# Who is my patient?
# Societal involvement of medical students

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# Summary

## Background

Partnering with patients is a key objective of Erasmus MC. This requires that doctors are patient-centered and can be open to a diversity of perspectives. Being patient-centered refers to seeing patients in their own context (rather than being disease-centered) and it refers to the willingness to share information and input with patients (so patient-centered rather than doctor-centered). Differences between medical students and their future patients in age, health situation, levels of education and in cultural background can be barriers to being patient-centered. Also, due to stress, illness, anxiety or pain patients may not be their usually self during their encounters with doctors. Feelings of dependence may further limit the extent to which they express their uncertainties or preferences.

## Methods

During so-called community projects, groups of 5 to 6 third-year medical students study an actual question of a (public health) organization. In doing so, they conduct surveys or interviews with (potential) patients or healthcare providers. For this CLI-project, 6 specific community projects were developed, to allow students to become in touch with a diversity of perspectives and learn about questions, doubts, and preferences that patients may have.

All Ba3 medical students were invited pre- and post-project to complete an 8-item questionnaire on empathy, based on the Jefferson scale, student version. The post-project questionnaire additionally asked students which element of the community project impacted them most.

## Results

In December 2023, 289 students completed the pre-project questionnaire (response rate 79%). In March 2024, 357 (98%) of the students who had participated in one of the 62 community projects completed the post-project questionnaire. In total, 281 students (77%) completed both questionnaires. The average empathy score changed from 45.5 pre-project to 46.3 post-project (p=0.002). Levels of empathy especially changed when medical students had interacted with healthcare professionals. The open question indicated that students considered interacting with (potential) patients and others outside the hospital setting worthwhile.

## Discussion

We observed a significant change in empathy level among medical students. We consider these results encouraging for further efforts to support the development of empathy levels. Also, we recommend to explore possibilities to involve (potential) patients in research, for instance in the developing the content of community projects.

# Samenvatting

## Achtergrond

Samenwerken met patiënten is een belangrijke doelstelling van het Erasmus MC. Dit vereist dat artsen patiëntgericht zijn en open kunnen staan voor verschillende perspectieven. Patiëntgerichtheid verwijst naar het zien van patiënten in hun eigen context (in plaats van ziektegerichtheid) en het verwijst naar de bereidheid om informatie en input met patiënten te delen (dus patiëntgericht in plaats van artsgericht). Verschillen tussen medische studenten en hun toekomstige patiënten in leeftijd, gezondheidstoestand, opleidingsniveau en culturele achtergrond kunnen belemmeringen vormen voor patiëntgerichtheid. Ook kan het zijn dat patiënten door stress, ziekte, angst of pijn niet zichzelf zijn tijdens hun ontmoetingen met artsen. Gevoelens van afhankelijkheid kunnen de mate waarin ze hun onzekerheden of voorkeuren uiten verder beperken.

## Methoden

Tijdens zogenaamde community projecten bestuderen groepjes van 5 tot 6 derdejaars geneeskundestudenten een actuele vraag van een (volksgezondheids)organisatie. Daarbij houden ze enquêtes of interviews met (potentiële) patiënten of zorgverleners. Voor dit CLI-project werden 6 specifieke community-projecten ontwikkeld, zodat studenten in contact konden komen met een diversiteit aan perspectieven en konden leren over vragen, twijfels en voorkeuren die patiënten kunnen hebben. Alle Ba3-studenten geneeskunde werden voor en na het project uitgenodigd om een 8-item vragenlijst over empathie in te vullen, gebaseerd op de Jefferson-schaal, studentenversie. In de vragenlijst na afloop van het project werd de studenten bovendien gevraagd welk element van het community-project voor hen de grootste impact had.

## Resultaten

In december 2023 vulden 289 studenten de vragenlijst vóór het project in (respons 79%). In maart 2024 vulden 357 (98%) van de studenten die hadden deelgenomen aan een van de 62 community-projecten de post-projectvragenlijst in. In totaal vulden 281 studenten (77%) beide vragenlijsten in. De gemiddelde empathiescore veranderde van 45,5 voor het project naar 46,3 na het project (p=0,002). Het niveau van empathie veranderde vooral wanneer medische studenten interactie hadden gehad met zorgverleners. De antwoorden op de open vraag gaven aan dat studenten interactie met (potentiële) patiënten en anderen buiten de ziekenhuissetting de moeite waard hadden gevonden.

## Discussie

We zagen een significante verandering in het empathieniveau onder geneeskundestudenten. We beschouwen deze resultaten als bemoedigend voor verdere inspanningen om de ontwikkeling van empathieniveaus te ondersteunen. Ook raden we aan om mogelijkheden te onderzoeken om (potentiële) patiënten te betrekken bij onderzoek, bijvoorbeeld bij het ontwikkelen van de inhoud van community-projecten.

# Background

The initial version of this project was approved by CLI in 2019. It focused on medical students providing health-related advice to Rotterdam residents outside the hospital, promoting community interaction, developing patient-centered skills, and fostering cultural sensitivity.

Due to the COVID-19 circumstances, the project had to be postponed a few times and ultimately, its content had to be adapted while aiming to maintain the original objectives. In the following report I will describe the original motivation, the considerations about necessary adaptations, the project as finally conducted ant its findings. Details of the original plan that ultimately became irrelevant are left out.

## Original plan

Partnering with patients is a key objective of Erasmus MC Strategy 23. Partnering with patients requires doctors to be patient-centered and to be open to a diversity of perspectives. Being patient-centered refers to seeing patients in their own context (rather than being disease-centered) and it refers to the willingness to share information and input with patients (so patient-centered rather than doctor-centered). Medical students and their future patients differ in age, health situation, and often in levels of education and in cultural background. These differences can be barriers to being able to see patients in their own context, to seeing the person. A second barrier is that patients may not be their usually self during their encounters in clinical settings with doctors. This could be due to stress, illness, pain or worries about their health and medical situation. Patients' feelings of dependence may further limit the extent to which they express their uncertainties, questions or preferences to their doctors.

Traditionally, medical students are not trained in the 'soft skills' required for a patient-centered attitude [1]. Rather, the training has been focused on scientific and quantitative methods of knowledge generation. Paying more attention in medical training to soft skills and to well-being is of relevance for the own health of (future) doctors too.

In his master thesis, Jasper Klasen surveyed 653 Dutch medical students [2]. He found that they tend to see their patients as individuals and are willing to share information with them, which indicates patient-centeredness. Still, the level of patient-centeredness as reported by Erasmus MC medical students was lower than at other universities. In addition, senior students reported lower levels of patient-centeredness than junior students.

To support students' patient-centeredness, in the course of the past 5 years, several innovative lessons have been introduced in the Collaboration for Optimal Care and Prevention trajectory ('SOZP'), which is part of the medical training in Erasmus MC. Examples of such lessons are Patient shadowing at the emergency department (Ba1), The patient journey (Ma), as well as lessons on the theory and practice of shared decision-making (Ba2, Ba3, Ma).

This CLI project is aimed at further increasing the opportunities for our new doctors to develop empathy and to partner with their future patients. By arranging meetings outside the hospital during which health topics are discussed we wanted to enable medical students to interact with groups of people in Rotterdam whom they will likely encounter as patients in the future. By being in touch with a diversity of perspectives in various settings outside the hospital, medical students will learn about questions, doubts, uncertainties and preferences that patients may have. In addition, they will get a sense of how (potential) patients think and talk about health. They will experiment with explaining health concepts

and they will discover a diversity of views of what people may find relevant, what is understood and what not.

The aim of this CLI project is in line with the aims of the new bachelor curriculum, Erasmusarts 2030. In particular, the project matches the objectives: "student reflects on the influence of social and cultural context and diversity in target groups in giving and receiving appropriate prevention advice," and "student provides appropriate prevention advice to simulation patients focused on a single behavioral or environmental determinant". In our CLI project, we focus on the third year bachelor students. These students will have gained insights into the cultural, social, and diversity contexts regarding health during their second year and are about to practice this in their third year. The project will give them the opportunity to better achieve the learning goals of the curriculum through community engagement in Rotterdam.

## Impact COVID-19

The COVID-19 circumstances had a huge impact on the view on person-to-person contact with vulnerable groups in the population. During certain periods in 2020 and 2021, such contact was simply not even allowed, and for longer periods it was considered not preferrable or even inappropriate. In addition, it was uncertain when (and if) this was going to change. Therefore, focusing the CLI project on organizing meetings of students with older people was no longer considered a good idea.
The CLI organization has been very helpful and supportive in allowing me to postpone my CLI project repeatedly and to adapt it.

## Considerations about the original proposal

Since organizing meetings of medical students with individual vulnerable (potential) patients was not feasible and appropriate, we looked for other ways during which medical students could interact with their (potential) patients, without overburdening these potential patients nor the organizations involved in care or support for such groups.

We, for instance, explored whether we could organize a window ('loket') where students could answer questions about health and health care during weekly consultation hours. We considered it an advantage that the window could offer a more or less continuous provision of support and information rather than one off interactions.
It had to be clear, though, that medical students were not supposed to be treating people asking for help, given that they would be 2nd- or 3rd year medical students and not ready for practice. We got in touch with the municipality of Rotterdam and talked with people who provide service and support to citizens. Their point of view was that people would only go to such a consultation hour if they had a relevant health issue, and not in case of preventive question. These people would likely expect to be treated and not 'just' some talking. We therefore dropped this idea.

In addition, we talked with GIDS, a group of medical students who are active in societal contexts in Rotterdam whether we could collaborate in some sense. This interaction made it clear the students' curriculum are really full and that it would be challenging to find students willing to participate in extra activities, as would be required for this CLI project.

Moreover, we got insights from the end report of the CLI Fellowship "Sociaal-medisch competente artsen opleiden" (training socio-medically competent doctors) [3]. This project was focused at third year medical students during a Public Health Minor and linked them to social partners working on advising citizens in

Rotterdam about social themes they encounter. The report highlights the positive impact of the "Community Engagement" group assignment in the Public Health minor. Students' enthusiasm and collaboration, along with positive interactions with residents and professionals, were valued. However, students commented on the challenges in communication and indicated they needed clear guidance. Students' suggestions for improvement included balancing group preparation time and activities, enhancing communication and structure, considering collaboration with existing activities, addressing time-consuming aspects, and avoiding excessive responsibility for students [3]. The report recommended allocating dedicated time for community activities, providing clear guidance to and improving communication among students, supervisors, and involved social partners.

These suggestions have been taking into consideration in the current CLI-fellowship through avoiding adding extra burden on students by implementing the pilot within the existing structure of "community projects" in the second semester for 3rd year bachelor students. This was an idea of Suzie Otto, the coordinator of the community projects. In such community projects, groups of 5 to 6 medical students jointly work on a research question considering public health through literature research and community engagement, write a report and finally present their results during sessions with fellow students. Yearly, new community projects are drafted, based on actual questions from a wide range of (public) health organizations, which are often based in Rotterdam.

## Final plan

Aim: Developing a patient-centred care orientation among third year medical students through community engagement.

Objectives:

- To prepare medical students to be patient-centred, and open to a diversity of perspectives of their patient population through community engagement in Rotterdam.
- To ensure that medical students and the patient population have the opportunity to communicate in settings outside the clinics and are enabled to meet, talk about a health-related topic, and get to know each other's perspectives.
- To prepare medical students to understanding the needs of their future patients based on what they learn through the project.

We aim to assess how interacting with people outside the hospital setting may impact the extent to which medical students are open to a diversity of perspectives on what people consider relevant in health and health care, to questions people may have and to what may worry them.

The proposed encounters will take place in a non-crisis situation. Patients might be more relaxed than during the typical hospital encounter, and better able to express themselves and to reflect on what they consider important. The absence of a dependency relationship will be another facilitator for such discussions outside the hospital setting.

We will measure to which extent students' patient-centeredness changes after participating in a community project.

# Methods

## Community projects

The department of Public Health at Erasmus MC has introduced 'community projects' in the medical curriculum. Based on an actual question of (public) health organizations, groups of 5 to 6 3$^{rd}$ year bachelor students jointly draft a research question, which they themselves will answer, based on literature and fieldwork.

We aimed to recruit 30 to 35 students in our CLI-fellowship project, and therefore wanted to draft 5 to 6 community projects in collaboration with (public) health organizations. In each of these projects, we wanted medical students to develop a patient-centered orientation through their engagement with citizens. The main target group remained people whom medical students were likely to encounter as patients, which is basically everybody. Throughout this report, we will refer to this group as "(potential) patients".

To prepare our community projects we made a list of health topics we considered relevant to the Rotterdam population. We wanted the topics to have a prevention component, which allowed low-key conversations about health. Since we aimed at conversations between 3$^{rd}$ year students and the population, we excluded topics that required specific knowledge. We looked for literature to substantiate the size and content of the topics.

With help of our network, we identified key persons in the Rotterdam area and approached them. In the course of July – November 2023 we met (online) with a range of people and discussed with them whether they recognized the issue that we identified, whether they considered it useful to conduct a community project as proposed by us, and whether they envisioned a role for their own organization.

Box 1. Developing community projects.

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Example 1: good result

We approached Genero, an organization for and by older people in Rotterdam and surrounding area. Beforehand we expected the older people to be interested in information about preventing falls. We proposed this to Genero and were informed that the older people liked the idea of students talking with them about health, but they preferred to propose health topics themselves. The coordinator of Genero and three older people, including an 88-year old lady who had just retired from her career as a lifestyle coach, visited us at Erasmus MC. We discussed potential topics. We were then invited to present the idea of a community project at an event of Genero. The audience generated a list of topics. Genero selected two: How to discuss alcohol and medication use with older people? and How does healthcare approaches the increasing diversity among older people? About each of these topics a community project was developed.

Example 2: suboptimal result

We approached the Centrale opvang asielzoekers (COA) to discuss a potential community project about healthcare for asylum seekers under the age of 18 years. Due to their housing situation and need to frequently move house, vaccination rates are quite low in this group. The COA responded positively. However, due to the sudden need to open an extra location, last minute they were not able to conduct a community project with us.

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In a number of instances, unfortunately, a community project appeared not to be feasible in spite of efforts and good intentions. Reasons that community projects did not materialize included lack of time, logistics, or a preference to protect vulnerable groups. See Box 1 for a number of examples about the development of community projects.

Ultimately, in collaboration with stakeholders, we developed six community projects during which medical students were expected to interact with potential patients. Suzie Otto, the coordinator of the community projects noted that some of the descriptions of the other 56 community projects, which were not developed by us, also included communication with potential patient groups. Examples include a project about housing and health issues and another one about health risks associated with pets. She suggested me to include the students working on these projects in my CLI assessment on empathy. This was of course very helpful to increase the scale of my CLI project.
My next thought was: why not include all students in our empathy assessment, also those who are not expected to interact with (potential) patients. Fortunately, this proposal was well received and we aimed to include all third year bachelor students in our empathy assessment.


## Measuring empathy
Originally, we intended to use the measurement tool Patient-Practitioner Orientation Scale (PPOS) [4]. The PPOS contains useful and relevant items, such as 'A treatment plan cannot succeed if it is in conflict with a patient's lifestyle or values' and 'Patients should be treated as if they were partners with the doctor, equal in power and status', although the 'as if' in the latter item sounds a bit patronizing. However, the PPOS also contains a number of items that I consider inappropriate such as 'The doctor is the one who should decide what gets talked about during a visit' and 'Many patients continue asking questions even though they are not learning anything new'. I did not want to suggest to students that such a line of thinking is acceptable and therefore I decided to look for another measure.

Based on a literature search, the two-factor model of the Jefferson Scale of Empathy-Health Provider Student version (JSPE) seemed to be the most applicable tool [5]. The first factor of the JSPE consists of nine items to measure compassionate care, the second factor has eight items to measure perspective taking.

Wilma Oosthoek studied Medical humanities and wrote her master thesis on Visual arts education and empathy [6]. I consulted her about how to assess empathy among medical students. She explained that a survey was likely insensitive to any changes in levels of empathy that our community projects might create. Beforehand it is not clear what (if anything) about a certain experience or exposure will create impact in terms of empathy, and therefore assessing the impact on empathy should ideally be done through individual interviews. Interviews allow the discovery of what exactly happened (if anything) to or with someone and what exactly made an impression. Given the scale of our project, assessing impact through interviews was not feasible. We therefore decided to maintain the plan of using a survey, both pre- and post-project, and to limit the number of items to enable a high response rate. We translated the student version of the Jefferson Scale of Empathy Health Profession Students' version (JSPE) into Dutch and selected the eight items on perspective taking to enable a quick completion. To allow some insight into processes at an individual level we added an open question to the post-project survey. We asked: 'Apart from your collaboration with your fellow students and apart from writing the thesis: which

element of conducting this community project has stayed with you most?' See Figure 1 for the final layout and content of the questionnaire.

## Data-collection

We have used an anonymous survey, printed on paper. To enable the comparison between pre- versus post-project responses at an individual level, we added a code to each of the surveys, based on the number of the community project. We have destroyed the key to these codes after data-collection.

In total, 62 groups of 5 to 6 students met in December 2023 in around 30 teaching areas across Erasmus MC for an introduction into the community projects. We prepared sets of questionnaires per teaching area. We aimed to hand out questionnaires at the start of the meeting and to collect completed questionnaires at the end. However, due to logistic issues it was hard, and sometimes impossible, to timely locate all groups of students. A number of students has been addressed later by email. Many, but not all students completed and returned the questionnaire.

Post-project, in March 2024, 8 sessions were organized during which student groups presented the findings of their community projects. At the start of each of these 8 sessions, the post-project questionnaire on paper was handed out to each student and completed questionnaires were collected at the end.

We informed the medical students that their responses would only be used for this CLI-project and that no identifying information would be reported or shared.

Figure 1. Post-project questionnaire



In het kader van innovatie in het onderwijs vragen we je op de onderstaande stellingen te reageren. De uitkomsten worden alleen voor evaluatie voor het onderwijs gebruikt. Alvast bedankt!

**1.** Geef voor de volgende stellingen aan in welke mate je het ermee eens of oneens bent, op een schaal van **1 = helemaal oneens** tot **7 = helemaal eens**.

| Stellingen | Score |
|---|---|
| Zorgverleners moeten proberen in de schoenen van hun patiënten te staan wanneer ze hen zorg verlenen. | 1 2 3 4 5 6 (7) |
| Lichaamstaal begrijpen is even belangrijk als verbale communicatie in de relatie tussen zorgverlener en patiënt. | 1 2 3 4 (5) 6 7 |
| Empathie is een therapeutische vaardigheid; zonder die vaardigheid is het succes van een zorgverlener beperkt. | 1 2 3 4 5 (6) 7 |
| Om betere zorg te kunnen bieden moeten zorgverleners proberen te denken zoals hun patiënten. | 1 2 3 4 5 (6) 7 |
| Patiënten waarderen het begrip van een zorgverlener voor hun gevoelens, wat op zich al therapeutisch is. | 1 2 3 4 5 (6) 7 |
| Ik geloof dat empathie een belangrijke factor is in de behandeling van patiënten. | 1 2 3 4 5 6 (7) |
| Zorgverleners moeten proberen te begrijpen wat er in het hoofd van hun patiënten omgaat door aandacht te besteden aan hun non-verbale signalen en lichaamstaal. | 1 2 3 4 5 6 (7) |
| Inzicht van zorgverleners in de emotionele toestand van patiënten en hun familie is een belangrijk onderdeel van de relatie tussen zorgverlener en patiënt. | 1 2 3 4 5 6 (7) |

2. Los van de samenwerking met je groep en los van het schrijven van het verslag: wat is je het meest bijgebleven van het uitvoeren van het community project?

Wat mij het meest is bijgebleven, is de gesprek-ken met de ouderen, en te zien hoe erg zij betrokken zijn bij het feit dat er verandering moet komen in de mate van inclusiviteit voor verschillende etniciteiten.

## Statistical analysis

Pre- and post-project, we collected all completed questionnaires. Data was entered into Excel using codes, which allowed pre-post comparison at an individual level (i.e. student) and group level (i.e. community project). Based on the eight items on empathy, which were answered using a 7-point Likert scale, a total score was calculated by summing up the scores per item. The range of the total score was 8 to 56. The total score was compared between pre- and post-project at an individual level, using paired t-tests. A p-value of <0.05 was considered to be significant. The minimal important difference (MID), indicating clinical relevance, and defined as the smallest change in a patient-reported outcome that is perceived by patients as beneficial, or that would result in a change in treatment, was operationalised as a difference of at least half an SD [7].

To measure the impact of community projects on the empathy of students, we first established the extent to which students interacted with (potential) patients. The reports of all community projects have been read and based on method and results sections we listed the interaction (if any) students had with (potential) patients, see Appendix 1. Subsequently, based on this list of interaction, we developed a score to indicate the extent of interaction the community project allowed students to have with (potential) patients. The score ranged from 0 Literature search; to 1 Online survey study among (potential) patients; to 2 Interviews with healthcare providers or experts; and 3 Interviews with (potential) patients.

The answers to the open question in the post-project survey were entered into an Excel document and have been ordered per theme.

We used SPSS 28.0.1.0 and Excel 25.02 for the analyses.

# Results

## Data-collection

In December 2023, the pre-project questionnaire data was collected. Due to logistic issues, we did not manage to timely allocate all students and ask them to complete this questionnaire. Two hundred eighty-nine students completed this questionnaire (response rate 79%).

In March 2024, 357 (98%) of the students who participated in the community projects completed the post-project questionnaire. In total, 281 students (77%) completed the pre- and post-project questionnaire. Based on the methods and results sections in the reports on the 62 community projects, we rated the level of interaction of students with (potential) patients, see Table 1.

Table 1. Level of interaction with (potential) patients

| Contact with (potential) patients | Level | Projects (n) | Students who completed pre- and post-project questionnaire (n) |
|---|---|---|---|
| Literature search | 0 | 1 | 4 |
| Online survey study among (potential) patients | 1 | 12 | 43 |
| Interviews with healthcare providers or experts | 2 | 27 | 124 |
| Interviews with (potential) patients | 3 | 22 | 110 |
| Total | | 62 | 281 |

## Association between community project and empathy

Pre-project, empathy scores ranged from 32 to 56 on a scale of 8 to 56, see Table 2. Post-project, the scores ranged from 29 to 56. Changes in score per student ranged from -11 to 14, indicating that levels of empathy decreased for a number of students and increased for others, see Table 3. The average score changed from 45.5 pre-project to 46.3 post-project, which was a significance difference (p=0.002). The change was smaller than half a standard deviation, and therefore not considered clinically meaningful.

Table 2. Empathy scores of medical students pre- and post-project

| | Pre-project mean score (standard deviation) | Post-project mean score (standard deviation) | p-value |
|---|---|---|---|
| Score | 45.5 (4.5) | 46.3 (4.5) | 0.002 |
| Per level of interaction | | | |
| 0. Only literature | 42.8 (8.1) | 45.8 (7.8) | 0.51 |
| 1. Online survey | 45.9 (4.3) | 46.0 (4.3) | 0.82 |
| 2. Interviews healthcare providers or experts | 44.9 (4.3) | 46.3 (4.5) | 0.002 |
| 3. Interviews with (potential) patients | 46.1 (4.6) | 46.6 (4.6) | 0.25 |

Table 3 Change in empathy level per student (n=277)

| | Less empathy (decrease of ≥3 points) | Similar (change of ≤2 points) | More empathy (increase of ≥3 points) |
|---|---|---|---|
| **Per level of interaction** | | | |
| **- Only literature** | 1 | 1 | 2 |
| **- Online survey** | 11 | 19 | 13 |
| **- Interviews with healthcare providers or experts** | 22 | 52 | 50 |
| **- Interviews with (potential) patients** | 25 | 53 | 32 |
| **Total** | 59 | 125 | 97 |

Threehunderd thirty-five students answered the question which element of the community project stayed most with them. The responses often referred to meeting people from other groups than students usually interacted with or to getting acquainted with public health settings, so outside the hospital. We categorized all responses and identified a number of themes, see Table 4 for a selection of quotes. A number of responses literally indicated the impact that we had hoped for. Such responses were not necessarily related to whether students had been interviewing (potential) patients or not.

Table 4 Themes as identified in students' responses about which element of the community projects impacted them most

| Theme | n | Example of response |
|---|---|---|
| **Collaboration, Connecting with colleagues** | 35 | 'Willingness of people to help' <br> 'Impressive stories of healthcare providers in care home' |
| **Connecting with people/ patient population** | 37 | 'Nice interviews with older people of Genero' <br> 'Talking with people with dementia' <br> 'The method of interviewing and thus learn to have more empathy for patients' |
| **Fieldwork experience and Reflections on it** | 42 | 'Fieldwork is essential' |
| **Understanding society related matters** | 110 | 'There are many societal issues that require attention' <br> 'As a medical student one can have impact' <br> 'Societal issues are hard to solve' <br> 'Also in a prosperous country, differences between groups can be large' <br> 'Most assumptions are wrong and engaging with patients outside the hospital is crucial to better understand your patients' <br> 'Engaging in conversations with citizens through fieldwork' |
| **Knowledge gain** | 68 | 'Science is nice' <br> 'How to design and conduct a study' |
| **Practicalities of the project** | 14 | 'This gives much stress' |

# Discussion

We aimed to provide settings for medical students to interact with potential patients about health topics and thereby to increase their willingness to share information and power. The COVID-19 circumstances led to delaying and ultimately adapting the project. We much appreciate the patience and consideration of CLI. The good thing of this delay is that the idea could mature over time.

The ultimate approach involved many more students, the use of a better tool, a large-scale pre-post measurement, and a feasible incorporation of the pilot in the regular curriculum.

We found that empathy levels of Ba3 medical students had increased after interaction with potential patients and especially with healthcare providers (p=0.02). Responses to our question about how the community projects had affected these students indicated that students appreciated the opportunity to interact with (potential) patients outside the hospital setting. The responses also imply that contact with potential patients could be overwhelming. Responding with empathy might have been difficult for students, also given that had not received specific training for this beforehand. We hypothesize that interacting with healthcare providers might have been less challenging for medical students, and therefore enabled more impact on the construct that we have measured.

In spite of positive effects of empathy on doctor-patient relationships, the level of social-emotional skills of medical students is equal to or even lower than that of the general population [8]. In addition, data shows that the empathic abilities of medical students decrease during their medical study [2, 9-11]. This is worrisome. The effects of the current pilot study, in which we found a small positive effect on empathy levels of medical students, are promising.

Wilma Oosthoek describes empathy as the ability of a medical student or doctor to exist in dialogue with the world, the other, for instance a patient [6]. This is about 'feeling' what is necessary in the moment, and it is about empathic curiosity and concern. It enables medical students or doctors to facilitate and support patients to be in dialogue with themselves [12]. The extent to which someone can be in dialogue with the world fluctuates from day to day and from patient to patient. Someone can become less empathic due to challenging personal circumstances, to having slept badly or to time pressure. They can become more empathic based on characteristics of the patient, for instance if it considers a vulnerable person. These processes are best understood and evaluated through participatory observation or through interaction analyses of conversations between doctors and patients.

In her thesis, Oosthoek distinguishes three types of empathy [6]; cognitive empathy, affective empathy and behavioural empathy. The tool we used, the JSPE, is focused at the cognitive domain. To measure affective empathy, tools such as the Questionnaire of Cognitive and Affective Empathy (QCAE) [13],  are recommended and behavioural empathy is measured with  a communication tool such as Roter's Interaction Analysis System (RIAS) [14].

Oosthoek recommends teaching students about these empathy constructs and about the factors that influence the extent to which doctors are able to interact with their patients. Also, she considers it very relevant that students realize they can practice the self-regulating component of empathy rather than considering being empathic as a personal characteristic or skill.

## Strengths and limitations

We managed to collect data pre- and post-project among 281 students (77% response rate). This enabled us to explore the impact of the community projects on empathy levels of medical students

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across a range of settings. Another strength is the use of a validated instrument, which has been positively evaluated in the literature. Also, for the first time community projects were classified according to the type of data collection and interaction with target groups. In doing so, it was possible to look for an entire cohort of third-year medical students at possible differences in effects between types of projects. This is valuable information for the future design of project education in both Erasmus MC and the EUR and for the requirements of project education to achieve certain learning goals.

Limitations include the fact that the aspired level of contact between students and their potential patients during community projects did not always materialize as anticipated. We had to check the report of every community project to find the actual level of contact between students and (potential) patients to be sure. We also noticed that developing community projects specifically to provide a setting of interaction between medical students and their potential patients was challenging. When contacting (public health) organizations we were met with many positive reflections, but also with very busy people for whom it is hard if not impossible to find the time to support teaching activities. If people manage to respond to our emails after a week or two to ask some additional questions, and then can respond after another two weeks it quickly results in a pressing time schedule. Therefore some of the anticipated projects could not be timely developed. Another limitation is that, due to logistic issues, we did not manage to collect baseline data among all students who participated in the community projects. We expect that these missing values were random. Finally, we think that measuring effects on empathy with only a survey (like we did) provides limited insight into changes to the students that may have taken place. For future studies, we recommend a mixed methods approach, combining survey research with interviews with students. Also, using an additional empathy measure might give insight into the extent the measure that we used is indeed a good choice.

## Recommendations

Based on our experiences we recommend preparing medical students for situations in which they might not to be able to provide solutions. We recommend teaching students much more about the option to do "nothing". It will help students in the future if they realize that not all problems can be solved or need to be solved. Also the complexity of situations is relevant: initiating a change might not only provide a solution but could cause another problem to occur. Preparing for this might be done during case-based learning and during practice sessions with fellow students. It could also be done during so-called intervision meetings. In these meetings medical students have the opportunity to discuss situations they find challenging to handle. It is a kind of peer-review with fellow students and a psychology teacher. The theme of how to approach situations in which finding a solution is hard or even impossible might be given more consideration during such intervision meetings.

## Input of patients

The experiences with e.g. Genero showed that (potential) patients can surprise us with their ideas. We may have underestimated to which extent they would like to be involved. We recommend including groups of (potential) patients more often in education, also given the positive responses of students and the (potential) patients themselves. We also recommend to share such experiences with colleagues, in Erasmus MC, Erasmus University Rotterdam and elsewhere.

## Conclusion

A pilot study during which students interacted with (potential) patients and with healthcare professionals indicated a positive impact on the levels of empathy of the students.

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# Appendix 1. Overview community projects 2023-24 and extent of contact with (potential) patients

Scale of contact with (potential) patients

0: Literature search

1: Online survey study among patients

2: Interviews with healthcare providers or experts

3: Interviews with (potential) patients

| Topics Community projects 2023-2024 | Contact with (potential) patients | Score |
|---|---|---|
| **1. Prevention and health promotion** | | |
| Project 1. Substance use among young people | Interviews | 3 |
| Project 2. Safety sunblocks in Europe | Online survey | 1 |
| Project 3. Heart foundation and stakeholder management of primary care | Interviews with general practitioners | 2 |
| Project 4. GamePlay | Survey study among 16 8-12 year olds | 1 |
| Project 5. Tertiary prevention; essential care in medicine curriculum | Interviews with healthcare providers | 2 |
| Project 6. Conversations about healthcare in the community | Face-to-face questionnaire study among neighborhood residents | 3 |
| Project 7. Perception of health in corporate neighborhoods | Online survey study among neighborhood residents and 1 interview with a dietician | 1 |
| Project 8. A climate-adaptive and senior-friendly neighborhood in Rotterdam-Zuid | Interviews | 3 |
| Project 9. Reducing overweight and obesity in Rotterdam Zuid | Interviews with healthcare providers | 2 |
| **2. Health disparities, social determinants, participation** | | |
| Project 10. Influence of social-economic status and ethnicity on overweight and obesity in children | Interviews with healthcare providers | 2 |
| Project 11. Screening based on ethnicity | Yes, survey study partly through interviews | 3 |
| Project 12. Could poverty stress be reduced by targeted exposure to nature? | Yes, observation of children during a trip | 3 |
| Project 13. Insight into health-related interests, questions and needs of Chinese older people in the Hague | Survey study | 1 |
| Project 14. Care network Old West Rotterdam | Interviews including 2 local residents and 1 volunteer | 3 |
| Project 15. Barriers to participation in screening for colorectal cancer | Yes | 3 |
| Project 16. Physical exercise opportunities for women in Feijenoord, Rotterdam | Yes, 2 focus group studies | 3 |
| Project 17. Participation of older people and social map of IJsselmonde, Rotterdam | Survey study | 1 |

| | | |
|---|---|---|
| Project 18. Preparedness of parents considering their child's participation in scientific research | Yes | 3 |
| Project 19. The influence of various determinants on the need for help to address mental health issues | Survey study among patients and 4 interviews with healthcare providers | 2 |
| Project 20. Knowledge and thoughts considering blood donation | Yes, 12 interviews with potential blood donors | 3 |
| | | |
| **3. Youth health care and support** | | |
| Project 21. To which extent can the ShotBlocker prevent or reduce vaccination fear within youth health care? | Yes, survey study partly through interviews | 3 |
| Project 22. Digital age-related newsletters | Yes, survey study through interviews | 3 |
| Project 23. Composition of the population in relation tot he use of highly specialised youth health care | Interviews with healthcare providers | 2 |
| Project 24. Optimising the use of practice assistance youth | Interviews and surveys among general practitioners | 2 |
| Project 25. Referral behavior of general practitioners and medical specialists | Online surveys health care providers | 1 |
| | | |
| **4. Infectious disease prevention and control** | | |
| Project 26. Infection prevention and outbreak control in disability care practice. | Interviews with healthcare providers | 2 |
| Project 27. Nails and infection risk | Interviews with healthcare providers | 1 |
| Project 28. Fewer infections and more sustainable care: Surgical handwashing without a brush unless | Interviews with healthcare providers | 2 |
| Project 29. Fewer infections and more sustainable care: Good Use Gloves at Erasmus MC | Interviews with experts and observation of surgery | 2 |
| Project 30. Mass treatment with ivermectin against parasitic diseases: what are the ecotoxic effects? . | Interviews with experts | 2 |
| Project 31. Control of scabies epidemic among students: is mass treatment with ivermectin an appropriate approach? | Interviews with healthcare providers and experts | 2 |
| Project 32. The forgotten history of malaria in Zeeland - analysis of possible risk areas in Zeeland | Interviews with experts | 2 |
| Project 33. The forgotten history of malaria in Zeeland as a risk for the next pandemic | Interviews with experts | 2 |
| Project 34. Zoonosis prevention measures among residents with pets | Yes | 3 |

| 5. Drownings: prevention, classification | | |
|---|---|---|
| Project 35. The interaction between the rescuer and the drowning person - a follow-up study | Study of archives | 0 |
| Project 36. From what age can children learn to rescue drowning victims? | Interviews with experts | 2 |
| Project 37. Can the non-fatal drowning categories recently proposed by the World Health Organization be reliably applied to Dutch rescues? | Interviews with people experienced in rescues | 2 |
| | | |
| 6. Vulnerable groups | | |
| Project 38. Experiences of residents of nursing home admission . | Interviews with healthcare providers | 2 |
| Project 39. How do older vulnerable patients experience an emergency room visit . | Yes | 3 |
| Project 40. Residential care vision Rotterdam | 4 interviews with homeless persons | 3 |
| Project 41. Child coming along to interpret for a loved one, how do you deal with that as a caregiver? | Interviews with healthcare providers | 2 |
| Project 42. Exploring Harmful Practices | Survey study among students | 1 |
| Project 43. Preparing for Aging. Perspectives from diverse groups of 50 plus adults | Focus group study with 50plus adults | 3 |
| Project 44. Oral health in collaboration with health and welfare for a healthier Ommoord | Interviews with 5 healthcare providers | 2 |
| | | |
| 7. Care for older people | | |
| Project 45. Interventions in problem behavior | Interviews with healthcare providers | 2 |
| Project 46. Self-reliance case | Interviews with healthcare providers | 2 |
| Project 47. Let's get Digital | Online survey study among healthcare providers | 1 |
| Project 48. Knowledge of responsible alcohol and drug use among the elderly . | Yes | 3 |
| Project 49. Needs and preferences of older people from diverse cultural backgrounds regarding shared decision-making | Yes | 3 |
| | | |
| 8. End-of-life care and decision-making | | |
| Project 50. How does a patient with dementia die? | Interviews with healthcare providers | 2 |
| Project 51. Psychosocial care in the hospital for people in their last phase of life . | Interviews with healthcare providers | 2 |
| Project 52. Palliative care, also for relatives and (future) next of kin? . | Interviews with relatives | 3 |
| Project 53. Patient-centered care in the last phase of life: what about LGBT+ people? | Interviews with healthcare providers and 2 representatives LHBTI | 3 |
| | | |

| 9.    Health care: rehabilitation, genetics, education, welfare, labor | | |
|---|---|---|
| Project 54. Outpatient rehabilitation for COPD patients | Survey study among healthcare providers | 1 |
| Project 55. Measuring instruments | Interviews with healthcare providers | 2 |
| Project 56. Cognitive Rehabilitation - efficient methods in practice | Interviews with healthcare providers | 2 |
| Project 57. Dementia DNA dialogues | Yes | 3 |
| Project 58. ISO working group: scenario and simulation education | Interviews with students | 2 |
| Project 59.  Student Welfare | Whatsapp survey among students | 1 |
| Project 60. Youth unemployment (ages 16-27) | Yes | 3 |
| **10.  Student-provided projects** | | |
| Project 61. With Salvation Army: Optimization of health skills patients of Huis en Haard Gorinchem | Interviews with healthcare providers | 2 |
| Project 62. With Taskforce QRS Rotterdam: The effectiveness of resuscitation courses among schoolchildren. | Survey study among schoolchildren | 1 |