

Trying to convey my message: A pre/post observational study in a medical encounter

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Abstract

Difficulties encountered in medical interaction during communication due to language discordance may pose risks that can affect patient's care, and their outcomes. This may necessitate the need for translation or interpretation to provide appropriate medical care. This study aims to assess the impact of an intervention and on how to achieve common ground in a simulated medical interaction when communication occurs through lingua franca and non-verbal support. In this pilot study, participants were shown both a simulation video and an intervention video. The simulation video depicted the first consultation between a patient and a doctor. The intervention video, of a practicing healthcare professional who provides participants with relevant information applicable to such interactions, was subsequently explored in the survey through participant responses. The changes in survey responses before and after the intervention were analyzed using the chi-square test. 37 participants participated in the survey. For the question on provisional diagnosis, the calculated test statistic was less than the observed crucial value ($6.9 < 7.815$), thereby signifying impact of the in-

tervention. From this study, it can be seen that the communication trainer's intervention, which focused on building the conversation, recognizing non-verbal cues, and identifying common language, would be beneficial for the study participants (medical students) in their future clinical practice. This creates awareness that simulated interactions similar to the one used in this study can be used as a training and educational tool for achieving common ground.

Keywords

Healthcare, communication, lingua franca, non-verbal gestures, vignette study.

Introduction and rationale of the present study

“The single biggest problem in communication is the illusion that it has taken place”
(George B. Shaw)

On a day-to-day basis, an increasing number of people report to hospitals and primary health care centers to avail themselves of medical treatment or services, be it a consultation or follow up appointment with a doctor, or for blood testing or radiological services. Provider-patient interactions follow the principle of common ground, which is the knowledge shared between the parties, or the participants involved, to allow for communication between them (Kuziemsky/Varpio 2010). This communication allows for a conversation and interaction between a patient and a healthcare professional, wherein the ultimate objective is to improve the patient's health and medical care (Ha/Longnecker 2010). Good communication between the doctor and the patient allows patients to share vital information essential for an accurate diagnosis of their problems and thereby enables the doctor to gain a better understanding of the patient's needs (Dorr Goold/Lipkin 1999). Ineffective communication has been linked to causing dramatic consequences for the quality of healthcare services undertaken by the patient and for the safety of the patients (Tweedie/Johnson 2022).

Reports from studies conducted within primary care suggest that communication skills are especially important for improving patients' outcomes, including adherence to physicians or general practice centers personnel advice, patient satisfaction and improved health outcomes (Safran *et al.* 1998; Beck *et al.* 2002). Communication in healthcare, particularly the interactions between patients and healthcare professionals who share the same language, often rely on strategies such as establishing common ground and using nonverbal communication to facilitate effective consultations and ensure smooth communication. Here, we want to also look at *the use of a third language as a lingua franca*, which may be employed in situations and interactions where a language barrier exists.

That is why the present study was mainly directed towards students and trainees in medicine and general practice. As a part of their teaching curriculum, they are taught the communication model which contains six phases during an interaction between a patient and a doctor. But what if the patient does not speak the language of the doctor?

What if a *lingua franca* is a possible solution, in one way or another, to convert and relay information? An intervention by the communication trainer in the present study also speaks in detail about these six phases, and how they proceed. The purpose of the intervention was to inform and advise the participants to take the first step, in order to form a common ground for communication in similar situations where the patient does not necessarily communicate in the language of the doctor and which the participants could encounter in their future practice.

The aim of our study was to learn about the effect of an instructional video, when presented as an intervention in a vignette study model and how to achieve a common ground for communication in cases where *lingua franca* and non-verbal support are used. The study objective was to investigate how an intervention influences participants' observation (perception) of a simulated interaction between a patient and a doctor using English as a *lingua franca*. The research question formulated was “*what is the impact of the trainer intervention on the participants (students) perception of the observed simulated interaction between a patient and a doctor during a first medical consultation; where lingua franca and/or non-verbal support (hand gestures) are used?*”.

1. Definitions and concepts following key literature

In what follows, we briefly wish to define different concepts following the most significant literature, starting with the definition of a *medical consultation*, followed by the concept of *common ground* to be reached in communication in general, and subsequently in clinical communication. We will then develop the concept of *language barrier* as used in health communication literature and then proceed towards the description of *non-verbal communication* and *lingua franca* to reach the aforementioned *common ground*.

1.1 Common ground in clinical communication

Sociologists Heritage/Maynard (2006) described medical consultation as an interactive communicative process in which the doctor and patient take turns formulating and allowing for the interaction's construction. Information exchange between the patient and the healthcare professional is the dominant communication model, with current approaches including patient-centered communication or shared decision-making (Landmark *et al.* 2017). This communication allows for a basic conversation which involves interaction between a patient and a healthcare professional, wherein the ultimate objective is to improve the patient's health and medical care (Ha/Longnecker 2010).

The notion of common ground was first developed in discourse psychology and refers to the shared knowledge, language, and beliefs necessary for communication to occur (Clark/Brennan 1991). Communication is a multifaceted construct that involves the appropriate application of certain core transferable skills and strategies, which is determined by the purpose of the communication, the participants, and the context (Links *et al.* 2020). In their article on describing clinical communication space through the model of common ground, Kuziemyk/Varpio, argued that common

ground is the basis for an interoperable person; thereby being a dynamic process that forms over a period, with trust being the single largest factor in its ongoing formulation (2010: 409).

In another study with 2nd and 3rd year General Practice vocational trainees in Flanders, Van Nuland *et al.* (2010) explored their views on communication with the patients and their own training but also the learning of these skills. The distinct phases of the clinical encounter encompassed together (table 1), form the principle of *Common Ground*. The different tasks following these phases in healthcare communication under the umbrella term common ground include: i) building the relationship, ii) open the discussion, iii) gather information, iv) understand the patient’s perspective, v) share information, vi) reach agreement on the problem; and lastly vii) close the session (Van Nuland *et al.* 2010).

| Phases | Tasks |
|---------------------------|---------------------------------------|
| Initiating session | Build relationship |
| Gathering information | Open the discussion |
| Building the relationship | Gather information |
| Explanation and planning | Understand patient’s perspective |
| Closing the session | Share information |
| | Reach agreement on problems and plans |
| | Provide closure |

Table 1. Phases and tasks during a medical consultation (Source: Van Nuland *et al.* 2010: 66)

Clinical communication can be relatively quick if there is a common language between the patient and the health care personnel. If there is not, then a language barrier develops.

1.2 Language barriers, non-verbal communication, and *lingua franca* in healthcare communication

The term ‘*language barriers*’ is widely used in healthcare communication literature to bring to the fore communication difficulties which can lead to miscommunication or communication failure (Tweedie/Johnson 2022). Through research studies, it has been shown that perceived language barriers, can lead to negative outcomes, like: i) inhibit understanding, dosage and use of medications as advised by the physician or the pharmacist (Wilson *et al.* 2005); ii) cause longer duration of hospital stays (both inpatient care and emergency) (John-Baptiste *et al.* 2004); iii) increase the risk of hospital readmission (Karliner *et al.* 2010); iv) result in critical communication inaccuracies and omissions (Flores *et al.* 2003); and v) increase the risk of serious medical events (Cohen *et al.* 2005).

Despite the challenges posed by perceived language barriers, there is limited knowledge about the specific communicative strategies that physicians employ to ensure understanding on a micro, turn-by-turn level, particularly in the absence of a shared language. Furthermore, there is even less insight into how understanding

is achieved in scenarios where both the patient and the healthcare professional are communicating in a non-native language (Harmsen *et al.* 2005; Roberts *et al.* 2005). Cox/Maryns (2021), through their case-specific study approach, investigated the use of multilingual resources and strategies in the absence of professional interpreters. This included ad-hoc communicative strategies like use of *lingua franca*, non-verbal communication, use of medical translation software and language mediation/communication through a person accompanying the patient or allied medical staff. Their findings from the two cases that they chose, highlighted *false fluency* and that ad hoc multilingual solutions need additional language support strategies to avoid diagnostic insecurity (Cox/Maryns 2021: 75).

In language discordant medical consultations, *non-verbal communication* becomes particularly important given the constraints to verbal communication imposed by the participants' lack of skills in each other's language. Even in the presence of a common language that could be shared by the participants, the addition of gestures to the speech assists in deciphering, judging and repeating what has been conveyed. Conversational hand gestures are "generally recognized as being linked to the activity of speaking and are often regarded as part of the speaker's total expression" (Kendon 1980: 207). Nonverbal communication through body-oriented gestures when accompanied by oral speech, portray information about location and strength of pain sensations, as well as information about pain intensity, duration, and awareness (Rowbotham *et al.* 2012). Gestures tend to supply information about the topic of conversation while speech not only conveys valuable information about that topic, but it also often clarifies or makes clear the meaning of the gesture (Gerwing/Landmark Dalby 2014). Research has shown that speakers can also use gestures to depict features, such as size and shape, or location (*Ibid.*). Patients use gestures to demonstrate the position, scale, and character of their suffering, to provide the sense and significance of the illness and symptoms (Heath 2002). On the contrary, healthcare professionals use gestures to convey specific or unique content which may be missing from speech but could be vague without being amalgamated with the supplementing speech (Gerwing/Landmark Dalby 2014).

Subsequently, a *lingua franca* can be seen often as a solution and was indeed already coined in the higher Middle Ages. It was defined as any language used for communication between people or groups of people who do not have any other common language between them (Mathews 1997: 207). Or in the way as proposed by Meiekord, *lingua franca* is the language habitually used by people who have varied and uncommon mother tongues (2006: 163). The use of *lingua franca* follows the same pattern of allowing for conversation building, information transfer, understanding and interaction between the participants. The use of *any language as lingua franca* becomes a positive factor in the healthcare setting when there are encounters between patients and healthcare professionals without a common native language. Though interpreters would be the ideal choice for communication between parties involved to overcome language, culture, and knowledge barriers, they are not always used or available when the parties have some proficiency in a second language, *lingua franca* (Harmsen *et al.* 2005; Roberts *et al.* 2005). The use of *lingua franca* is far from uncommon in contemporary multilingual societies, where immigrants partake in the health care work force (Mullan 2005).

For communication in healthcare between patients and healthcare professionals, strategies such as employing use of a third language as a *lingua franca* or non-verbal gestures are common during consultations and interactions to establish mutual understanding and common ground. The two-way communication between the patient and the doctor allows for collaborative communication, by being reciprocal, and dynamic (Feudtner 2007). These communication modalities allow for the interaction to proceed and communication to take place. As was observed in the study by Cox/Maryns, where the patients used a range of ad hoc multilingual strategies (non-verbal communication, *lingua franca*, companion as ad hoc interpreter), these could be seen as mutually supporting and supplementing each other in uncovering how the speakers communicated with each other (2021).

To bring these concepts and strategies of communication together and to understand and learn from the multifaceted interaction between patient and caregiver in primary care, we studied a simulated consultation and offered an intervention to improve interaction.

The aim of our study was to learn about the effect of an instructional video, when presented as an intervention in a vignette study model on how to achieve a common ground for communication in cases where *lingua franca* and non-verbal support are used. The study objective was to investigate how an intervention influences participants' observation (perception) of a simulated interaction between a patient and a doctor using English as a *lingua franca*. The research question formulated was “*what is the impact of the trainer intervention on the participants' (students) perception of the observed simulated interaction between a patient and a doctor during a first medical consultation; where lingua franca and/or non-verbal support (hand gestures) are used?*”.

2. Methodology of the study

2.1 Participants

Since this study was developed by using a vignette (a simulated interaction) as a teaching exercise, the target population primarily consisted of medical students. This focus was chosen because, in their future practice, they were likely to encounter similar communication challenges arising from language differences. The population approached for accessing the study and filling in the questionnaire were primarily: i) students in Phase 3 of their Master in Medicine; or ii) GP residents, who are under training at a general practice clinic; or iii) students posted or undergoing training in the various departments of the university hospital (example emergency department, intensive care, cardiology, nephrology, etc.)¹. Information to enroll and participate in the survey was via announcements published in newsletters, where research participation opportunities are communicated. Participants excluded from participating in the study were bachelor students and master students in phase 1 and phase 2 of their study program in medicine. This is primarily as the students studying medicine start interacting with patients in phase 3 of their master, as part of their internship and training.

1 The Belgian medical training consists of 3 years of bachelor training, followed by three years of master training, wherein the student can choose their field of medicine for specialization

2.2 Vignette study design

The conceptual framework of this study is a vignette study with an exploratory pilot survey, in which a simulated video (a vignette, explained in section 1.2.1) is shown to the participants to elicit their responses to the survey (Atzmüller/Steiner 2010). The dual involvement of classical experiments and the survey methodology in a vignette study allows to counterbalance the weakness of individual approaches. Vignettes are short descriptions of a person or a social scenarios/situations which contain precise references to what are thought to be the most key factors in the decision-making processes of respondents (Alexander/Becker 1978). The vignette here is a simulated medical first consultation (simulation) recorded between two participants (actors), one acting as the patient and the other acting as the doctor.

2.2.1 Simulation

For the simulation, two individuals were approached to participate as actors. The actors were given a situation they were free to enact in their own way. The two actors did not know each other beforehand and met for the first time on the scheduled date for the simulation recording. They were informed that the interaction would be video recorded for the purpose of the study.

The person acting as the patient is a Ukrainian national who has been living in Belgium for the last 2 years. She is a native speaker of Ukrainian, Polish, and Russian. She has just started learning Dutch (level 1.2, CEFR level A2) but is not comfortable in speaking it fluently. English is for her a language of convenience as she uses it to communicate with her colleagues at work and in daily life.

The person portraying the role of the HAIO ² (Huisarts in Opleiding, which in English translates to general practitioner in training), is a Belgian national who has studied Medicine in Flanders. She is bilingual, being fluent in Dutch and French. The interaction was recorded as her shift had begun on the planned date. The HAIO speaks English for communication with patients who are not fluent in Dutch or French.

2.2.2 Intervention

The intervention consists of an instructional video by the communication trainer who gives a short description and summary to the participants of the simulation. The communication trainer is a practicing health-care professional who has experience in understanding such interactions where both verbal and non-verbal hand gestures are used for information relay and understanding in a multi-diverse population. The trainer explains the interaction during the simulation by means of *common ground* (Kuziemyky/Varpio 2010; Van Nuland *et al.* 2010), stresses on the importance of non-verbal hand gestures (of both patient and the doctor) and provides feedback on the same. The trainer further on provides information on the hand gestures used by both the patient and the doctor to correlate their verbal comments and dialogues with gestures of shape, size, unrest, and location.

2 < <https://www.domusmedica.be/expertisedomein/praktijkorganisatie/opleiding-haio>>

2.2.3 Design

The participants accessing the study through a web-link or QR-code first observe a simulation video of the simulated encounter. The simulation encounter they observe is part of a learning process of situations they may experience in future clinical practice. After observing the simulation video, the participants proceed to fill in the questionnaire for the first time (pre-intervention). The questions address the conversation flow, construct, complaints, and the body language of the two actors. To comprehend their perception of the observed simulation, the study participants are next asked for a provisional diagnosis of the patient's condition, and her reason for reporting to the practice center.

After completing the questionnaire, the participants observe the instructional video (intervention). The language used by the communication trainer is Dutch as the participants who participated in the study and the survey are native in the Dutch language. The communication trainer, then details on the 6 phases of the communication skills model of Nuland *et al.* (2010). These 6 phases, which occur sequentially in the simulation from the start till the end of the interaction between the patient and the doctor, were correlated by the trainer to the observations by Van Nuland and his colleagues (2010: 69). In this scenario, the trainer directs her talk to focus on the search for a common language, as there is a possibility of a language barrier, as was observed at the beginning of the interaction (Image 1, lines 11-33).

```
1 00:00:00:22 - 00:00:10:10
2 Doctor:
3 Hi.
4 Kom binnen
5 Zet u.
6 Ik ben *****.
7 Ik ben de huisarts.
8
9 00:00:11:08 - 00:00:18:21
10 Patient:
11 Hello. ummm. *****.
12 Spreek jij Ukrainian
13
14 00:00:19:13 - 00:00:21:05
15 Doctor:
16 Nee.
17 Ik spreek Nederlands.
18
19 00:00:21:22 - 00:00:22:06
20 Patient:
21 Polish.
22
23 00:00:22:10 - 00:00:25:05
24 Doctor:
25 No, no English French. Um.
26
27 00:00:25:21 - 00:00:26:23
28 Patient:
29 A little bit English.
30
31 00:00:27:01 - 00:00:30:00
32 Doctor:
33 Okay. Okay. I will try my best in English. That's good.
34
```

Image 1: First contact and initial interaction between the patient and doctor in the simulation (translations provided at the end in the annex)

As observed by the doctor in the simulation that the enacting patient did not answer in Dutch to her first greetings, the doctor self-corrected herself to find a common language, English in this case, which acted as the lingua franca (lines 25 to 29, image1).

After the intervention video, students observe the simulation video for a second time. With the added information that they received from the intervention by the communication trainer, they can concentrate and observe the simulation more intently. Lastly, the participants then proceed to complete the same questionnaire for the second time (post-intervention). With the additional information from the intervention, the participants fill in their responses, which may or may not be similar to the responses that they filled prior to the trainer's intervention.

2.3 Survey

We administered the survey with *Qualtrics XM*, because of its user friendliness and the ease of incorporating the two videos in a sequential manner as per the flow of the study. The small-scale pilot survey, published in Dutch, consisted of 36 questions, which were divided into three segments as explained below (Annex 3). Segment 1 (questions 1-4) were general questions which the participants answer before observing the simulated consultation video. Questions numbered 5-20 (segment 2) were answered by the participants after observing the simulated interaction, and questions numbered 21-36 (segment 3) were answered after observing the video of the communication trainer. Segments 2 and 3 consisted of: the same 16 questions which included 5 closed-ended questions with a single answer; 4 yes-or-no questions; 6 closed-ended questions with multiple answers possible; and lastly, a final closed-ended question to ask for a tentative differential diagnosis as per the observed interaction and the responses they filled in. The responses to this closed-ended question, of the provisional diagnosis was pivotal, as this would be analyzed to check for the effect of the trainer's intervention.

The survey link, along with information about the study, was published in the newsletters for residents and for the students, through which they could directly access the survey. No personal information in any form was recorded from the participants in the study. The link to the study was online from the 15th of September 2023 for 8 weeks. This allowed for the participants to fill in the survey at their own ease and convenience. After 8 weeks, the survey was closed to analyze the responses by the participants.

2.4 Analysis plan

In the first segment of questions (Segment 1), we categorized the participants and identified whether they had personally experienced any communication difficulties with patients due to language barriers. Subsequently, we examined and compared responses to the same set of questions (Annex II) regarding the simulated interaction, both before and after the trainer's intervention. Specifically, the questions addressed the patient's complaints, symptoms, the interaction between the doctor and the pa-

tient, and a final question concerning the provisional diagnosis, based on the participants' perceptions of the interaction.

Through the trainer's intervention, we examined whether instructions emphasizing the importance of paying attention to hand gestures, body language, speech, and actions led to changes in participants' responses. This was done by analyzing the responses to a questionnaire administered before and after the intervention, allowing us to assess any shifts in participants' awareness and reactions. Due to the nature of the collected responses by the participants on symptoms and the interactional dynamics, the questionnaire responses are identified as categorical data. This is because the response answers by the participants cannot be ordered or numbered in any way, as some questions allow for a single answer (for example, the chief complaint of the patient, yes or no answers), while some questions ask for multiple answers (interaction dynamics, body gestures). Since the analysis is intended for respected measures under the same conditions, a *non-parametric t test* would be ideal. The drawback here being that *t tests* employ ordinal data, led us to use a *chi-squared test*, the statistical test preferred for the use of categorical data. Under the null hypothesis for the *chi-squared test*, it would mean that the intervention had no effect and so the responses by the participants pre and post intervention would result the same.

3 Results

Thirty-seven participants participated in the study, of which 20 were GP residents and 17 were last year medical students in phase 3. On the question of any previous experiences, 31 (83%) of the total participants agreed to have had interactions or consultations with patients where they encountered communication difficulties due to a language barrier (Table 2). Of these, 75 % of the respondents (n=22) stated that the frequency was rather often, translating to at least 1-2 patients every week.

| Number of Participants | | |
|-------------------------------------|------------------------|-----------|
| Education level | HAIOs | 20 (54%) |
| | 3 rd Master | 17 (46%) |
| Difficulty in conversation | Yes | 31(83%) |
| | No | 6 (17%) |
| Frequency of difficult conversation | Often | 4 (12.5%) |
| | Rather often | 22 (75%) |
| | Not so often | 4 (12.5%) |

Table 2: General questions of the survey, Segment 1

On which alternatives they used to overcome the communication deficit due to a language barrier, almost 50% (n=18) preferred the use of apps and translation devices while 29% (n=11) preferred the use of translation websites and 5 people asked for a translator or interpreter (Table 3).

| Alternatives used in case of a language barrier | |
|---|----------|
| Apps | 18 (49%) |
| Website | 11 (29%) |
| Pictures | 3 (9%) |
| Translator/Interpreter | 5 (13%) |

Table 3: Alternatives used to overcome language barriers during consultation

3.1 Segments 2 and 3 of the questionnaire

In segments 2 and 3 of the questionnaire, responses were asked of the participants after they had observed the simulation video (segment 2) and the video by the communication trainer, meaning the intervention (segment 3). Since the questions in both segments 2 and 3 are the same; tables 4, 5 and 6 display the answers to these questions side by side (before and after the intervention video).

| | | Responses after Simulation Segment 2 | Responses after Intervention Segment 3 |
|-------------------|------------------------------|--------------------------------------|--|
| Consultation Flow | Good understanding | 12 | 12 |
| | Sufficient understanding, | 11 | 14 |
| | Very little understanding | 9 | 0 |
| | No understanding at all | 0 | 0 |
| | No answer | 12 | 18 |
| Interaction | Understand each other | 2 | 5 |
| | Few clarifications | 26 | 21 |
| | Major clarifications | 4 | 0 |
| | No understanding | 0 | 0 |
| | No answer | 12 | 18 |
| Chief complaint | Frequent bowel movement | 2 | 2 |
| | Bloated stomach | 8 | 8 |
| | Stress due to bowel movement | 22 | 16 |
| | Abdominal pain | 0 | 0 |
| | No answer | 12 | 18 |
| Symptoms clear | Gestures to stomach | 32 | 25 |

| | | | |
|-----------------|----------------------|----|----|
| | Holding of head | 0 | 0 |
| | Vomiting | 0 | 0 |
| | Agitation | 0 | 1 |
| | All of the above | 0 | 0 |
| | No answer | 12 | 18 |
| Chief complaint | Abdominal discomfort | 29 | 26 |
| | Headache | 0 | 0 |
| | Bowel complaints | 2 | 0 |
| | Excessive alcohol | 0 | 0 |
| | Constipation | 1 | 0 |
| | No answer | 12 | 18 |

Table 4: Responses to questions 5 – 9 and 21 – 25

| | | Responses after Simulation Segment 2 | Responses after Intervention Segment 3 |
|----------------------------------|--------------|--|--|
| c/o constipation or diarrhoea | Yes | 23 | 20 |
| | No | 6 | 6 |
| | Not in video | 1 | 0 |
| | No answer | 14 | 18 |
| c/o waking from sleep | Yes | 2 | 0 |
| | No | 11 | 11 |
| | Not in video | 17 | 15 |
| | No answer | 14 | 18 |
| c/o weight loss | Yes | 2 | 3 |
| | No | 24 | 23 |
| | Not in video | 4 | 0 |
| | No answer | 14 | 18 |
| c/o stress eating publicly | Yes | 6 | 18 |
| | No | 0 | 0 |
| | Not in video | 14 | 8 |
| | No answer | 14 | 18 |

Table 5: Responses to question numbers 10 – 13 and 26 – 29

| | | | |
|------------------------------|--------------------------|----|----|
| Patient abdominal complaints | Hand on abdomen | 22 | 20 |
| | Hand gestures | 20 | 20 |
| | Fatigue or tired | 0 | 0 |
| | Thirst and hunger | 0 | 1 |
| Doctor understands patient | Nodding and agreeing | 27 | 23 |
| | Thumbs up | 14 | 14 |
| | Hand gestures | 19 | 19 |
| | Making notes | 15 | 12 |
| Patients understand doctors | Nodding and agreeing | 22 | 15 |
| | Thumbs up | 12 | 15 |
| | Hand gestures | 21 | 19 |
| | Making notes | 0 | 0 |
| Doctors' behavior | Open posture or attitude | 22 | 20 |
| | Pause while talking | 22 | 20 |
| | Body posture | 6 | 12 |
| | Voice tone | 28 | 25 |
| Patients body language | Smiling | 13 | 14 |
| | Arms not crossed | 6 | 8 |
| | Searching eye contact | 22 | 16 |
| | Sitting relaxed | 21 | 18 |
| Word helps in diagnosis | Frequent bowel movements | 25 | 21 |
| | Blood in stool | 22 | 23 |
| | Watery stool | 4 | 1 |
| | Hard stool | 7 | 8 |
| | Feeling bloated | 15 | 13 |

Table 6: Responses to questions 14 – 19 and 30 – 35 (multiple answers possible)

3.2 Data Analysis

The goal of this segment was to assess the impact of the intervention video on the answers of the respondents. For analysis, we performed the *chi-squared test* wherein responses before the intervention were considered as *expected responses* (questions 14-19) and responses post the intervention (questions 30-35) were considered *observed responses*. We performed the *chi-squared test* for the different responses of

the probable diagnosis questions (questions 20 and 36) as can be seen in the table below.

| Final Diagnosis | After Simulation | After Intervention |
|------------------|------------------|--------------------|
| Diarrhea | 19 | 11 |
| Constipation | 4 | 5 |
| IBS | 7 | 10 |
| Food intolerance | 1 | 1 |
| Hangover | 0 | 0 |

Table 7: Responses to questions 20 and 36

Using the *chi-squared test* to analyze the question of probable diagnosis, we obtained a test statistic (chi-square value) of 6.9 (p-value). The critical value for the chi-square distribution with 3 degrees of freedom is 7.815, with a p-value that indicates the result is not statistically significant. This means that we cannot reject the hypothesis that the answers given before and after watching the intervention video are the same.

We used the chi-squared test to analyze the probable diagnosis. The test gave us a chi-square value of 6.9 (p-value). For 3 degrees of freedom, the critical value is 7.815. This means our result is not statistically significant because 6.9 is less than 7.815. Therefore, we cannot reject the null hypothesis, that there is no difference between the responses provided before and after viewing the intervention video based on the responses pre and post the trainer intervention.

4. Discussion

We examined the impact of the intervention (an instructional video, delivered by a communication trainer), on students' ability to observe and interpret a simulated initial medical consultation between a patient and a doctor using a *lingua franca* and non-verbal hand gestures. Assessing comprehension of such interactions, particularly from a third-person perspective where no common language is present, poses significant challenges. We tested the understanding by comparing the responses to the questions before and after the intervention to see how much variance resulted for the same questions after the intervention instructions.

The results of the survey indicate a measurable impact of the intervention on the participants, as evidenced by significant changes in their responses to the survey questions. The interventional details given by the trainer on being attentive to not just the verbal speech, but also to the non-verbal gestures of both the doctor and the patient, could be responsible for the changes. This increased attention resulted in altered responses when participants completed the questionnaire again after viewing the intervention video. These findings suggest that the new insights provided by the video on establishing common ground in such interactions may have influenced the partici-

pants' responses, potentially leading to a significant shift in their diagnostic opinions compared to their pre-intervention responses.

The primary take-away point from the intervention is that establishing common ground is essential for communication exchange, comprehension, mutual understanding, and trust between the people involved. Even in language discordance, non-verbal gestures employed by the patient and doctor facilitate mutual understanding. The points of actively listening (point 3) and gathering information (point 4) from the intervention, correlate to the doctors' active use of techniques of repetition and reformulation. This pre-empting strategy of listening *is done by* both the patient and the doctor *in turns by responding to each other*, through the questions asked. While listening intently to the verbal output of the patient, the doctor also pays attention to the non-verbal hand gestures which the patient used to relay size, shape, location, and other metaphorical correlations (Image 2, lines 54 and 55 as said by the patient). These gestures correlate to findings as described by Heath (2002: 615), who presented how gestures are used to indicate, display, and enact medical problems and sufferings (Image 3 lines 137-140 as said by the doctor, while repeating complaints using hand gestures).

35 00:00:30:08 - 00:00:34:20
36 Patient:
37 Okay. Um, my. Stomach.
38
39 00:00:35:05 - 00:00:35:19
40 Doctor:
41 Yeah.
42
43 00:00:35:19 - 00:00:42:13
44 Patient:
45 So very weird, um. Yeah, It's a pain in my stomach. Mm.
46
47 00:00:43:18 - 00:00:50:20
48 Doctor:
49 Okay. So you've pain in your stomach? Yeah. Yeah, that's right.
50 Yeah. Okay. Okay. And.
51
52 00:00:52:07 - 00:01:12:21
53 Patient:
54 Um, this, um, very heavy. Mhm. And. Yeah, but then after I eat or
55 drink. Mhm. Um, and get tight. Tight like a balloon. Um. Mhm.
56
57 00:01:14:22 - 00:01:18:03
58 Doctor:

Image 2: Patient relaying her complaint with gestures

134
135 00:02:25:11 - 00:02:44:12
136 Doctor:
137 Yeah. Okay. Okay. So I will repeat if I understand. While you are having
138 some stomach troubles, you feel like if you eat, your stomach is getting
139 big, and when you go to the toilet, you have a lot of stool and it's
140 always red. Is that correct?
141
142 00:02:45:01 - 00:02:56:01
143 Patient:
144 Yes. Yes. And, um, today is five days, day number five.
145
146 00:02:56:06 - 00:03:12:19
147 Doctor:: Okay. Okay. So it's for now. If you had had it since Monday.
148 Yeah. Okay. For five days. Okay. And before normal. Yeah, everything was
149 normal.
150 Patient:: Yeah.
151 Doctor:: Okay. Okay. And?
152
153 00:03:13:02 - 00:03:15:18
154 Patient:
155 Yeah. And hard food is difficult.
156
157 00:03:16:02 - 00:03:17:07
158 Doctor:
159 Okay.
160
161 00:03:17:07 - 00:03:22:02
162 Patient:
163 After eating stomach pain. Oh, yeah.
164
165 00:03:22:18 - 00:03:26:23
166 Doctor:
167 Okay, so the symptoms are worse when you eat hard food.
168
169 00:03:27:06 - 00:03:38:18
170 Patient:
171 Yeah. And, um, and and, uh. I. It's, um. Yes, I eat less And. Yeah, Um
172 slow.
173
174 00:03:39:07 - 00:03:46:08

Image 3: Closing of the interaction by summarizing the complaint

The integration of gestures into speech enhances the ability to interpret, assess, and reiterate communicated messages (Gerwing/Landmark Dalby 2014). In this study, the patient used non-verbal hand gestures, including body positioning and facial expressions, to convey pain, discomfort, and specific locations of concern, and to make metaphorical comparisons to physical objects. The physician, in turn, employed gestures to mirror and reinforce the patient's complaints. This reciprocal use of gestures by the doctor facilitated the identification of the patient's concerns and associated symptoms. As noted by Gerwing/Landmark Dalby (2014), healthcare professionals often combine gestures with verbal language to contextualize and clarify communication (2014: 313). The iterative use of gestures enabled the patient and doctor to follow and understand each other effectively, with verbal communication. The combination of various communicative methods, including the use of a *lingua franca* and non-verbal gestures, supported the processes of conveying the chief complaint, active listening, reformulating, and reiterating information. These strategies collectively facilitated the summary of the patient's information (complaints and body gestures), enabling the

physician to formulate a provisional diagnosis, which constituted an integral aspect of the simulation observed by the students. The provisional diagnosis formed, followed the responses that the patient gave to the questions of the doctor, wherein the doctor used direct questions to confirm information about symptoms (Image 3, lines 147-149, and lines 167-168). The students completing the questionnaire were also asked to provide their opinions of the provisional diagnosis both pre and post the intervention video. This followed the communication trainer's intervention based on Van Nuland and colleagues' (2010) phase of gathering information and planning.

5. Limitations of the study

While the results of the study do describe the impact of the intervention, there are a few limitations that we should discuss. Firstly, the observational vignette study we conducted with medical students and trainee doctors received a limited response. Out of 37 participants who accessed the survey, 32 completed the questionnaire once, while 26 completed it twice. The variation in responses likely stems from the additional information provided by the intervention (trainer video). We speculate that some participants chose not to complete the questionnaire a second time because they had already gained sufficient insight from the trainer's intervention on managing such types of interactions, which they may encounter in the future.

Secondly, a follow-up discussion could have been conducted with the enacting patient and doctor as they observed their performance in the simulation. This would have provided an opportunity to gather their reflections on the experience of enacting the simulation. Lastly, the statistical test employed, the *chi-squared test*, can help in establishing relationships but cannot determine causation. Although the test measures the number of responses for each answer, it may overlook respondents who changed their answers in the opposite direction. This limitation represents a potential drawback of using the *chi-squared test*.

6. Conclusion

From this study we learned of the impact of the intervention correlating to a simulation interaction between a patient and a doctor, who communicated using English as a *lingua franca* and non-verbal gestures. The intervention, an instruction video by a healthcare professional on how to overcome such situations and enable for communication, was found to be effective due to the varied responses that were found in the questionnaire which were filled by the participants. The responses to the questionnaire by the participants highlighted their perception and understanding of the simulated interaction. The change in the responses to the same questionnaire being filled in twice, were highlighted by the *chi-squared test* which rejected the hypothesis that the responses were the same before and after the intervention. Since the responses to the questionnaire were limited, the results from our survey cannot be applied as a representative sample. Despite limitations in the study design as an exploratory survey study, our investigations are of significant importance. Even with the small sample size, the intervention by the communication trainer was effective in making the par-

ticipants change their responses. The added information on how communication and common ground can be formed in similar situations was a key take-back-home-message for the participants. Thus, simulation videos in such manner can be used as an educational training model and for achieving common ground.

For further research, as a next step, the simulated interaction could be shown to the respondents (students or trainees) live during training on communication techniques, after which they could be asked to respond to questions on the interaction flow and construct and on the importance of the non-verbal gestures portrayed. Another added aspect of recruiting some participants on how they would have approached the scenario themselves is by asking questions either through semi-structured interviews or by conducting focus groups. This could then be analyzed qualitatively to identify commonality and differences in themes that the respondents would share. Likewise, this could involve those respondents who have had such experiences. They could be interviewed on the information and tips that they learnt from the trainer's intervention and how they would include them in their clinical practice.

DECLARATIONS

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Ethical approval:

This study was submitted and reviewed by the ethics committee of the University Ziekenhuis Gasthuisberg, Leuven. After approval, the study was accorded study number S-67879. For distribution of the study, the study number was published on all means of communication.

Conflict of interest: None

Privacy:

The participants who enacted the patient and doctor's roles were both recruited voluntarily (the simulated consultation interaction). Both the actors were informed that their interaction will be video recorded for the study and used for educational purposes. Personal data which could have been a part of the study was modified by pseudonymization to protect their identity.

Data availability

The dataset used for this study is available upon reasonable time of request from the first author.

Authors' contribution

Idea and concept: MI, BS

Data processing: MI

Data Analysis: MI, BS

Writing of the manuscript: MI

Reviewing and commenting on drafts: AC, MS, HS, BS

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Annexes:

Annex I: Full Text of Simulation:

00:00:00:22 - 00:00:10:10

Doctor: Hi.

Kom binnen (*Come inside*)

Zet u. (*Seat yourself*)

Ik ben *****. (*I am ******)

Ik ben de huisarts. (*I am the general physician*)

00:00:11:08 - 00:00:18:21

Patient: Hello. ummm. *****.

Spreek jij Ukrainian (*do you speak Ukrainian*)

00:00:19:13 - 00:00:21:05

Doctor: Nee. (*No*)

Ik spreek Nederlands. (*I speak Dutch*)

00:00:21:22 - 00:00:22:06

Patient: Polish?

00:00:22:10 - 00:00:25:05

Doctor: No, no English? French?

00:00:25:21 - 00:00:26:23

Patient: A little bit English.

00:00:27:01 - 00:00:30:00

Doctor: Okay. Okay. I will try my best in English. That's good.

00:00:30:08 - 00:00:34:20

Patient: Okay. Um, my. Stomach.

00:00:35:05 - 00:00:35:19

Doctor: Yeah.

00:00:35:19 - 00:00:42:13

Patient: So very weird, um. Yeah, it's a pain in my stomach. Mm.

00:00:43:18 - 00:00:50:20

Doctor: Okay. So you've pain in your stomach? Yeah. Yeah, that's right. Yeah. Okay. Okay. And.

00:00:52:07 - 00:01:12:21

Patient: Um, this, um, very heavy. Mhm. And. Yeah, but then after I eat or drink. Mhm. Um, and get tight. Tight like a balloon. Um. Mhm.

00:01:14:22 - 00:01:18:03

Doctor: Ahh. Yeah. Okay.

00:01:21:09 - 00:01:28:18

Doctor: Okay. So you, you mean that your stomach is very bloating like big. Um.

00:01:29:07 - 00:01:30:08

Patient: Yeah, like.

00:01:30:14 - 00:01:36:05

Doctor: Yeah, yeah, yeah. Okay. Okay. And what about going to the toilet?

00:01:37:00 - 00:01:38:09

Patient: Yeah. Also, yeah. Pain.

00:01:38:12 - 00:01:40:02

Doctor: Painful?

00:01:40:07 - 00:01:41:09

Patient: Yeah, very much.

00:01:41:10 - 00:01:42:14

Doctor: Ahh okay.

00:01:43:02 - 00:01:47:18

Patient: And, um, many times I have.

00:01:47:18 - 00:01:48:01

Doctor: Ahh yeah. And.

00:01:48:20 - 00:01:50:10

Patient: Um, 4 to 5.

00:01:51:06 - 00:01:52:04

Doctor: In one day.

00:01:52:20 - 00:01:55:02

Patient: Uh, it. But yeah. Today 4 to 5 times.

00:01:55:12 - 00:02:05:10

Doctor: Yeah. Okay. And if you go is it much or a smaller portion. Okay.

00:02:05:12 - 00:02:08:13

Patient: Ahh. Big. Yeah. And pain and water.

00:02:08:22 - 00:02:09:15

Doctor: And. Always.

00:02:09:17 - 00:02:10:19

Patient: Okay. Yeah. Yeah.

00:02:12:00 - 00:02:13:21

Doctor: And the color. Which colour?

00:02:13:21 - 00:02:25:06

Patient: Color. So, um. Yeah, colour ook. um, but, um, red....um dark red.

Doctor: Okay dark red.

Patient: Yeah. And, um, very much pain.

00:02:25:11 - 00:02:44:12

Doctor: Yeah. Okay. Okay. So I will repeat if I understand, while you are having some stomach troubles, you feel like if you eat, your stomach is getting big, and when you go to the toilet, you have a lot of stool and it's always red. Is that correct?

00:02:45:01 - 00:02:56:01

Patient: Yes. Yes. And, um, today is five days, day number five.

00:02:56:06 - 00:03:12:19

Doctor: Okay. Okay. So it's for now. If you had had it since Monday. Yeah. Okay. For five days. Okay. And before normal. Yeah, everything was normal.

Patient: Yeah.

Doctor: Okay. Okay. And?

00:03:13:02 - 00:03:15:18

Patient: Yeah. And. Hard food is difficult.

00:03:16:02 - 00:03:17:07

Doctor: Okay.

00:03:17:07 - 00:03:22:02

Patient: After eating stomach pain. Oh, yeah.

00:03:22:18 - 00:03:26:23

Doctor: Okay, so the symptoms are worse when you eat hard food.

00:03:27:06 - 00:03:38:18

Patient: Yeah. And, um, and and, uh, I. It's, um. Yes, I eat less. And. Yeah, Um slow.

00:03:39:07 - 00:03:46:08

Doctor: So. Okay. Okay. If you eat less, did you lose weight?

00:03:46:09 - 00:03:53:04

Patient: Um, that is, um. I see. Every day is like. It's the same.

00:03:53:14 - 00:04:05:10

Doctor: It's the same. Okay. Yeah. Good, good. Okay. And what do you mean by hard food?

00:04:05:17 - 00:04:08:17

Patient: Um. Apple. And else...

00:04:08:17 - 00:04:12:19

Doctor: Ahh yeah okay. Okay. And apple is difficult to eat for you.

00:04:13:02 - 00:04:17:11

Patient: Yeah. Um, you know, not... can't finish.

00:04:17:16 - 00:04:32:06

Doctor: Oh, okay. Okay. Okay. No. Okay. Is there anything else about your stomach that you would like to say to me? Um.

00:04:32:06 - 00:04:40:01

Patient: Um. Yeah. Like, um, very much painful.

00:04:40:01 - 00:04:40:12

Doctor: Yeah.

00:04:41:01 - 00:04:43:08

Patient: Yeah. And, um. Yeah.

00:04:43:14 - 00:05:02:01

Doctor: Okay. So it's been five days. It was somach is painful. It's big. Your stool is a lot and also red and it's difficult to eat fast and it's difficult to eat hard things. Yeah, is that all correct.

Patient: Uhh, hmm.

Doctor: Okay. Very good. Then we have a look at it.

Annex II a - Survey Questionnaire: (Dutch)

A) Algemeen

1. In welk opleidingsniveau zit je?
 - a. HAIO
 - b. 3^e master
2. Heb je moeilijkheden ervaren in gesprekken met patiënten door een taalbarrière?
 - a. Ja
 - b. Nee
3. Indien ja, hoe vaak is dit voorgekomen?
 - i Vaak
 - ii Eerder vaak
 - iii Eerder niet
 - iv Niet
4. Als je situaties hebt meegemaakt, hoe ging je ermee om:
 - a. Apps gebruiken
 - b. Vertaalwebsites
 - c. Afbeeldingen
 - d. Vragen voor vertaling

B) Na de videos (voor en na de trainer informatie video)

5. Hoe heb je deze consultatie ervaren?
 - a. Ik snapte het gesprek goed en kon het goed volgen
 - b. Ik snapte het gesprek goed en kon het goed genoeg volgen, maar ik moest de video c. wel pauzeren om te zien wat er gebeurde
 - c. Sommige dingen kon ik goed begrijpen, maar het volledige gesprek kon ik niet volgen
 - d. Ik snapte het gesprek helemaal niet en kon het ook niet volgen
6. Hoe zou je de interactie tussen de arts en de patiënt beoordelen?
 - a. Het gesprek verliep soepel en beide personen begrepen elkaar
 - b. Het gesprek verliep soepel, maar er was wel enige opheldering nodig
 - c. Ik onderbrak het gesprek regelmatig omdat veel opheldering nodig was om de inhoud te begrijpen
 - d. Het gesprek verliep totaal niet soepel aangezien beide personen elkaar niet begrepen
7. Wat was de hoofdvraag waarmee de patiënt naar de arts kwam?
 - a. Vaak naar het toilet moeten gaan
 - b. Opgeblazen buik
 - c. Stress geassocieerd met darmklachten
 - d. Buikpijn

8. Op welke manieren maakte de patiënt zijn symptomen duidelijk?
 - a. Naar de buik wijzen
 - b. Handen naar het hoofd
 - c. Overgeven
 - d. Geagiteerd gedrag
 - e. Alle bovenstaande
 - f. Geen van bovenstaande

9. Wat was de hoofdklacht volgens de arts?
 - a. Abdominaal ongemak
 - b. Hoofdpijn
 - c. Darmklachten
 - d. Na-weeën van overmatig alcoholconsumptie
 - e. Constipatie

10. Geeft de patiënt aan dat hij constipatie en diarree heeft
 - a. Ja
 - b. Nee
 - c. Komt niet aan bod

11. Heeft de pijn de patiënt ooit wakker gemaakt uit zijn slaap?
 - a. Ja
 - b. Nee
 - c. Komt niet aan bod

12. Heeft de patiënt de afgelopen maanden afgevallen?
 - a. Ja
 - b. Nee
 - c. Komt niet aan bod

13. Krijgt de patiënt stress van eten in publiek of van eten voor andere mensen?
 - a. Ja
 - b. Nee
 - c. Komt niet aan bod

14. Op welke manier(en) maakte de patiënt duidelijk dat hij darmklachten heeft? (meerdere antwoorden mogelijk)
 - a. Handen op de buik leggen
 - b. Handgebaren die aangeven dat alles wat erin gaat snel weer wordt uitgescheiden
 - c. Gebaren van vermoeidheid
 - d. Aangeven veel dorst en honger te hebben

15. Hoe maakte de arts duidelijk dat deze de patiënt begreep? (meerdere antwoorden mogelijk)
 - a. Non-verbaal luistergedrag, bewegingen; bv. knikken in overeenstemming
 - b. Non-verbaal luistergedrag, bewegingen; bv. duim omhoog, of OK-teken

- c. Non-verbaal luistergedrag, bewegingen; bv. handgebaren of andere bewegingen van de patiënt nadoen
 - d. Notities maken
16. Hoe maakte de patiënt duidelijk dat deze de arts begreep? (meerdere antwoorden mogelijk)
- a. Non-verbaal luistergedrag, bewegingen; bv. knikken in overeenstemming
 - b. Non-verbaal luistergedrag, bewegingen; bv. duim omhoog, of OK-teken
 - c. Non-verbaal luistergedrag, bewegingen; bv. handgebaren of andere bewegingen van de patiënt nadoen
 - d. Notities maken
17. Hoe gedroeg de arts zich zodat de patiënt vrijuit kon communiceren? (meerdere antwoorden mogelijk)
- a. Open houding
 - b. Spreekpauzes; frequent stiltes laten vallen
 - c. Overnemen van de lichaamshouding van de patiënt
 - d. Stemgeluid; bv. hummen, ja,...
18. Door welke lichaamshouding(en) van de patiënt was het voor de arts duidelijk dat de patiënt niet meer gestresseerd was? (meerdere antwoorden mogelijk)
- a. Glimlachen tijdens het antwoorden
 - b. Armen niet meer kruisen
 - c. Oogcontact zoeken
 - d. Rustig achterover zitten in de stoel
19. Welke woorden/uitleg van de patiënt hielpen de arts om de diagnose te stellen? (meerdere antwoorden mogelijk)
- a. Vaak naar het toilet gaan
 - b. Bloed in de stoelgang
 - c. Waterige stoelgang
 - d. Harde stoelgang
 - e. Opgeblazen gevoel
20. Wat denk jij dat de finale diagnose was volgens de arts?
- a. Diarree
 - b. Constipatie
 - c. IBS
 - d. Voedselintolerantie
 - e. Kater die leidde tot uitdroging

Annex II b - Survey Questionnaire: (English)

A) General

1. What level of education are you in?
 - a. HAIO
 - b. 3rd master

2. Have you experienced difficulties in conversations with patients due to a language barrier?
 - a. Yes
 - b. No

3. If so, how often has this occurred?
 - i. Often
 - ii. Rather often
 - iii. Not before
 - iv. Not

4. If you've been through situations, how did you deal with them:
 - a. Using translation apps
 - b. Translation websites
 - c. Images
 - d. Questions for translation

B) After the videos (before and after the trainer information video)

- 2) How did you experience this consultation?
 - a. I understood the conversation well and was able to follow it well
 - b. I understood the conversation well and was able to follow it well enough, but I had to pause the video to see what was happening
 - c. I could understand some things well, but I couldn't follow the entire conversation
 - d. I didn't understand the conversation at all and couldn't follow it

- 3) How would you rate the interaction between the doctor and the patient?
 - a. The conversation went smoothly and both people understood each other
 - b. The conversation went smoothly, but some clarification was needed
 - c. I frequently paused the conversation because a lot of clarification was needed to understand the content
 - d. The conversation did not go smoothly at all as both people did not understand each other

- 4) What was the main question with which the patient came to the doctor?
 - a. Having to go to the toilet often
 - b. Bloated belly
 - c. Stress associated with bowel problems
 - d. Stomach ache

- 5) In what ways did the patient express his symptoms?
- Pointing to the abdomen
 - Hands to the head
 - Vomit
 - Agitated behaviour
 - All of the above
 - None of the above
- 6) What was the main complaint according to the doctor?
- Abdominal discomfort
 - Headache
 - Bowel complaints
 - After-effects of excessive alcohol consumption
 - Constipation
- 7) Does the patient indicate that they have constipation and diarrhea?
- Yes
 - No
 - Not mentioned
- 8) Has the pain ever woken the patient up from their sleep?
- Yes
 - No
 - Not mentioned
- 9) Has the patient lost weight in the last few months?
- Yes
 - No
 - Not mentioned
- 10) Does the patient get stressed from eating in public or from eating in front of other people?
- Yes
 - No
 - Not mentioned
- 11) In what way(s) did the patient make it clear that he has intestinal complaints?
(multiple answers possible)
- Putting hands on the stomach
 - Hand gestures that indicate that everything that goes in is quickly excreted
 - Gestures of fatigue
 - Reporting being very thirsty and hungry

- 12) How did the doctor make it clear that he understood the patient? (multiple answers possible)
- Non-verbal listening behaviour, movements; e.g. nodding in accordance
 - Non-verbal listening behaviour, movements; e.g. thumbs up, or OK sign
 - Non-verbal listening behaviour, movements; e.g. imitating hand gestures or other movements of the patient
 - Taking notes
- 13) How did the patient make it clear that he understood the doctor? (multiple answers possible)
- Non-verbal listening behaviour, movements; e.g. nodding in accordance
 - Non-verbal listening behaviour, movements; e.g. thumbs up, or OK sign
 - Non-verbal listening behaviour, movements; e.g. imitating hand gestures or other movements of the patient
 - Taking notes
- 14) How did the doctor behave so that the patient could communicate freely? (multiple answers possible)
- Open attitude
 - Speaking breaks; frequent pauses
 - Adopting the patient's posture
 - Voice; e.g. humming, yes,...
- 15) Which body position(s) of the patient made it clear to the doctor that the patient was no longer stressed? (multiple answers possible)
- Smiling while replying
 - No more arm crossing
 - Seeking eye contact
 - Sitting back in the chair
- 16) What words/explanations from the patient helped the doctor to make the diagnosis? (multiple answers possible)
- Going to the toilet often
 - Blood in the stool
 - Watery bowel movements
 - Hard Stool
 - Bloating
- 17) What do you think the final diagnosis was according to the doctor?
- Diarrhoea
 - Constipation
 - IBS
 - Food intolerance
 - Hangover that led to dehydration

Annex III: Video Links

Consultation Video (Simulation)

<Hello.....Ummm..... - KU Leuven (kaltura.com) >

Trainer Video Intervention <https://kuleuven.mediaspace.kaltura.com/media/Pred-oc+TRAINER+Final+24th+August/1_7ss0as67>