fixed periods so that the groups can work together because me and my group, that was the biggest problem trying to get together after the sessions.” (E10).*

*“So if we could really move around, a kind of international mobility, for example to France or Canada, and see for ourselves what they do there, that would really be a big improvement.” (E5)*

#### **Avenues for improving interest in social accountability**

To improve medical students' interest in social accountability, the first thing to do would be to popularize and communicate this concept, which until now has been unfamiliar to them. It could also mean increasing the number of theoretical courses on social accountability during medical education. Furthermore, integrating theoretical learning with practical experience during placements or international mobility could prove an effective strategy for fostering students' interest in social accountability. For the participants, this quest for interest in social accountability by medical students would involve valuing investment in this field.

*“Develop training courses on social accountability so that it really becomes part of medical practice.” (E5).*

*“By putting more practice into diversified environments, rather than very highly specialized ones.” (E3).*

*“International exchanges too, I think, with medicines from other backgrounds and even other medicines too, I think that could be interesting, because we're very systemic, we consider that the medicine we currently have is the best and it's superior and that other medicines are worth nothing compared to it.” (E13).*

*“We need to value investment of students in projects that include social accountability.” (E8).*

## **Discussion**

### **Summary of results**

We conducted a qualitative study to evaluate the experiences of participation in a COIL on social accountability and Global Health among medical and pharmacy

students. After including sixteen participants, we reached saturation and identified four main themes related to the impact of participation in a COIL program: (1) previous experiences in social accountability and international learning, (2) perception of the program, (3) perceived impacts of the program, and (4) difficulties encountered and avenues for improvement. Overall, the students showed a spontaneous interest in social accountability, although they lacked detailed knowledge of the concept's definition. Most of the participants had prior experience in the field before joining the program. In contrast, the COIL was a new experience for all students. They were eager to explore this novel learning opportunity, and their reasons for participating in SOLID'AIRS were diverse. The most cited motivation was the wish to collaborate with individuals from different backgrounds and countries on an international level. Overall, the program was well-received by all participants. The students identified the advantages and limitations of the program's distance learning format. The primary advantage of this format was its feasibility. The participants noted both professional and personal benefits of the program for their future practice, including a greater reflexivity towards health sciences practices, especially in terms of advocacy and communication skills. Based on the challenges faced during the first edition of SOLID'AIRS, particularly in coordinating group work and communication, participants suggested increased supervision of group projects by collaborators and organizing at least one in-person meeting for future editions of the program.

### **Discussion of the results**

Based on our findings, the participants of SOLID'AIRS demonstrated a spontaneous interest in social accountability, despite varying levels of prior experience related to their socio-cultural context. One of their main reasons for joining SOLID'AIRS was to gain theoretical knowledge about social accountability and Global Health, and to develop a reflective attitude towards their future medical practice. Indeed, the participants expected that SOLID'AIRS would provide them with the tools to better care for underserved populations, for whom they may feel powerless. These results are consistent with previous studies reporting that medical and pharmacy students can have a great interest in social accountability or Global Health, but that this interest tends to decrease throughout education without educational interventions [9]. A meta-analysis of socio-demographic and educational factors among medical students revealed that participation in experimental community learning had a positive impact on their interest in social accountability and outreach to disadvantaged populations [9]. Furthermore, the participants indicated that the program had enhanced their awareness and reflexivity in relation to social health

inequalities, social accountability and Global Health. Indeed, the program fostered reflexivity in terms of competencies related to advocacy, rigor, productivity, organizational and communication skills. Accordingly, a systematic review of 47 studies reported that service-learning is effective in fostering significant improvement in students' social justice beliefs, stimulating significant changes in their attitudes towards developing altruistic behaviours and their commitment to social justice, and increasing their critical understanding by sparking questioning processes related to personal assumptions of inequalities [23]. Moreover, a recent Swiss study evaluating gender bias in 76 medical students reported that an educational program using a reflexive approach to raise students' awareness of gender bias in medical practice increased the ability for individual reflection [24]. Therefore, reflexivity regarding social inequalities must be considered a major tool of medical education that can be enhanced through dedicated programs.

In line with previous studies of COIL in health science students [15, 16], all students appreciated the SOLID'AIRS program. They particularly valued the opportunity to be heard and the diverse range of international perspectives that contributed to the program's strengths. However, the participants expressed frustration at the lack of time available to devote to the program, which was partly due to the weight of their training courses. As the remote format of the COIL program allowed participants from all countries to take part, the students expressed satisfaction with the opportunity to meet other foreign students through remote communication tools. However, the participants expressed a desire for an in-person meeting or a work placement in one of the participating countries to fully immerse themselves in the program, which have previously been reported as beneficial for students [25]. Accordingly, the second and third editions of the program included a summer school, during which students from all the universities involved in the program gathered for two weeks at one of the Universities involved in the program.

The objective of educational programs, such as SOLID'AIRS, is to raise awareness of the realities of other healthcare systems and to train professionals capable of finding a useful place for themselves in a complex healthcare system. Therefore, it is critical to assess the impact of these study programs on students and the social determinants of health [9, 23, 26, 27]. Regarding the impact of the SOLID'AIRS program, students reported professional benefits, including improved reflexivity on health sciences practice and group work skills. Additionally, the program had an impact on their future medical practice, as they learned to consider socio-economic factors in their practice and expressed a desire to work with the underserved. Their participation in the program will

provide them with personal skills such as rigor, organization, and productivity. Additionally, it will reinforce personal values such as open-mindedness and self-confidence. The students aim to see their group project be disseminated widely, with the goal of promoting the concept of social accountability among other health sciences students. Advocacy is defined as a key component of the modern physician's professional responsibilities. However, it is often included in a very limited scope during health sciences education, pertaining to direct patient care and patient care systems [28]. A recent updated systematic review on advocacy curricula in graduate medical education recommends that such curricula should be learner-centric, educator-friendly, and action-oriented [29], which is reflected in the SOLID'AIRS program.

### Practical implications

First, the participants in our study recommended increasing the availability and accessibility of educational programs in the field of social accountability and Global Health during medical and pharmacy education. Based on a recent meta-synthesis, it is recommended that the core medical school curriculum should include mandatory training to enable students to identify and address adverse social factors that are medically relevant [26]. These programs are often optional and not considered in the validation of the curriculum. Community-based and international learning have the potential to promote a new educational paradigm that produces socially innovative medical practitioners [25, 27]. According to two recent systematic reviews [30, 31], socially accountable health professional education increases the sense of empowerment, self-confidence, competencies such as teamwork, communication skills, and readiness for work. Thus, implementing social accountability in health sciences education can help cultivate a healthy and skilled medical workforce and be effective in improving health services [30–32].

Second, the participants also suggested encouraging international mobility for students and valuing their investment in these projects. A recent meta-synthesis on international short-term placements in health professions education supports the positive impact of these placements on personal and professional development [25]. Indeed, the included studies reported a positive impact on a range of outcomes, such as cultural competence, interest in working with underserved populations, language skills, and clinical skills [25]. However, ethical issues and other challenges encountered by students during international placements and by host community members towards hosting students must be acknowledged, as reported by some participants in our study regarding the North/South balance of interventions.

Finally, the lack of both short- and long-term evaluation of socially accountable health professional education has been reported [30–32]. Further research, employing both qualitative and quantitative methodologies, is required to gain a deeper understanding of the processes involved in developing and evaluating tailored educational interventions designed to enhance awareness of social accountability, social justice and Global Health within the context of health sciences education. The use of mixed-method studies may offer the opportunity to capture both the impact of socially accountable health professional education on students and teachers, as well as on the institutional and wider context.

### Strengths and limitations of the study

Our study has several strengths. Firstly, it is the first qualitative study to assess the short-term impact of a COIL on medical and pharmacy students, to the best of our knowledge. Secondly, we included a sufficient sample size to achieve data saturation. Finally, we limited sources of bias by using data saturation, and investigator and method triangulation of analyses. Our study provides an overview of the implementation of an international COIL on social accountability and Global Health, including its strengths and limitations. This may be of great interest to medical and health sciences teachers. However, these results will enable the authors to continue improving the procedures of this COIL.

The limitations of our study should also be considered. The study's qualitative model does not establish a definitive causal association between participation in COIL during medical training and the quality of care provided as future healthcare professionals. Additionally, the impact of the program was assessed on a small sample of students, and these exploratory interviews require support from quantitative data on larger samples. The study also has a selection bias. The participants in SOLID'AIRS were volunteers who applied spontaneously to take part in the COIL. As a result, all the students included in the study showed a natural interest in social accountability. Additionally, most participants were French women, which may limit the generalizability of our findings. The higher number of female participants can be attributed to the influence of gender on factors related to interest in social accountability as well in medical education. For cultural reasons, women are often directed towards 'caring' professions, which tend to focus on serving the most vulnerable and underserved populations [9, 33]. In our study, most women showed a spontaneous interest in the field of social accountability, which is the focus of the optional and voluntary SOLID'AIRS program. Finally, our study did not assess the socio-economic status of the students, which may strongly influence their interest and perception of social accountability. Studies have shown

that belonging to a disadvantaged community is associated with greater empathy towards the underserved [9]. Therefore, it would be interesting to evaluate this factor in future studies.

### Conclusion

Our results indicate that participating in a COIL focused on social accountability can have short-term benefits for health students, both in terms of their future medical practice and personal experiences of social accountability, including greater reflexivity towards health sciences practice. SOLID'AIRS is an innovative international learning program that students and teachers should adopt to embed the concept of social accountability in everyday clinical practice. Online international exchanges between students can be an effective way of adopting a reflective approach to medical practice. This approach should be implemented and evaluated in other educational contexts and in larger study populations.

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### Author contributions

AER: Conceptualization, Data collection, Data analysis, Writing; JG: Conceptualization, Data analysis, Writing; Supervision; JL: Conceptualization, Data analysis, Writing, Supervision; OK: Conceptualization, Editing, Supervision; RR: Conceptualization, Editing; MC: Editing; EL: Conceptualization, Data analysis, Writing, Supervision.

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### Data availability

The datasets used and/or analyzed during the current study are available from the corresponding author, EL, on reasonable request.

### Declarations

#### Ethics approval and consent to participate

The study received ethical approval from the Ethical Review Board of The University Claude Bernard Lyon 1 February 2022 (n° IRB 2022-02-08-01). All participants gave written informed consent to be included in the study. All participants were adults.

#### Consent for publication

not applicable.

#### Competing interests

The authors declare no competing interests.

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