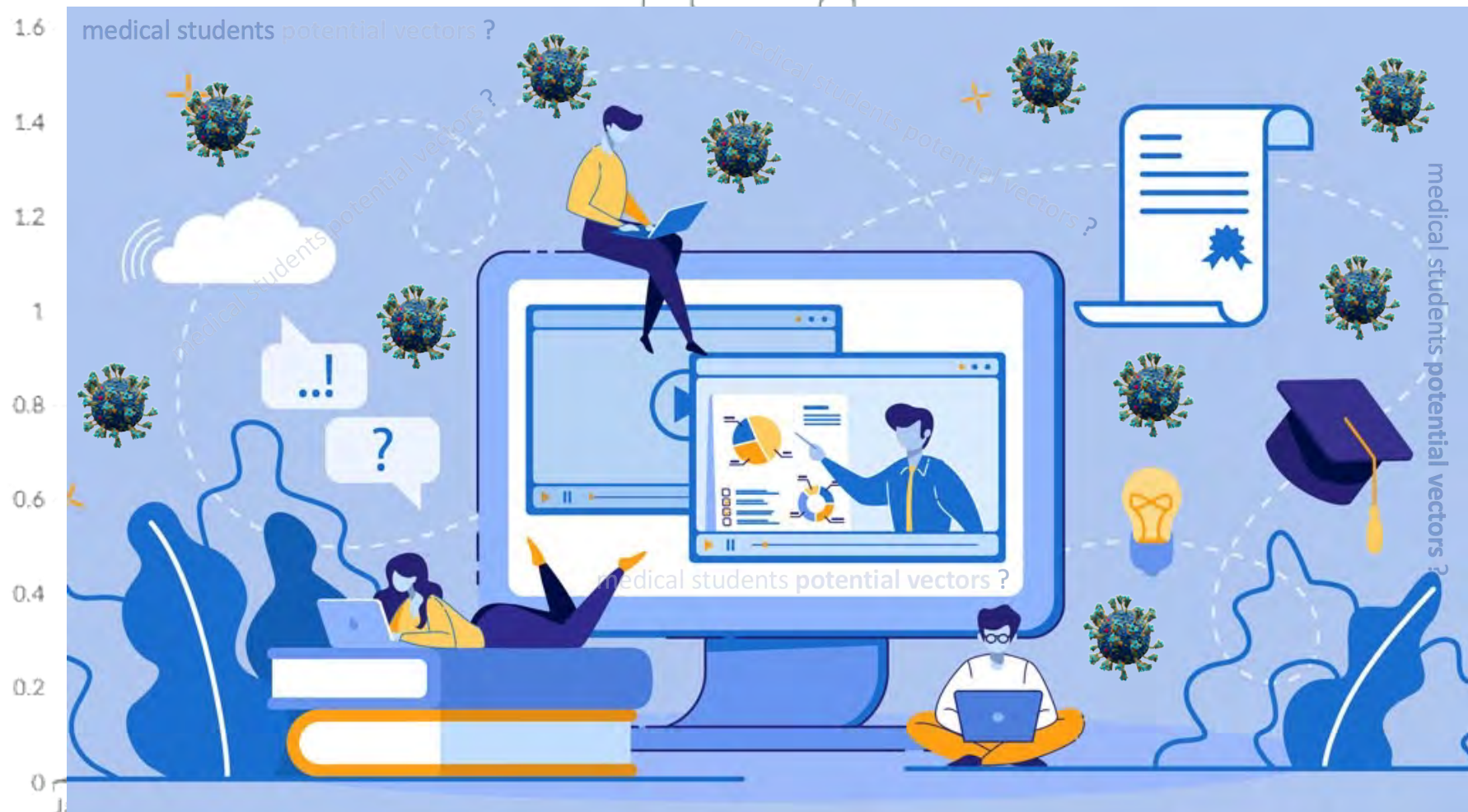


Impact of pandemics on medical education



Prof. Juan Arguelles
School of Medicine – Oviedo - SPAIN
jal@uniovi.es

Impact of pandemics on medical education



The **number** of internationally mobile students in higher education has grown dramatically from



0,3 million



2 million



6 million

“However, this is just 2.6% of the total world student population.”

More than **1.5 billion** students and youth across the planet are or have been affected by school and university **closures** due to the **COVID-19** pandemic.

“Never before have we witnessed educational disruption at this scale. Partnership is the only way forward.”

UNESCO Director-General Audrey Azoulay

More than **1.5 billion** students and youth across the planet are or have been affected by school and university **closures** due to the COVID-19 pandemic.

Preclinical students

- on-campus and
- live lectures



complete-remote learning systems

- remote lectures,
- Pre-recorded lectures,
- voiced over powerpoint presentations, and
- small group interactive sessions

Clinical knowledge



- hands-on training, such as physical exam and other clinical skills

Impact of pandemics on medical education

SURVEYS

1. IAU Global Survey on the impact of COVID 19 on higher education around the world (**International Association of Universities**)
2. Student Exchanges in Times of Crisis – Research report on the impact of COVID-19 on student exchange in Europe (**ERASMUS Student Network**)
3. Medical Student Life & Education Report 2020 (**Medscape**) US Medical students
4. **National** surveys

THE IMPACT OF COVID-19 ON HIGHER EDUCATION AROUND THE WORLD

IAU Global Survey Report

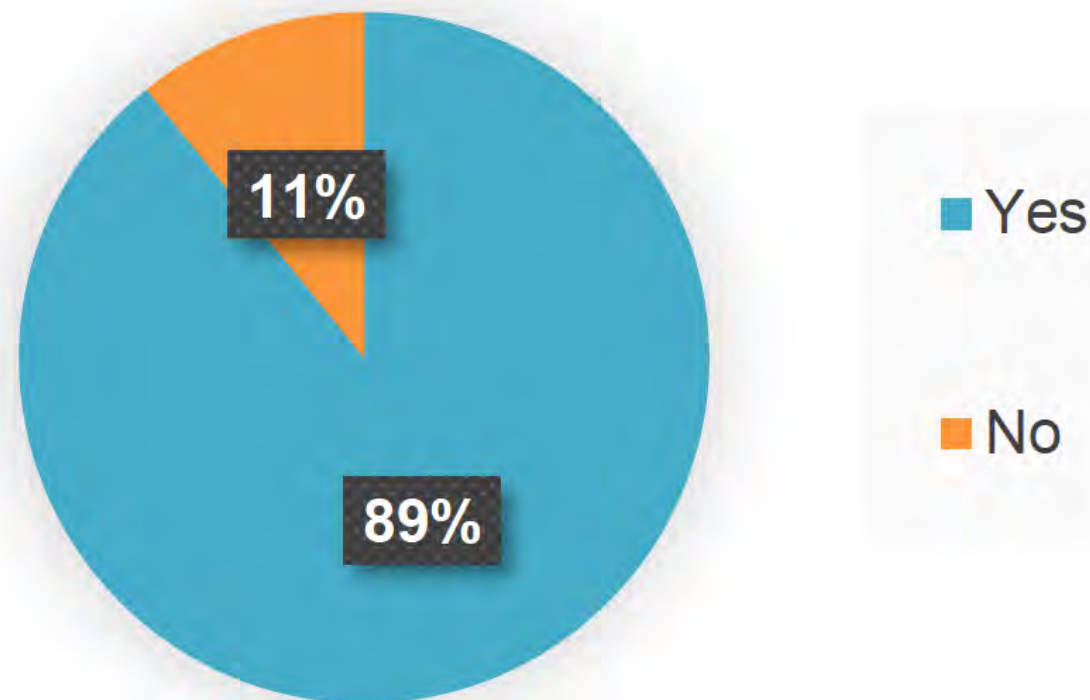
Giorgio Marinoni, Hilligje van't Land, Trine Jensen

The IAU Global Survey on the impact of COVID 19 on higher education around the world was available online from **25 March to 17 April 2020**. It received 576 replies from **424** universities and other Higher Education Institutions (based in 109 countries and two Special Administrative Regions of China (Hong Kong and Macao)).

1 / 5

THE IMPACT OF COVID 19 ON HIGHER EDUCATION AROUND THE WORLD

**Has there been an impact
of COVID-19 on international
student mobility?**



2 / 5

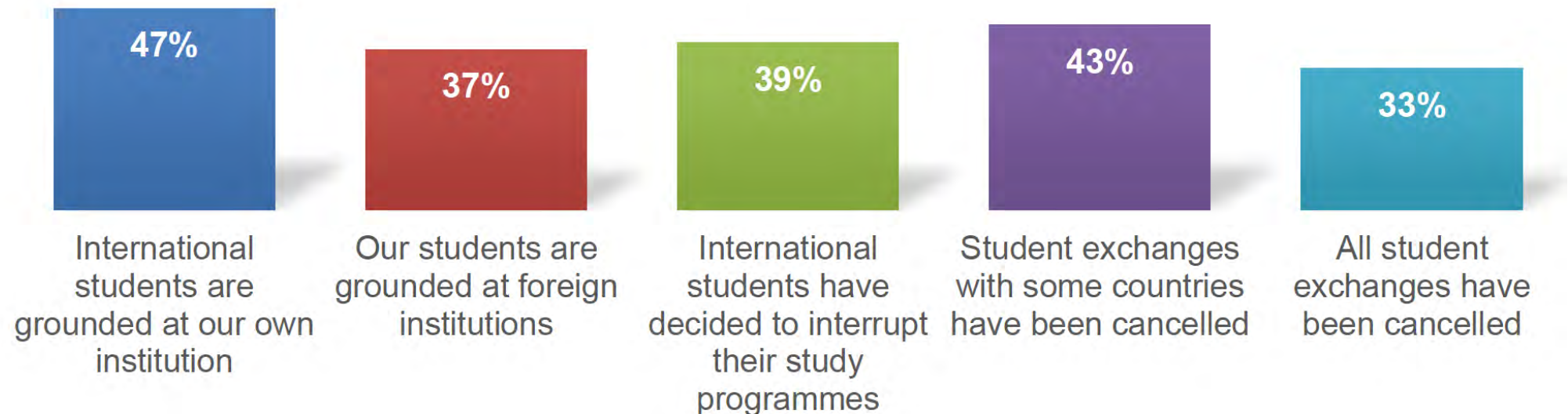
576 replies
from 424 universities

25 March to 17 April 2020

ECTS MA Annual Meeting – Valencia 12th 14th May 22

THE IMPACT OF COVID 19 ON HIGHER EDUCATION AROUND THE WORLD

What is the impact of COVID-19 on international student mobility



3 / 5

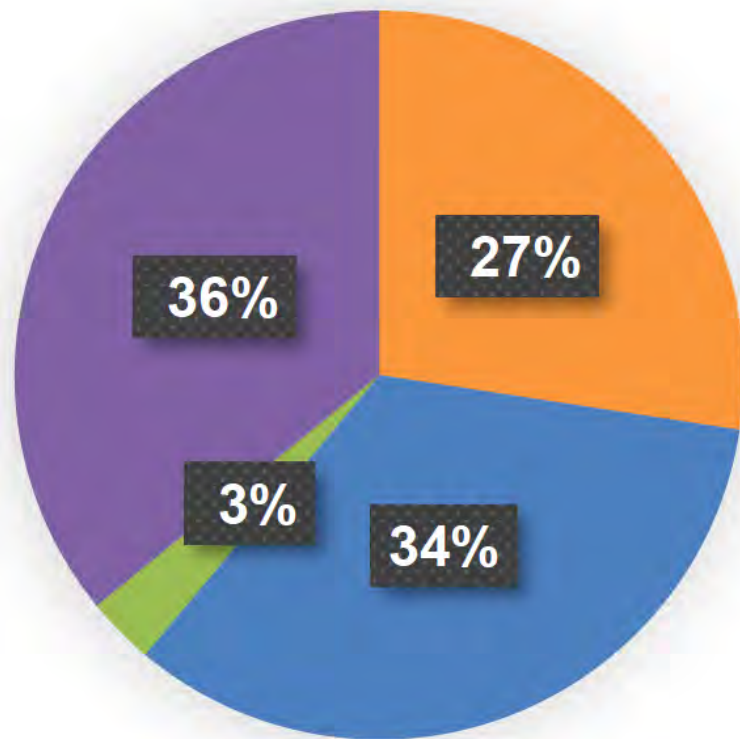
576 replies
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THE IMPACT OF COVID 19 ON HIGHER EDUCATION AROUND THE WORLD

Are any contingency plans in place?



■ No

■ Yes, put in place at our own institution

■ Yes, put in place at our partner institutions abroad

■ Yes, put in place at our institution and at our partner institutions abroad

THE IMPACT OF COVID 19 ON HIGHER EDUCATION AROUND THE WORLD

Has **COVID-19** stimulated alternatives to physical student mobility?



5 / 5

576 replies
from 424 universities


25 March to 17 April 2020

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Impact of pandemics on medical education

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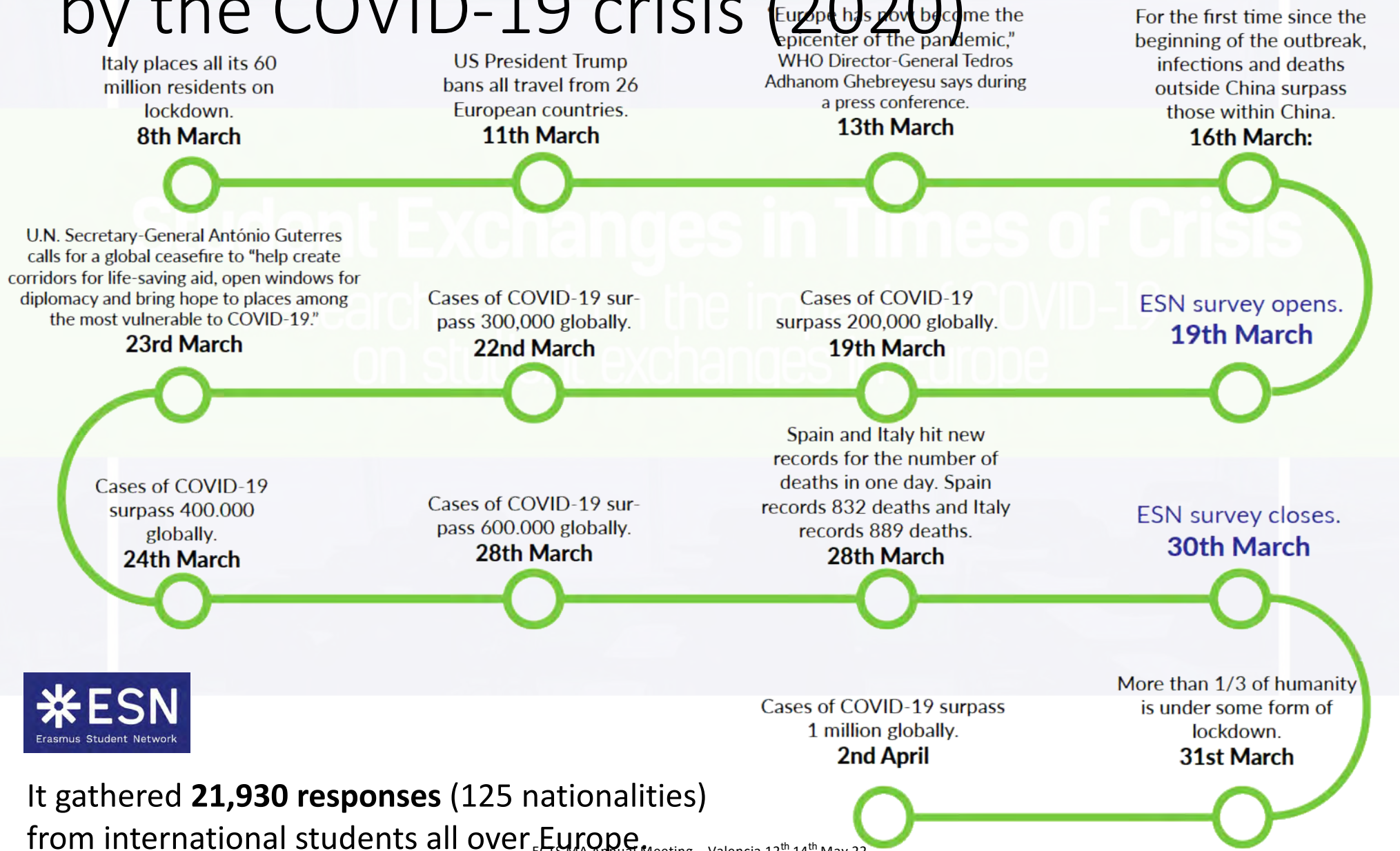
Student Exchanges in Times of Crisis

Research report on the impact of COVID-19
on student exchanges in Europe



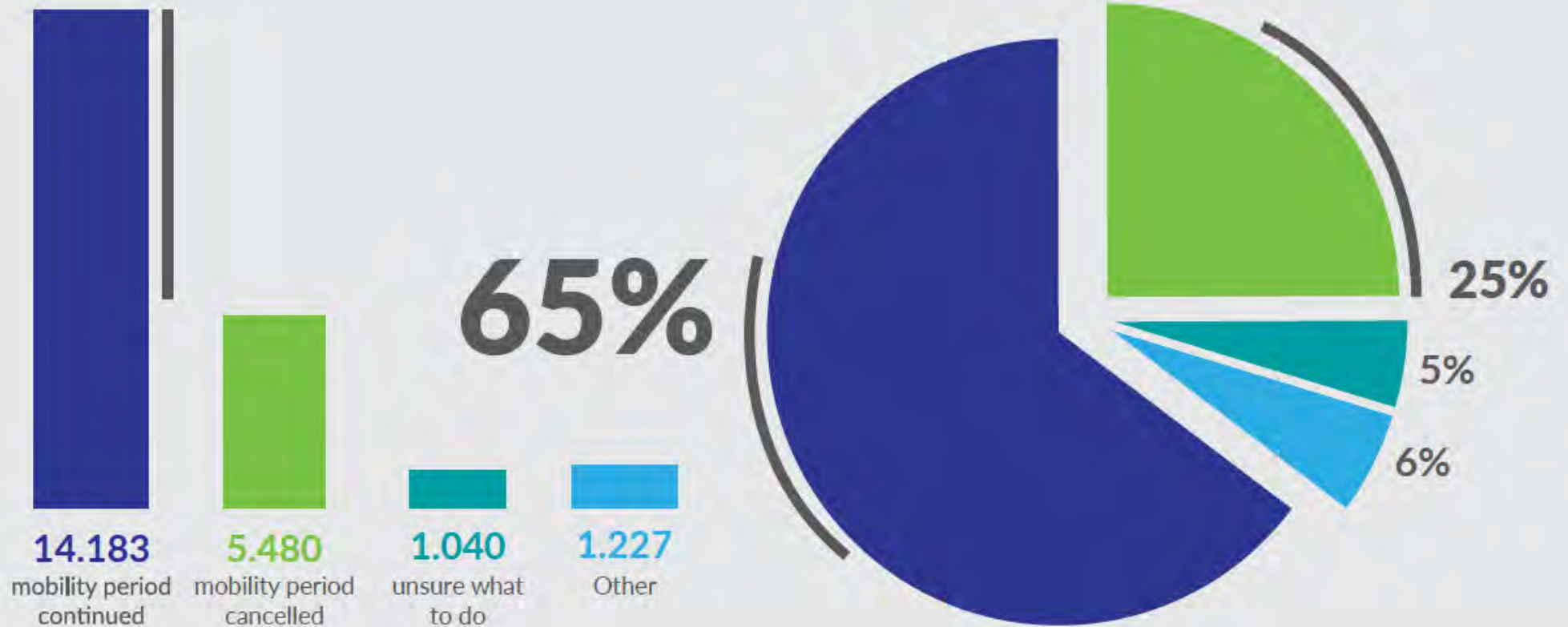
Erasmus Student Network

student exchanges in Europe affected by the COVID-19 crisis (2020)



Effect on mobility

by themselves,
by their sending university,
by their hosting university or
by someone else (national authorities, both universities...)

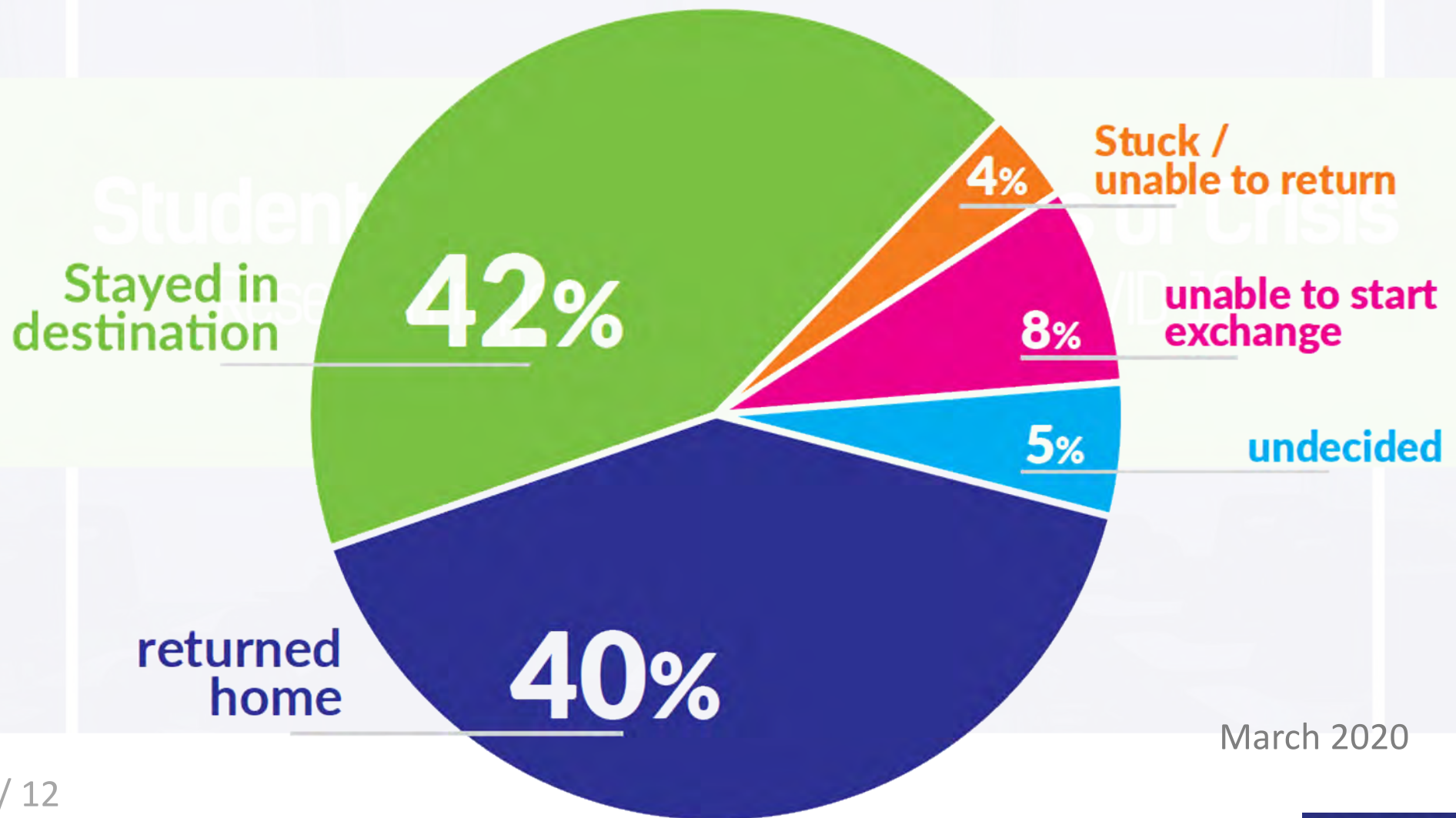


March 2020

2 / 12

It gathered 21,930 responses (125 nationalities)
from international students all over Europe

Physical whereabouts of the student



3 / 12

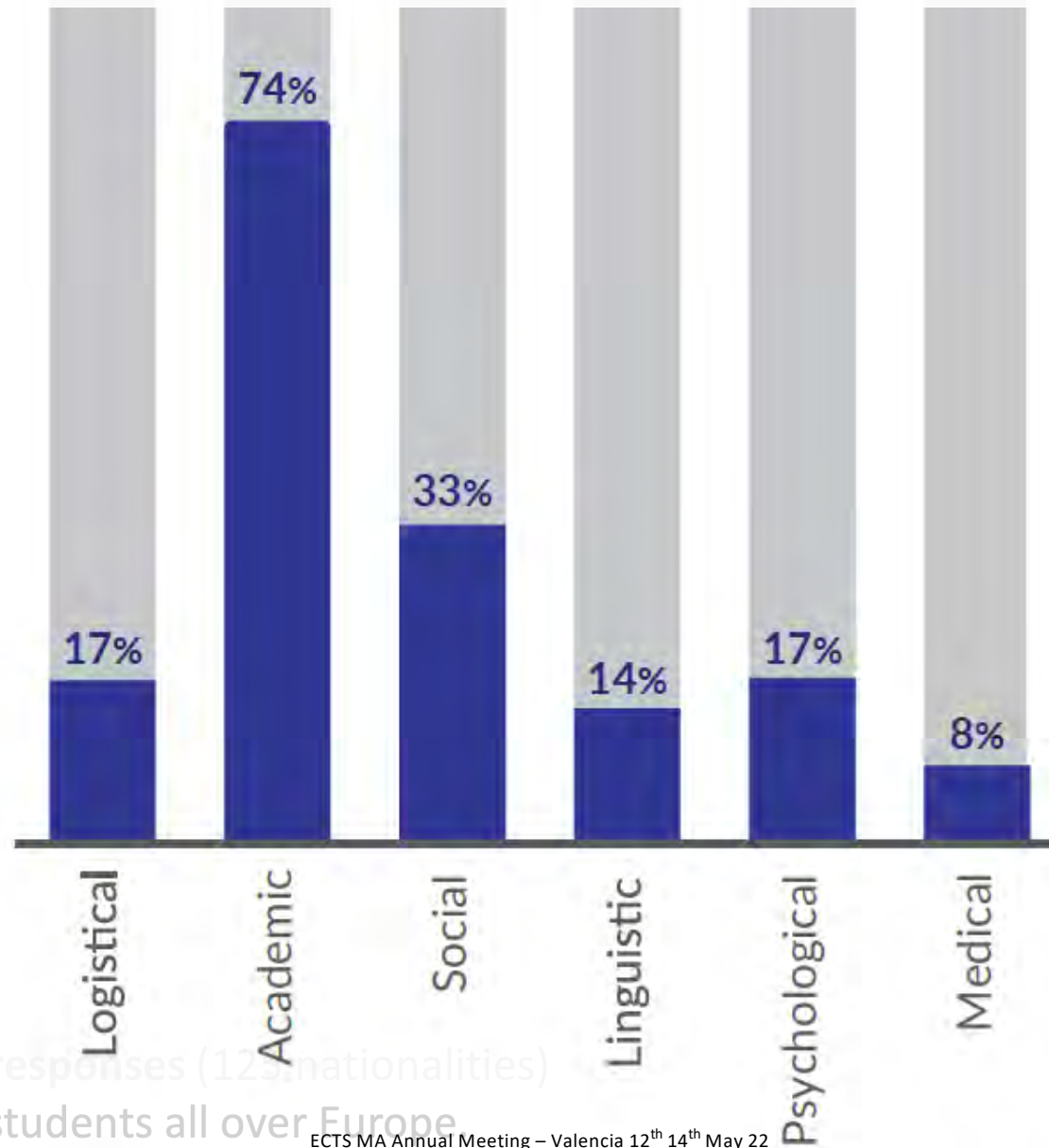
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ECTS MA Annual Meeting – Valencia 12th 14th May 22

Accessible information for the student

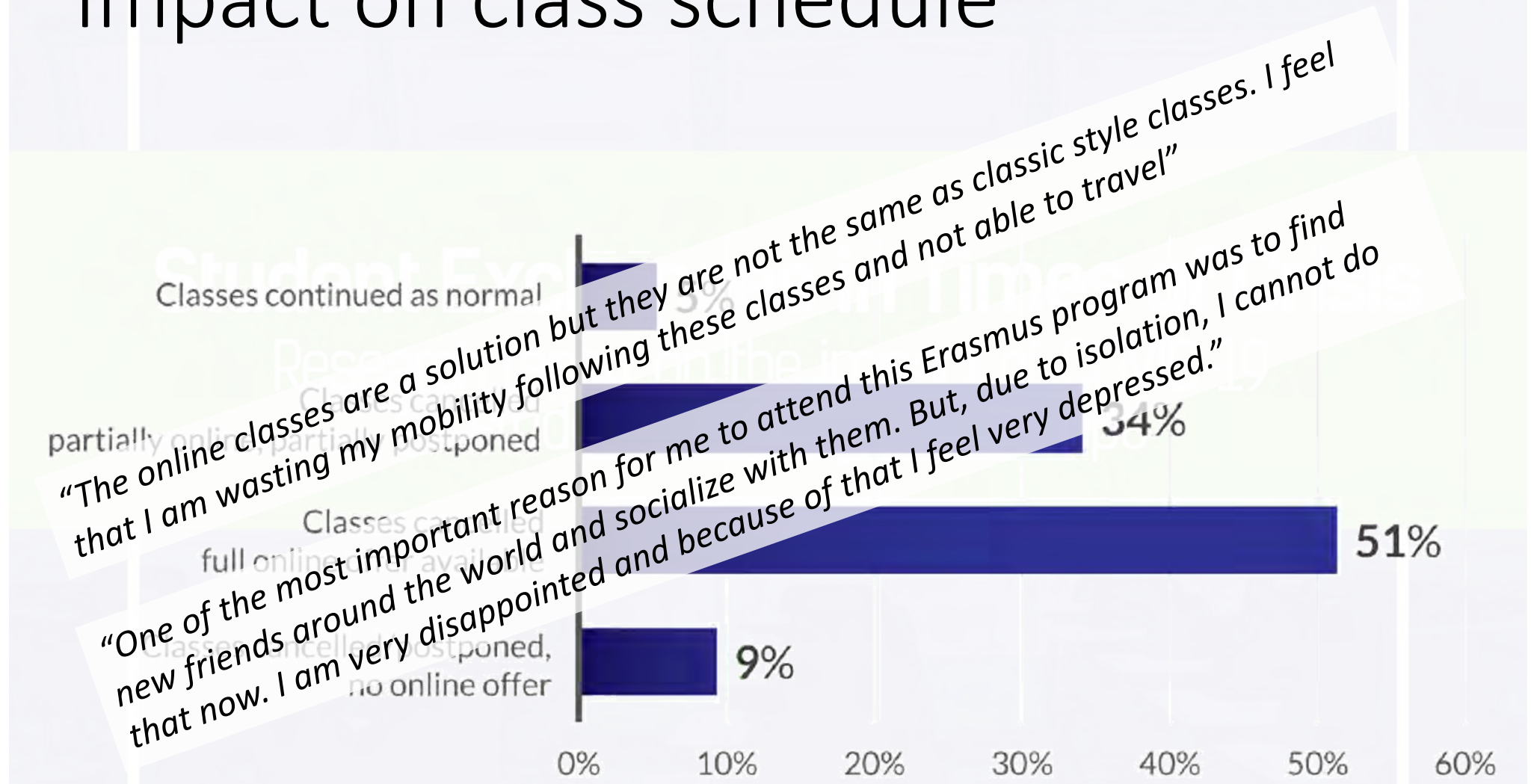


Overall support received by students



March 2020

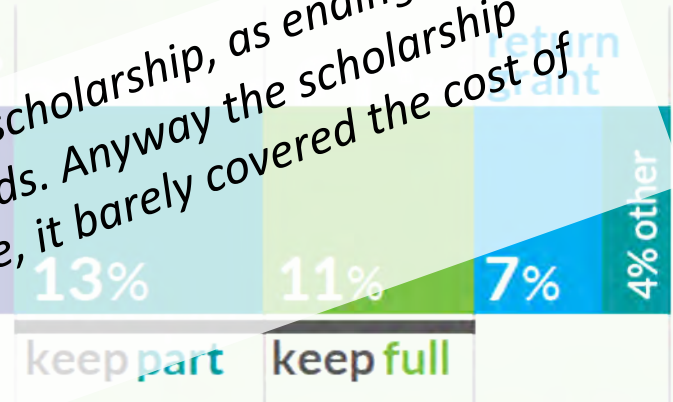
Impact on class schedule



Financial impact for students with cancelled mobilities

65% unclear,
in communication

includes answers indicating uncertainty
"I strongly believe that we should not be asked to return the scholarship, as ending the mobility was something completely out of the students' hands. Anyway the scholarship offered is not covering the costs of living abroad (in my case, it barely covered the cost of the rent)."
- Romanian student in Belgium
or something similar



March 2020

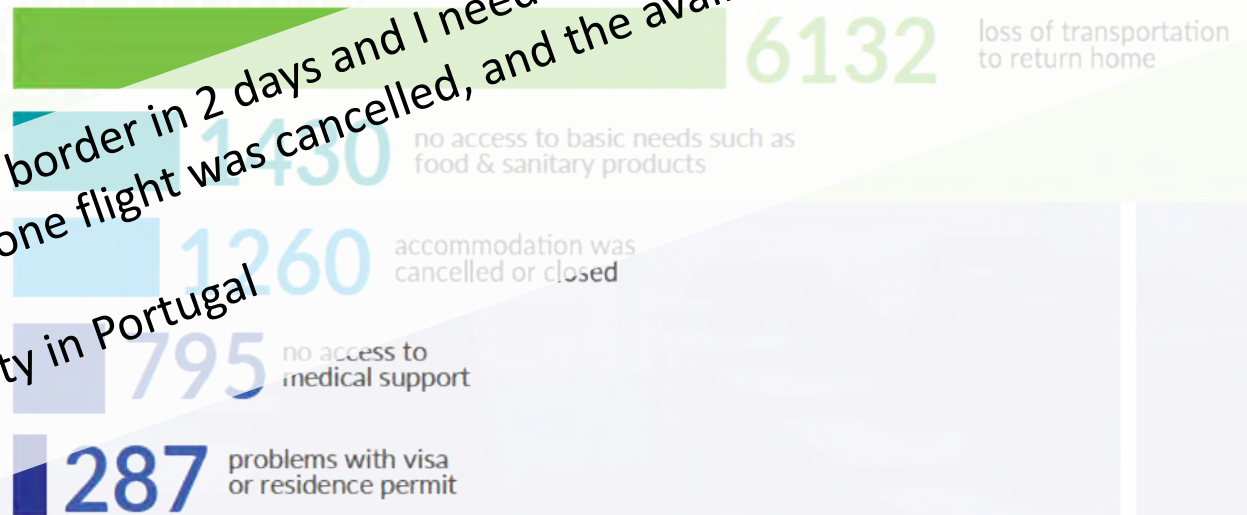
Major problems encountered by students

"I bought 3 flight tickets which were very expensive and 2 of them have been cancelled."

Turkish trainee in Germany

"My home country closed the border in 2 days and I needed to borrow money to buy flight tickets home, because one flight was cancelled, and the available tickets were crazy expensive."

- Latvian student on mobility in Portugal



March 2020

Impact of pandemics on medical education

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4. **National surveys**

Impact of COVID-19 on Medical Students



Medical Student Life & Education Report 2020

n = 2,619 US medical students

Impact of COVID-19 on Medical Students

Methodology

Survey Method

Respondents were invited to participate in a 7- to 9-minute online survey.

Screening Requirements

Respondents were required to be US medical students.*

Sample Size

2619 US medical students completed the survey.

Data Collection Period

July 14 to September 8, 2020

Sampling Error

The margin of error for the survey was +/- 1.92% at a 95% confidence level using a point estimate of 50%.

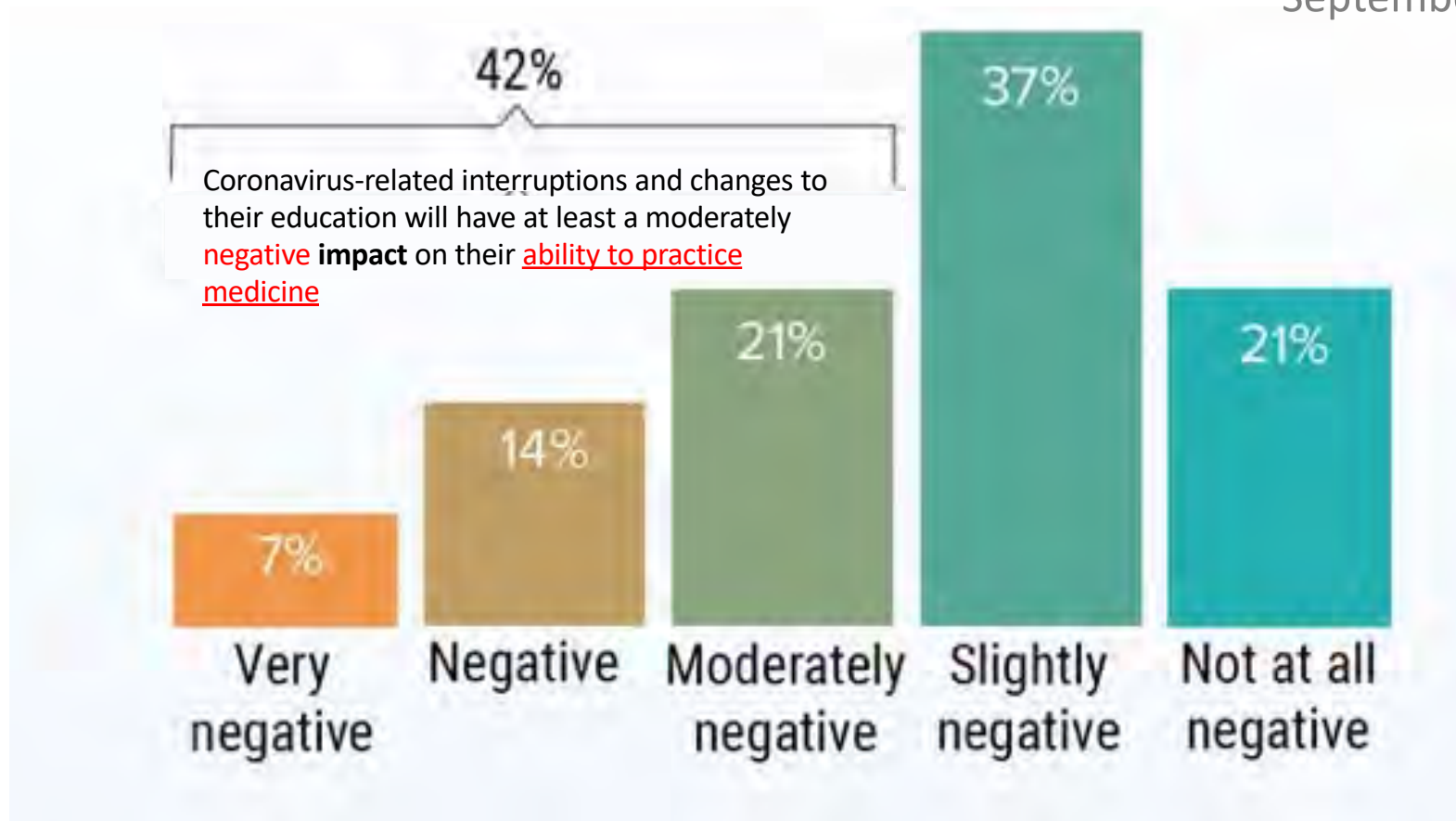
Honoraria

Medical students who completed the survey were entered into a sweepstakes for a chance to win a \$100 Amazon gift card.

*Includes students attending school in Netherlands Antilles, Grenada, Dominica, and the Caribbean.

Impact of COVID-19 on Medical Students

September, 2020



Medscape

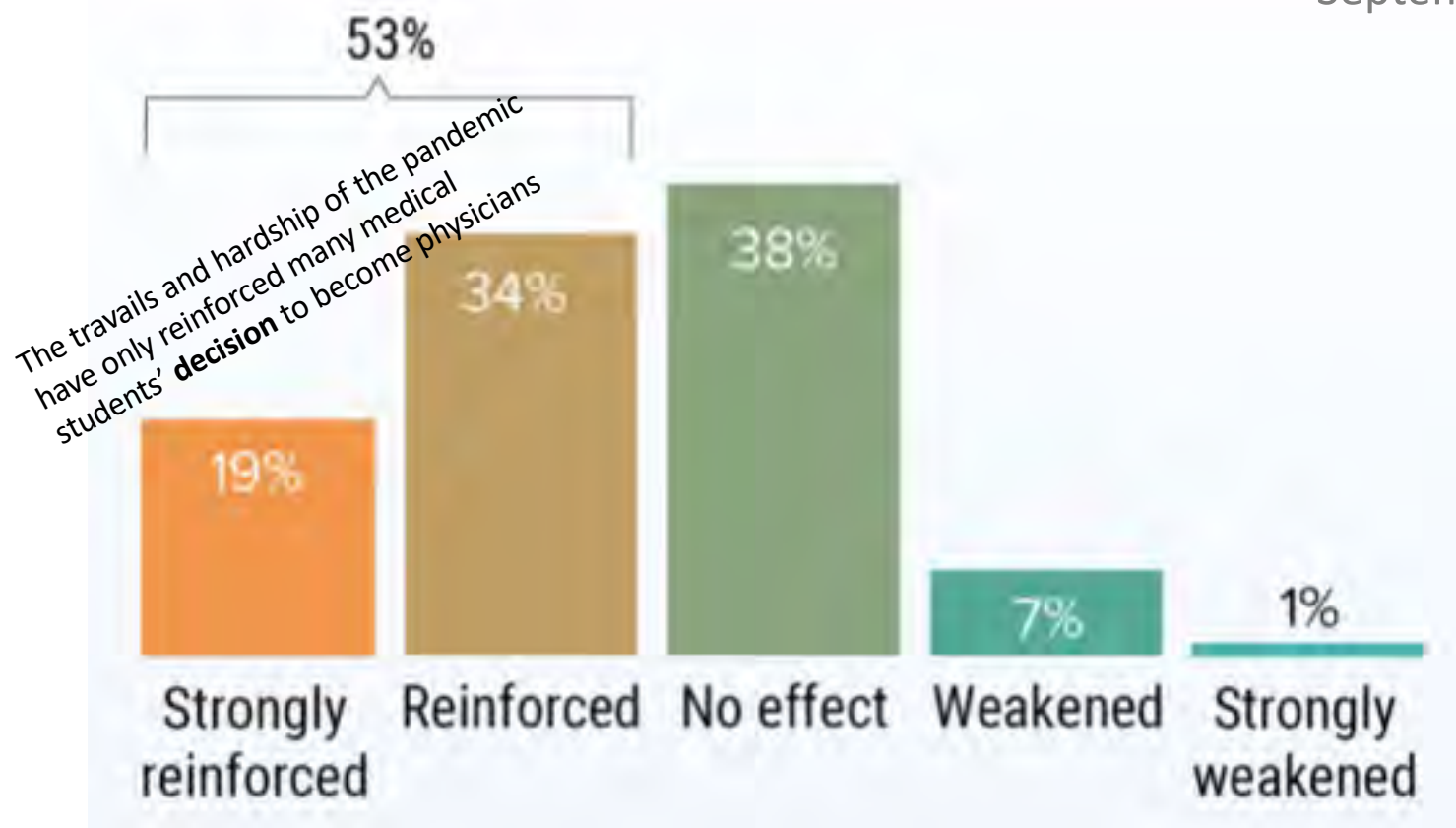
Medical Student Life & Education Report 2020

3 / 5

n = 2,619 US medical students

COVID-19's Effect on Students' Choice to Pursue Medicine

September, 2020



Medscape

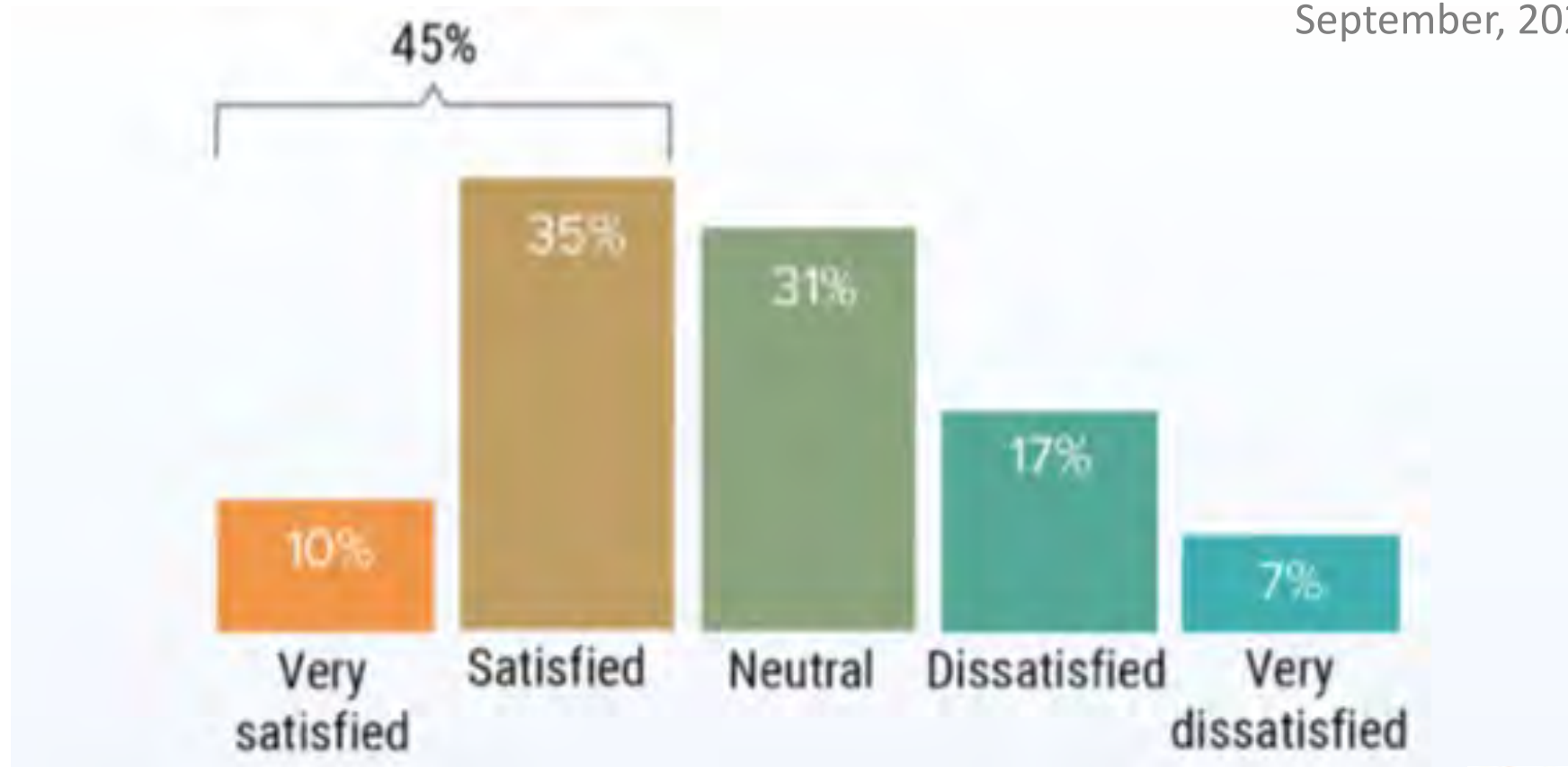
4 / 5

n = 2,619 US medical students

Medical Student Life & Education Report 2020

Are you Satisfied With How Your Institution Is Handling COVID-19?

September, 2020



Medscape

Medical Student Life & Education Report 2020


5 / 5

n = 2,619 US medical students

Impact of pandemics on medical education

SURVEYS

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4. National surveys

Africa

24% of universities reported that teaching had been suspended or cancelled with no alternative online platform provided

This compared with **3%** of universities in Europe being affected in this way

Only **29%** of African teaching faculties could quickly adapt to online teaching

compared to **85%** of universities in Europe

evident discrepancy in the impact of COVID-19 on medical education in different income countries throughout the world

USA

90% of medical schools in the USA **abruptly ceased** on-campus teaching and clinical placements and began online teaching in response to COVID-19

A survey performed on medical students from six universities demonstrated that **74.7%** of this population believed that COVID-19 **had significantly disrupted** their education

Students also felt they were able to **find meaningful learning experiences** during the pandemic (**72.1%**)

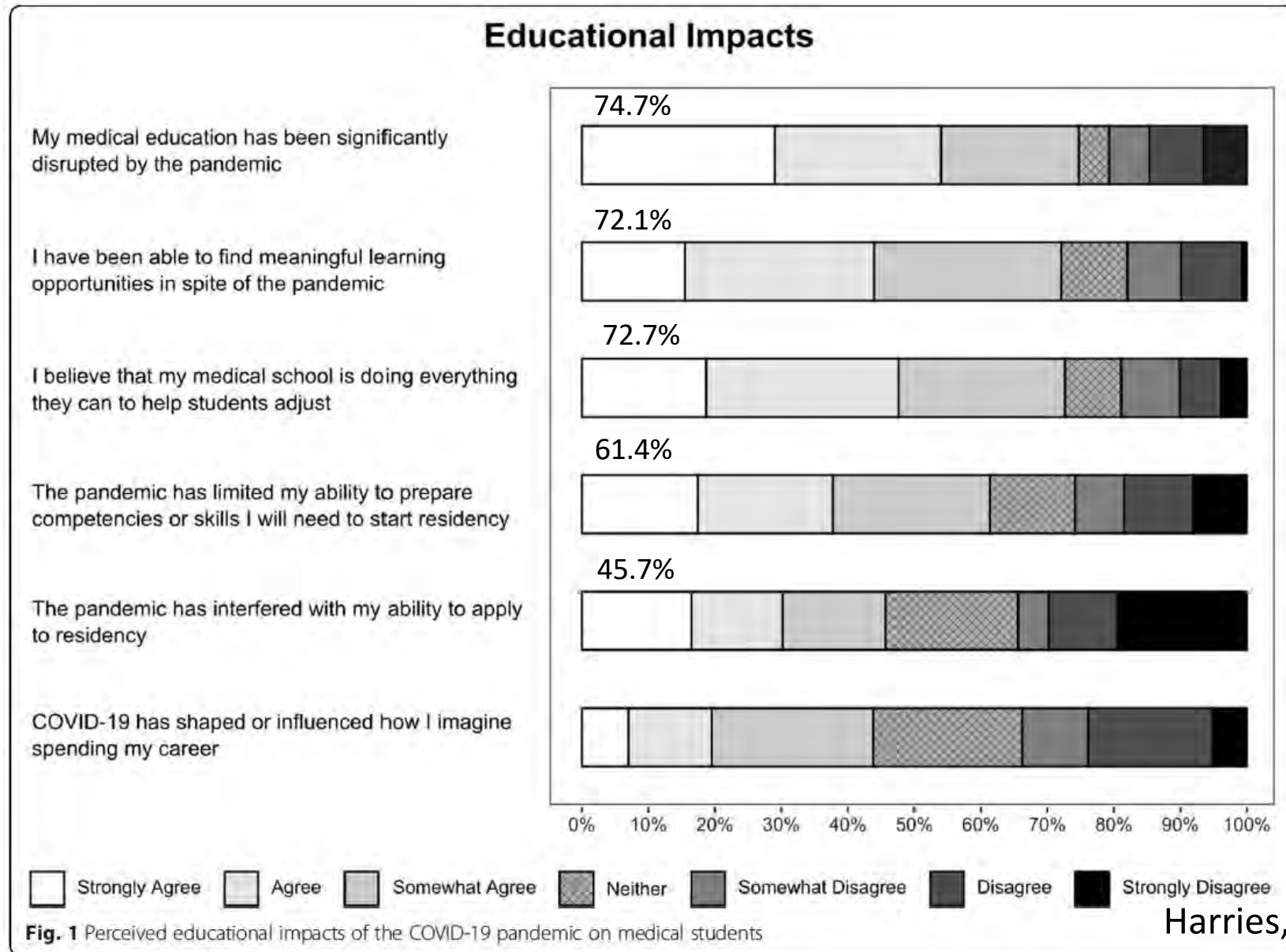
72.7% of participants in this study also felt that their medical **institutions** were **doing their best** to help students during this crisis

Harries *et al.*, 2021

n=698

Perceived **educational impacts** of the COVID-19 pandemic on medical students

USA



n = 741

Willingness to participate clinically during the COVID-19 pandemic

USA

Willingness to Participate Clinically

I accept the risk that I maybe infected with COVID-19 if I return to the clinical setting in 2020

To the extent possible, medical students should continue with normal clinical rotations during this pandemic

Medical students should be *allowed* to volunteer in clinical setting during this pandemic, even if there is no healthcare worker shortage

In the event of a healthcare worker shortage, medical students should be *required* to help clinically

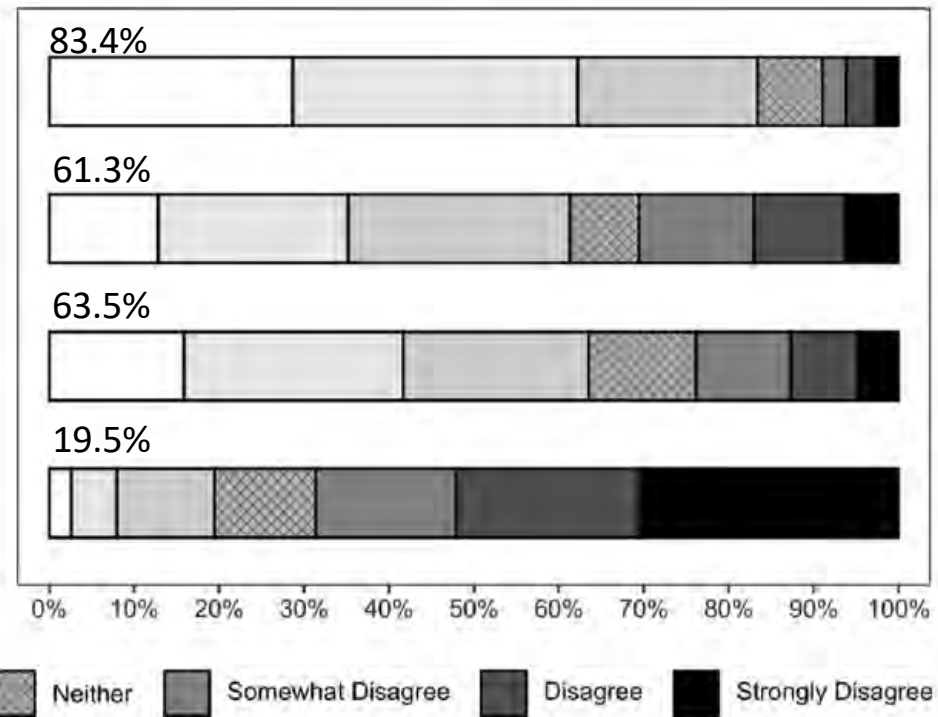


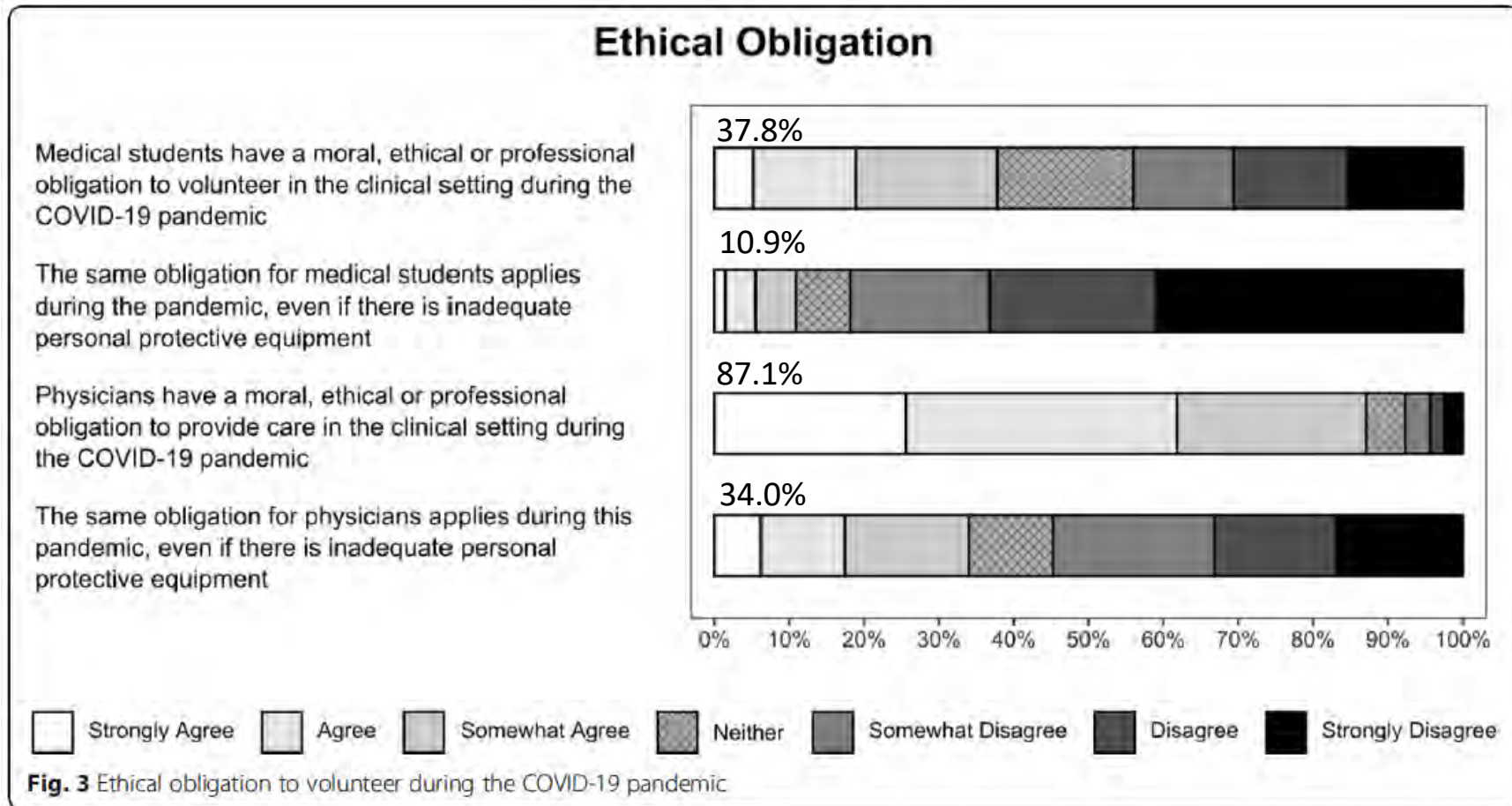
Fig. 2 Willingness to participate clinically during the COVID-19 pandemic

Harries, 2021

n = 741

Ethical obligation to **volunteer** during the COVID pandemic

USA



Harries, 2021

n = 741

USA

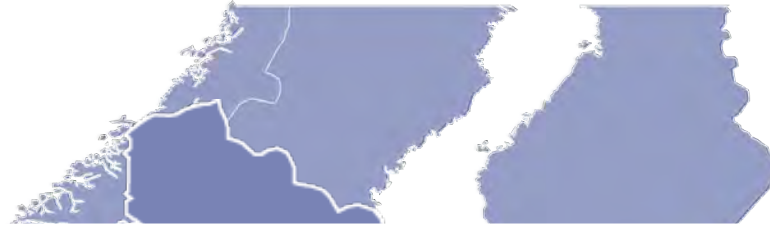
Student respondents from across the US similarly recognized:

- a significant **disruption** to their medical education
- shared a desire to continue with **in-person rotations**, and
- were willing to accept the **risk of infection** with COVID-19.

Harries, 2021

n = 741

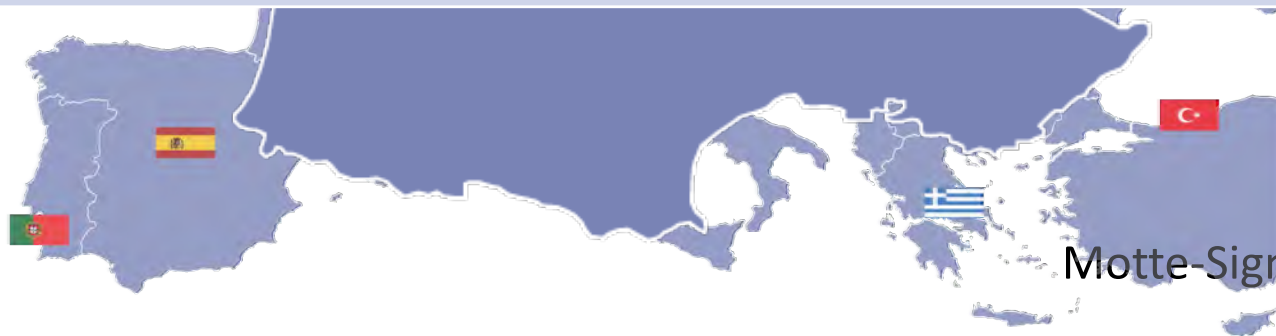
France I/II



85.5% of students agreed that online teaching was an **appropriate** teaching method during the pandemic

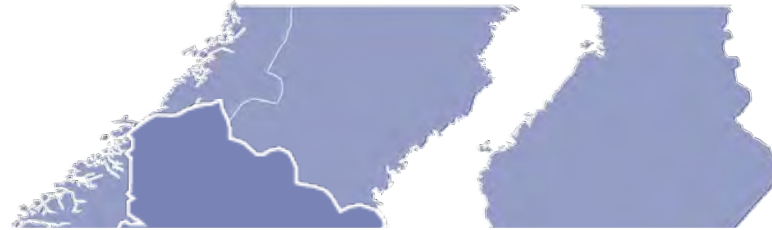
Approximately **70%** of students and **69%** of teachers felt that they have **not** received or provided training of an **equivalent level and quality** as expected

Approximately **15%** of students and **38.5%** of teachers felt that an **online** curriculum should **continue after** the pandemic



Motte-Signoret *et al.*, 2021

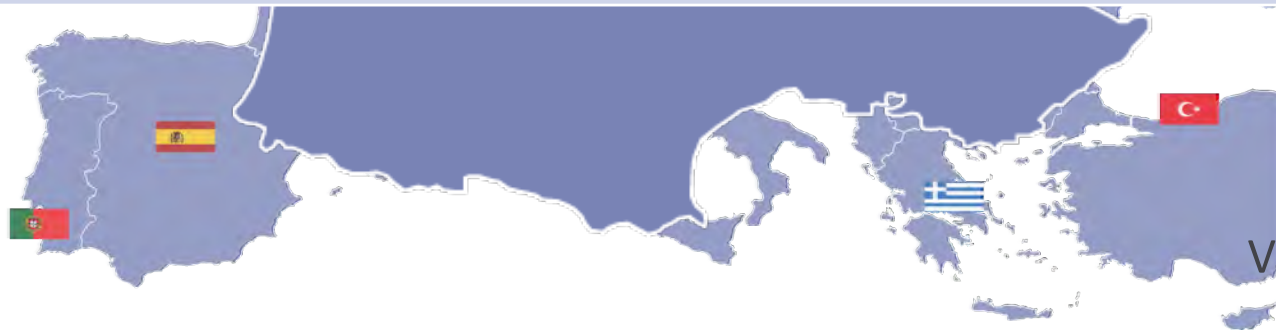
France II/II



15% of **teachers** did not do any of their usual teaching duties, **50%** maintained less than half of their classes, and **13%** gave all scheduled lessons

6% of **students** did not follow any lessons, **36%** followed less than half of the course and **21%** used all resources available

55% of medical students **regretted** not having **face-to-face teaching** and **70%** of teachers had this same regret



Vatier et al., 2021

n=698

Germany



Students reported being afraid of **losing a semester** due to COVID-19

Students reported general **uncertainty** and **scarcity of information** as the greatest **stressors**, followed by worries regarding examinations, practical years and training terms abroad

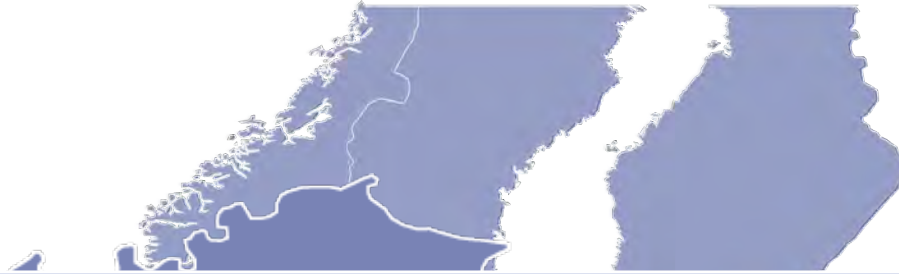
71% wanted their teachers to be willing to enhance digital competencies and **66.4%** expected teachers to be lenient about examinations



Loda *et al.*, 2020

n=372

Italy



90% of participants evaluated **virtual reality** training positively

77% thought virtual reality training was realistic for **initial clinical assessment**

94% thought virtual reality training was realistic for **diagnostic activity**

28% found online access difficult due to **technical issues**



De Ponti *et al.*, 2020

n=115

Norway



Five most common answers when students were asked about digital education

Pros	Cons
Increased opportunity to structure your own studies (67%)	Reduced possibility for socializing with fellow students (35%)
Increased time efficiency (15%)	Less day-to-day structure (17%)
Being able to decide time and place for study (9%)	Lessons deviating from the original timetable and/or being cancelled (14%)
Being more comfortable asking questions during lessons (8%)	Insufficient technical abilities in educators (11%)
Increased availability of lessons (2%)	A general feeling of distance to educator (10%)

Medical students in our study did also report a **general satisfaction** with the quality of theoretical teaching provided

There was a major **dissatisfaction** with how clinical and practical teaching was replaced among medical students

22

Poland

online learning

Main advantages	Main disadvantages
ability to stay at home (69%) ,	lack of interaction with patients (70%)
continuous access to online materials (69%),	
learning at own pace (64%) and	technical problems with IT equipment (54%)
comfortable surroundings (54%).	

No statistical difference between **face-to-face** and **online** learning in relation to increasing knowledge

E-learning is less effective than face-to-face learning in increasing **skills** and **social competencies**

73% of students found online learning **enjoyable**

Bączek *et al.*, 2021

United Kingdom I/II

medical students from 39 medical schools showed that overall:

- students did not find online teaching **enjoyable** or **engaging**
- **76%** of participants reported that they did **not** feel online teaching was **effective** at replacing learning through direct patient contact



Dost *et al.*, 2020.

n=2.721

United Kingdom II/II

38.4% of participants had their final **OSCEs** cancelled (**43%** had already completed these exams before restrictions were imposed). **18.6%** had simulated patients or OSCE stations requiring patient contact cancelled

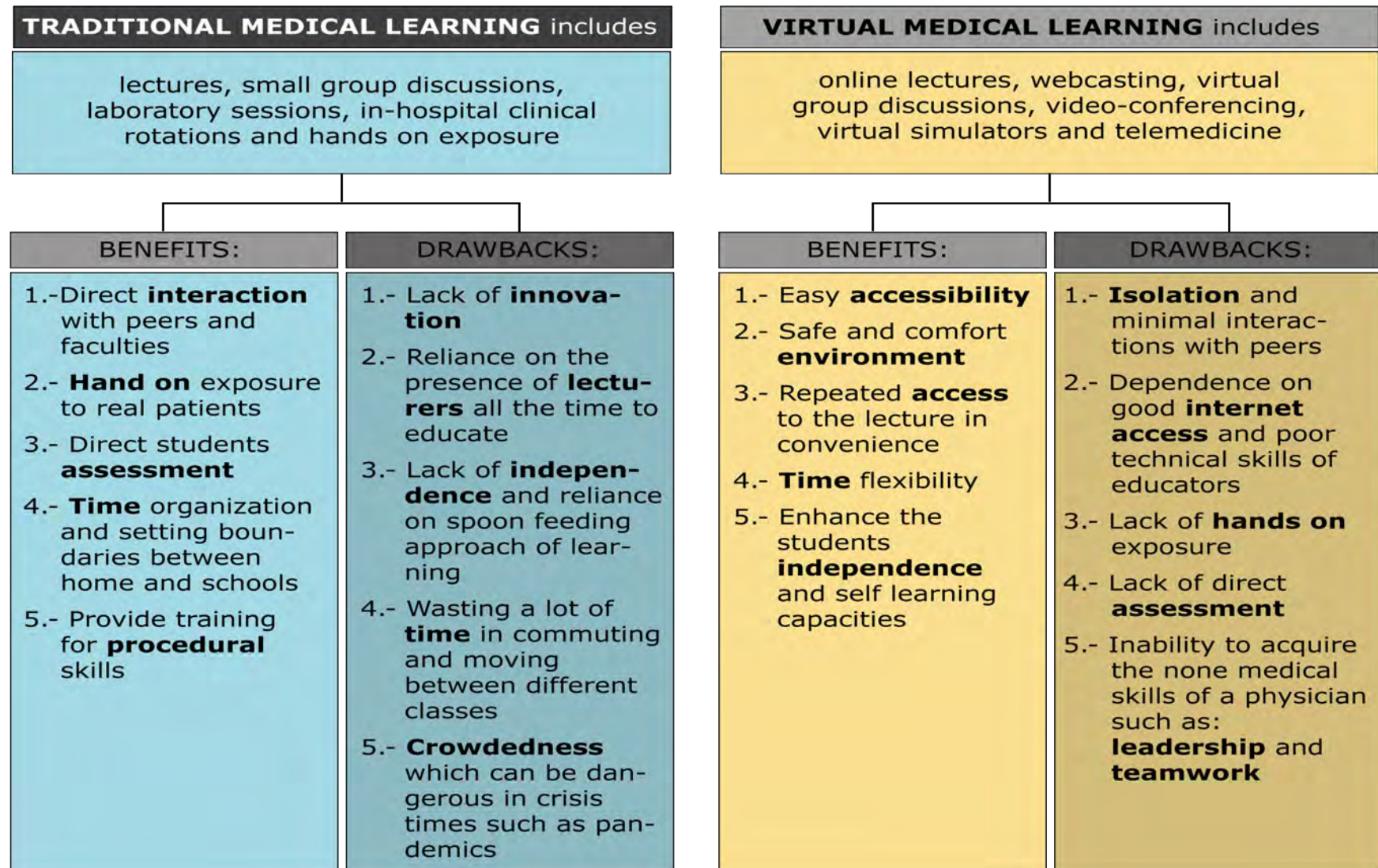
55.9% reported **no** change to **written examinations** while **26.8%** completed them online remotely. **9.8%** reported cancellations

Students' **confidence** for starting foundation training was significantly affected by the impact of COVID-19 on student assistantships only

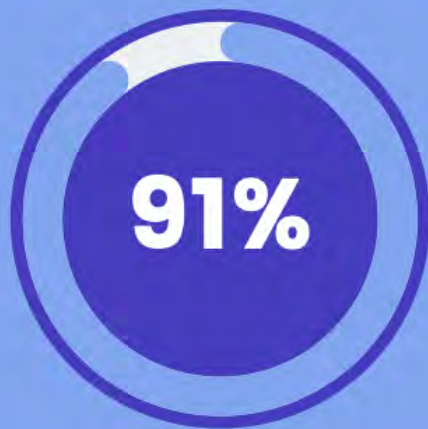
59.3% of students either strongly agreed or agreed that they **felt unprepared** for starting their careers as doctors due to the impact of COVID-19 on their education

Choi *et al.*, 2020

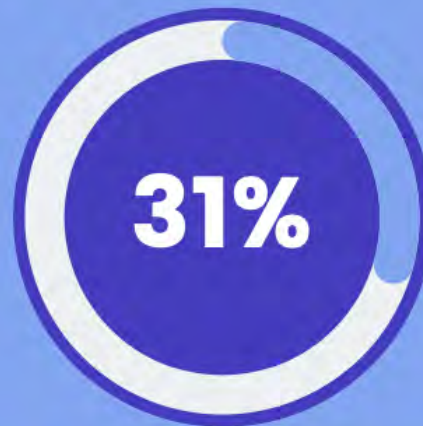
Comparison between traditional and virtual learning



BURNOUT DURING THE PANDEMIC



91% of surveyed students reported stress due to the COVID-19 pandemic (1).



31% and **24%** of students screened positive for anxiety and depression, respectively (2).



40% of students think COVID-19 interruptions and changes to their education will have at least a moderately negative effect on their ability to practice medicine as they launch their careers (3).

- 1) O'Byrne, 2021
- 2) Halperin, 2021
- 3) Twachtman, 2020

Final conclusions and recommendations




Survey on the impact of COVID-19 on learning mobility activities

- more than **107 000** participants in Erasmus+ mobility **were affected by the Covid-19** situation
- close to **45 000** participants **continued their activities with different arrangements** (i.e. distance or online learning)
- for more than **23 500** participants the activity was temporarily **suspended**
- for more than **38 500** participants the activity was definitely **cancelled**


More than **80 000** of these participants came back home while **27 000** stayed abroad.

March 2020

Final conclusions and recommendations

A photograph of a laptop screen displaying a video of medical professionals in a laboratory setting. One person is using a microscope, while others are observing. A hand is visible typing on the laptop keyboard in the foreground.

*“ The pandemic is **not a revolution** in medical education – it is **an opportunity** to learn how we can **make education better** !*

A small portrait of Professor David Gordon, an older man with glasses.

PROFESSOR DAVID GORDON
President of the World Federation for Medical Education

Final conclusions and recommendations



*“a middle ground
should be reached
between
complete virtual learning
at home and
the direct in-person teaching in
classrooms/hospitals”*

Impact of pandemics on medical education



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