D.E.M.O.
Projekt

Medical Students on Digital Health

Digital Health Solutions in Medicine

Initial report on the representative study on digital heath related knowledge, attitudes and needs of Hungarian medical students

Medical Students on Digital Health

RESULTS OF THE SURVEY 2021-2022

Digitization is one of the biggest challenges of 21st century healthcare. The technological and cultural transformation has a significant impact on both the provider and patient side. However, there are few studies available internationally on the digital health related knowledge and attitudes of future health professionals and physicians.

The present medical student generation is already "digital native", using digital solutions actively in learning, daily life and entertainment. That is why it is of paramount importance to study how the doctors of the future think about the digitalization of healthcare and how they see their role in it.

Hence in addition to the closed questions of the quantitative survey, the open-ended question: *How do you envision health in 2050* was also posed to the respondents.

The most important findings of the research are as follows:

- Responding students would use applications, online communication platforms and professional diagnostic tools in their subsequent work.
- They see many benefits of digitization, for example better time management, better accessibility for patients) and more efficient work.
- The majority of students think that the biggest disadvantage of the spread of digitization is on the patients 'side: 77.1% say patients have a limited understanding of digital devices and 69.4% are wary of the false and harmful self-education by patients.
- Overall, the majority of students has a positive opinion about independent patient education: 46% say It is already useful if used with due care. According to another 21.6% there are still more disadvantages today, but with the proliferation of digitalization and various smart devices in the future, it will .be useful.
- According to students easier access, financial support, and prior experience would inspire them to use modern technology in their later work.

The quick report from our research can be read below, with detailed analyzes will be published soon!

Methodology: Online 0uestionnaire research of students of general medicine at the 4 Hungarian medical universities (SE, SZTE, DOTE, PTE) between April and June 2021 (n = 542)

The questionnaire was made available on Neptun, the official online unified educational channel used by all universities in Hungary, and on a social media interface (Facebook). For some questions it was possible to involve an open control group: we compared the results of the student research with the appropriate age group of the population sample (18-29 years old n = 270) https://semmelweis.hu/digitalhealth/files/2022/02/E-paciensek-Magyarorszagon-web-20220127.pdf

The student survey was supported by the Students' Scientific Association research of Levente Toók and Kata Kovács at Semmelweis. It was implemented under the leadership of the Digital Health Working Group of the Institute of Behavioral Sciences of Semmelweis University. The research was established within the framework of the OTKA -FK 134372 basic research program. The research leaders are Dr. Zsuzsa Győrffy and Dr. Edmond Girasek.

BASIC DEMOGRAPHIC DATA TABLE

*(n = 543 Faculty of Medicine
Average age: 21,85 years)*

What is your gender?

- 32,0%
- 68,0%
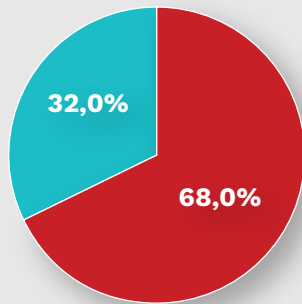
- ■ Male (174)
- ■ Female (369)

Which university do you study at?

- 13,1%
- 13,5%
- 22,5%
- 50,9%
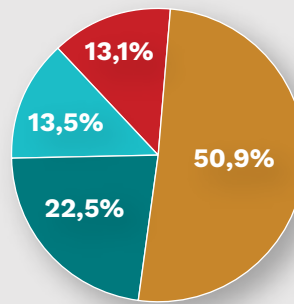
- ■ SE (276)
- ■ Szeged (122)
- ■ Pécs (73)
- ■ Debrecen (71)

Which year are you in?

- 11,1 %
- 7,0 %
- 15,3%
- 13,8%
- 27,9%
- 25,1%
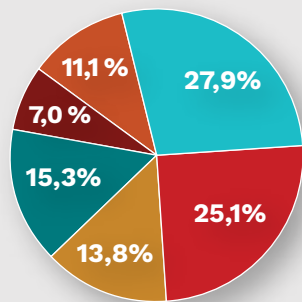
- ■ I. (151)   ■ II. (136)
- ■ III. (75)   ■ IV. (83)
- ■ V. (38)   ■ VI. (60)

Have you ever studied abroad?

- 16,6%
- 83,4%
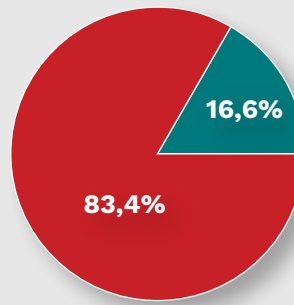
- ■ Yes (190)
- ■ No (453)

WHICH PLATFORMS DO STUDENTS USE TO ENQUIRE ABOUT QUESTIONS OF HEALTH AND ILLNESS?

Students are most prone to get information from webpages, medical search pages and the social media.

90,4%

16,6%

42,5%

51,4%

62,4%

77,0%

18,9%

43,9%

41,9%

22,6%

WEBPAGES

BLOGS

SOCIAL MEDIA

VIDEO CHANNELS

MEDICAL SEARCH PAGES

■ Student data
■ Population data
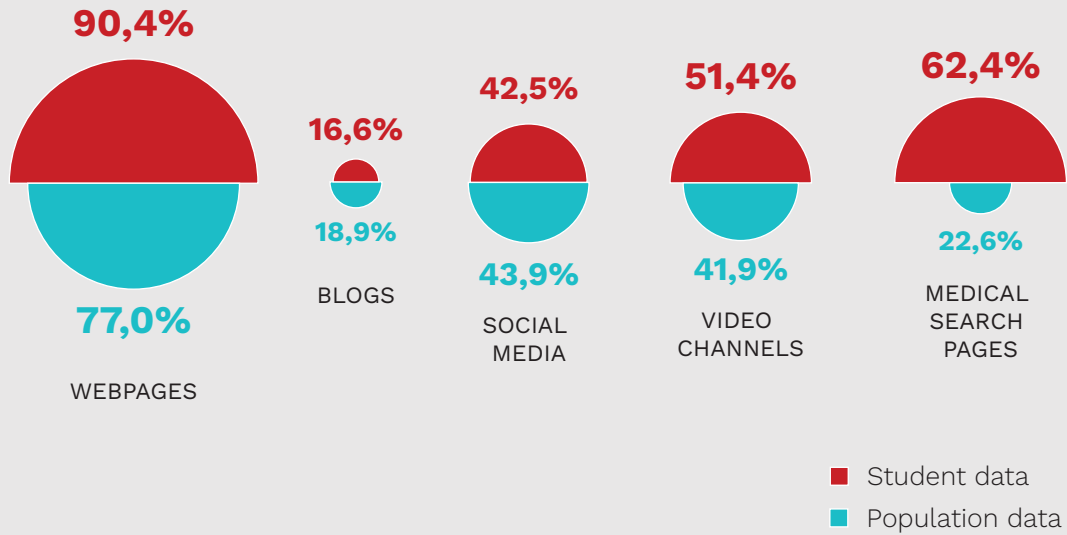
WHAT TYPES OF DIGITAL TOOLS WOULD STUDENTS LIKE TO USE IN THEIR FUTURE WORK?

Apps	89,9%
Teleconsultations	58,6%
Health sensors	62,4%
Online communication with patients	69,2%
FB used for health related information	52,5%
Digital diagnostic tools	83,2%
Virtual Reality	32,4%
Artificial Intelligence	55,2%
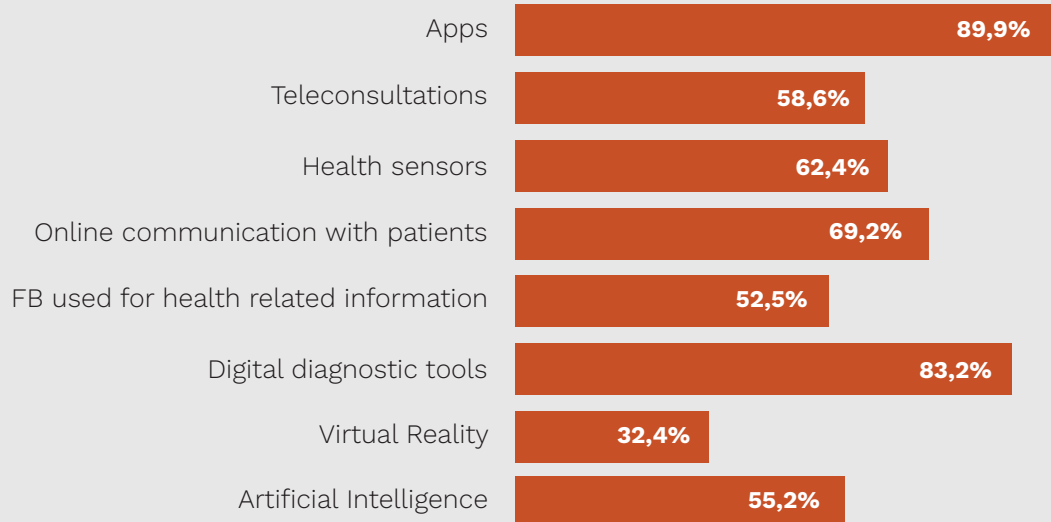
There is close to 90% interest in applications and a large proportion of the respondents want to implement digital diagnostic tools and sensors in their future practice. Another important result is that nearly 70% of responding students want to keep in touch online with their prospective patients.

WHAT ARE THE POSSIBLE BENEFITS OF DIGITAL HEALTH SOLUTIONS?

- Reduces the number of doctor-patient encounters
  - **29,5%**
  - **85,0%**
- Saves time
  - **79,6%**
  - **90,2%**
- Patients get health care faster
  - **79,0%**
  - **79,2%**
- It makes medical work more efficient
  - **72,4%**
- It integrates the patient into the process of care
  - **61,1%**
  - **67,4%**
- It makes diagnosis more accurate
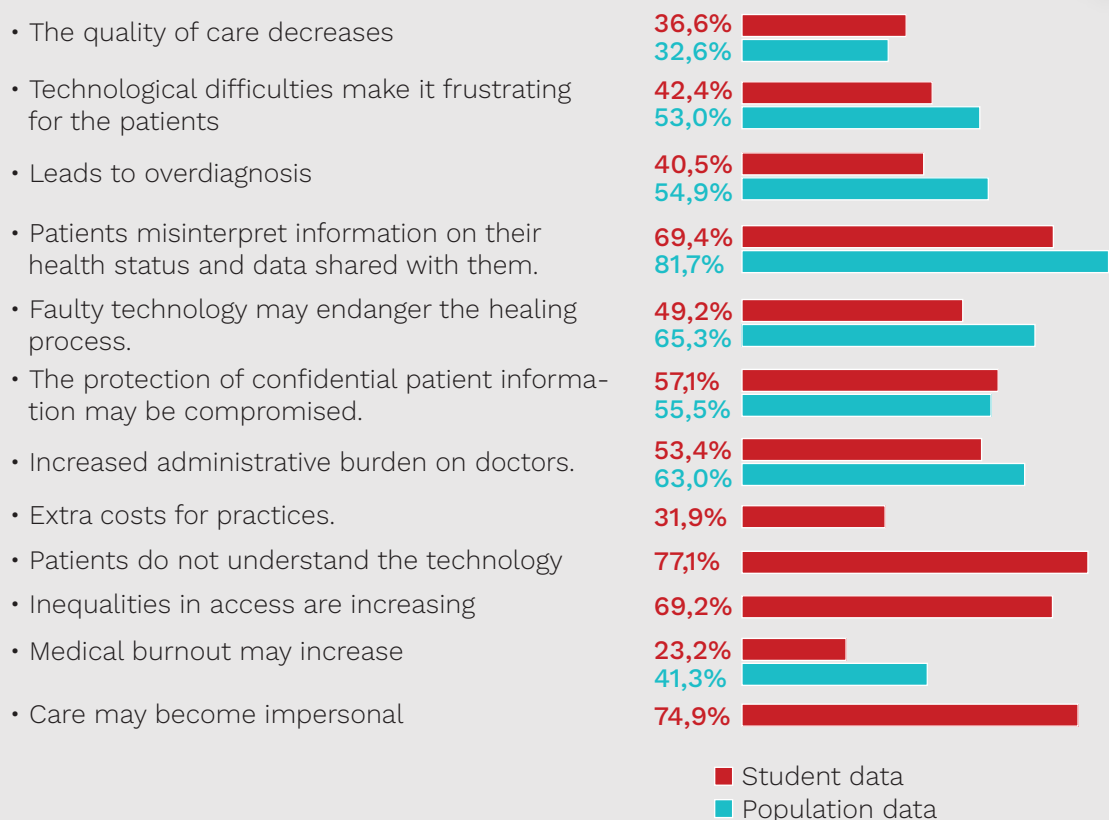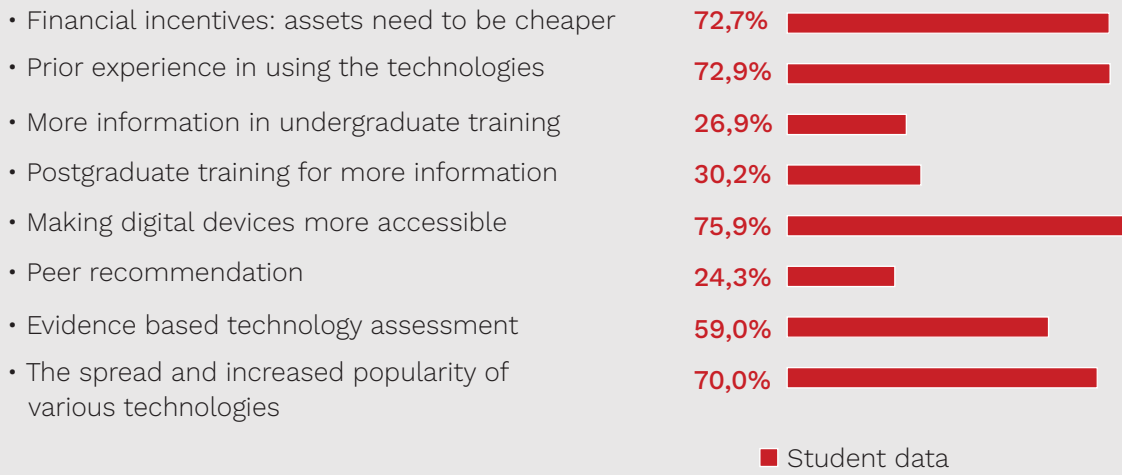 - **37,2%**
- It reduces the likelihood of making errors
  - **35,4%**
- It generates extra income for doctors
  - **11,2%**
- It increases patient satisfaction
  - **45,5%**
- It improves the doctor-patient communication
  - **34,3%**
  - **74,0%**
- It reduces the likelihood of malpractice and making mistakes
  - **31,3%**
  - **34,8%**

■ Student data
■ Population data

WHAT ARE THE POSSIBLE DISADVANTAGES OF DIGITAL HEALTH SOLUTIONS?

- The quality of care decreases
  - **36,6%**
  - **32,6%**
- Technological difficulties make it frustrating for the patients
  - **42,4%**
  - **53,0%**
- Leads to overdiagnosis
  - **40,5%**
  - **54,9%**
- Patients misinterpret information on their health status and data shared with them.
  - **69,4%**
  - **81,7%**
- Faulty technology may endanger the healing process.
  - **49,2%**
  - **65,3%**
- The protection of confidential patient information may be compromised.
  - **57,1%**
  - **55,5%**
- Increased administrative burden on doctors.
  - **53,4%**
  - **63,0%**
- Extra costs for practices.
  - **31,9%**
- Patients do not understand the technology
  - **77,1%**
- Inequalities in access are increasing
  - **69,2%**
- Medical burnout may increase
  - **23,2%**
  - **41,3%**
- Care may become impersonal
  - **74,9%**

■ Student data
■ Population data

WHAT IS NEEDED TO FACILIATE FUTURE USE OF DIGITAL HEALTH IN THEIR WORK?

- Financial incentives: assets need to be cheaper — 72,7%
- Prior experience in using the technologies — 72,9%
- More information in undergraduate training — 26,9%
- Postgraduate training for more information — 30,2%
- Making digital devices more accessible — 75,9%
- Peer recommendation — 24,3%
- Evidence based technology assessment — 59,0%
- The spread and increased popularity of various technologies — 70,0%

■ Student data

WHAT KIND OF EMOTIONS DOES THINKING ABOUT DIGITAL HEALTH TECHNOLOGIES EVOKE IN YOU?

I don't know **5,3%**

1,8% It rather scares me

It worries me

18,8%

I am very optimistic

16,6%

14,5%

It does not evoke any emotion
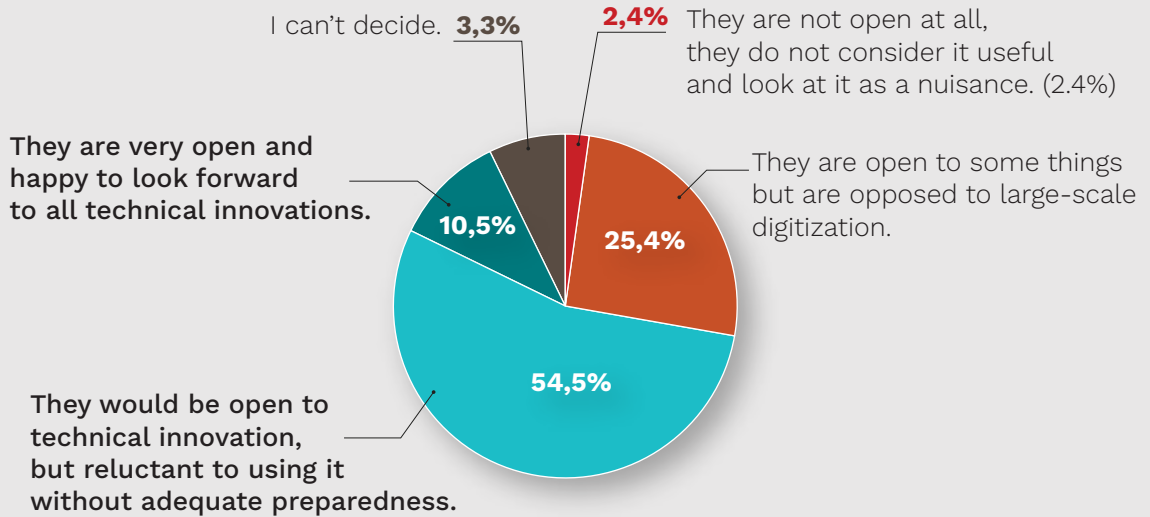
42,9%

It rather evokes positive emotions
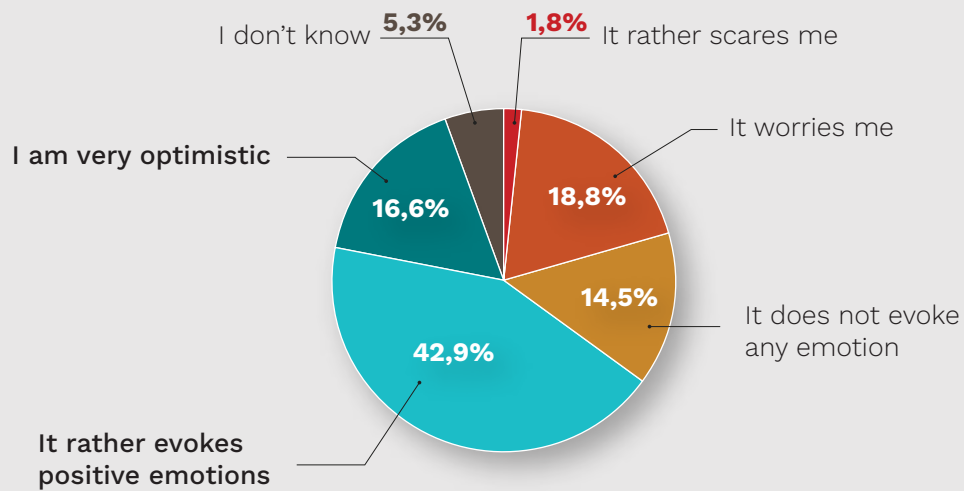
In nearly 60% of students positive feelings are evoked. They are hopeful or very ptimistic. This is only 42% in the control sample.

WHAT IS YOUR OPINION ABOUT PATIENT SELF EDUCATION (PATIENT SELF-DIAGNOSIS THROUGH ONLINE PORTALS OR LATER THROUGH SMART DEVICES)?

I can't decide **3,3%**

I find it harmful and detrimental, it makes the doctor's job more difficult (there are more disadvantages than advantages)

In the future (with smart devices becoming more commonplace) it could be very useful, but as of now there are more disadvantages than advantages.

20,4%

26,2%

1,8%

I find it very useful, it helps the doctor a lot and speeds up their work

48,3%

Used with due care it can be especially useful (more advantages than disadvantages)

Students rate patients 'self-education as fundamentally positive (70%).

TO WHAT EXTENT DO YOU EXPERIENCE THAT DOCTORS / HEALTHCARE PROFESSIONALS / MEDICAL STUDENTS IN YOUR ENVIRONMENT ARE OPEN TO TECHNICAL DEVELOPMENT AND DIGITALIZATION?

I can't decide. **3,3%**

2,4% They are not open at all, they do not consider it useful and look at it as a nuisance. (2.4%)

They are very open and happy to look forward to all technical innovations.

10,5%

They are open to some things but are opposed to large-scale digitization.

25,4%

54,5%

They would be open to technical innovation, but reluctant to using it without adequate preparedness.

More than 60% feel that the medical community and medical students are more open to the digitization of healthcare than not open to it.

HOW USEFUL WOULD YOU FIND THE INCLUSION OF A COMPULSORY OR ELECTIVE DIGITAL HEALTHCARE COURSE IN THE CURRICULUM?

- 5 completely
- 4
- 3
- 2
- 1 not at all

1 **2,0%**

9,1% 2

5

31,4%

20,4% 3

37,2%

4
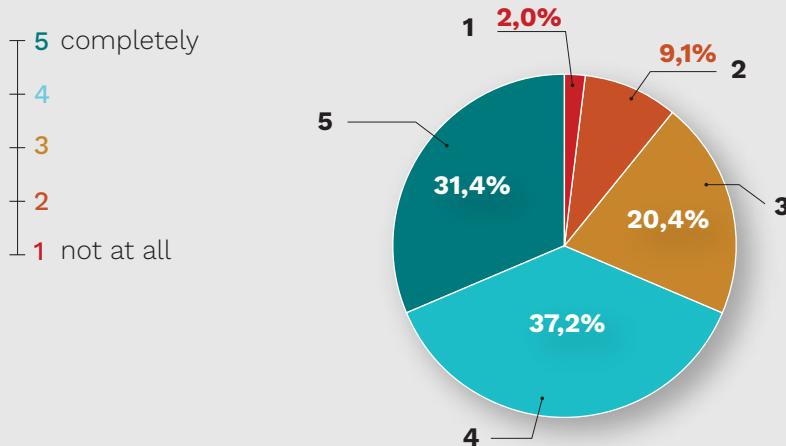
Nearly 70% of students would like a digital health related course to be a part of the curriculum.

HOW DO I IMAGINE HEALTHCARE IN 2050?

"I don't think it's going to change so much from what we have now, obviously there will be innovations, but I think it is still a long time when healthcare workers are replaced by Artificial Intelligence."

"I am confident that by then, not only will everything be modernized, but also available in the required quantity. Focusing on digital innovation would make the process of the patient getting to the doctor smoother. Teamwork in patient care will also improve due to it."

"In 30 years, everything can change radically, especially diagnostics and e-files. Maybe all documents like blood results will be available in an app. One can make an appointment with doctors and labs and even pay through it."

"Digital technologies are evolving at an incomprehensible rate, so I am confident that digitization will be play a much bigger role in the healthcare of the future. I am not competent to estimate the degree this will be so. ⬜ I can only hope that the ethical aspects will also keep pace."

"With the right training, current health students will certainly be ready to use the digital technologies available to them at the time, and patients will also have better access to technology, so they will be able to cooperate better, to participate together in the recovery of patients."

KEY RESULTS OF THE COMPARISON BETWEEN THE CONTROL GROUP AND THE STUDENT SAMPLE

The patient sample shows that the young age group does not necessarily require personal doctor-patient relationship, however, they believe that digital devices provide an opportunity for better doctor-patient communication. They are more afraid than medical students that the lack of technical knowledge or the use of inappropriate tools is a significant disadvantage.

They fear that care will become impersonal and estimate the risk of burnout among doctors to be higher.

They are more likely to use blogs, podcasts and social media for health information than their medical peers. And yet their use of medical search interfaces is much lower.

Interestingly, they are less optimistic about the digitalization of health care although the rate of positive expectations is also above 40%.