

Perception of the risk of SARS CoV-2 infection among 1st year Health Professions students: A qualitative study

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Abstract. *Background and aim:* The 1st Academic Year students of health professions degree courses of the University of Bologna carried out the curricular internship according to the teaching system during the pandemic period. The objective was to identify the elements determining the perception of the risk of SARS-CoV-2 infection both before and after the internship experience, with the aim of identifying the experience of the elements determining the risk of infection and the behaviours adopted for the management of the risk of SARS-CoV-2 infection in the pandemic context. *Methods:* it is a descriptive qualitative study with sampling of convenience and voluntary recruitment; for data collection, focus groups were carried out both before and after the internship experience. The analysis of the results was conducted on three levels keeping separate the focus groups conducted before the internship from those held afterward, according to the inductive qualitative analysis process: at the first level, the transcribed content was labeled; at the second level, similar labels were grouped into categories; and at the third level, related categories were grouped into themes. *Results:* The study revealed that the training content addressed the doubts, concerns, and skills needed to be applied in the internship context. It emerged from the students that the pandemic was not an obstacle to completing the internship; instead, it was perceived as an opportunity for growth and development in their chosen profession. The students were not afraid of getting infected by COVID-19, they felt responsible for preventive behaviours and the use of Personal Protective Equipment and Medical Device. levels of anxiety and fear were very low and diminished quickly shortly after the internship began. *Conclusions:* further developments of the study could focus on assessing the perception of the risk of infection in the care context, utilizing prevention and protection measures regardless of the pandemic cause and the internship setting. (www.actabiomedica.it)

Key words: health care students, perception risk of SARS-CoV-2, COVID-19, qualitative research

Introduction

The COVID-19 disease spread throughout the world has required the Italian health system to suddenly review its policies to guarantee a support network for the population affected by the viral infection. The Ministry of University, in agreement with the Ministry of Health of Health, from the academic year following the lockdown, has allowed the regular conduct of the teaching activities of the Study Courses (SC),

issuing directives aimed at preventing the spread of the SARS-CoV-2 virus, both in educational and internship contexts. In the UK, 2nd and 3rd year nursing students were asked to extend their traineeship, and it emerged that some reported anxiety and fear of contagion from the virus due to the responsibility of the role to be exercised (1-2). Students at nursing schools in Belgium were also offered a contract of employment during the pandemic period; 57.7% of these students estimated the risk of infection at 50%, including the

probability of infecting other people, believing that the pandemic had affected the planning of the clinical internship penalising them in terms of experiences and difficulties in acquiring technical skills. 52.63% said they had a very rich experience; for others, the experience was perceived as stressful, difficult, and heavy and some skills were not achieved (3). The Spanish health system also asked 4th year nursing students of the to offer their availability to guarantee nursing care shifts knowing that they are always accompanied by experienced staff. Some of them experienced a form of psychological exhaustion and emotional lability, they stated that they felt alone and helpless without any supervision from the experienced nurses. On the other hand, others expressed enthusiasm, despite the fear of being infected due to lack of Personal Protective Equipment (PPE) and Medical Device (MD), even though they had to leave home for fear of infecting their family members (4). The students at the University of Bologna showed that the concept of perception of the risk of SARS-CoV-2 infection in the context of internship was clear to them, they acquired knowledge about preventive measures during theoretical lessons and during practical exercises in the laboratory; they relied on the example of the tutor, as a fundamental guide to adopt the correct behaviours. Some of them reported states of anxiety and fear, particularly at the beginning of the internship (5). For this reason, the authors posed the following question: how do the students of the 1st Academic Year (AY) 2022/2023 of the Health Care Professional (HCP) SC of the University of Bologna of the Imola headquarters/training section, without any internship experience, perceive the risk of SARS-CoV-2 infection, before and after carrying out their curricular internship? The objective of this study is to explore what elements or factors influence the perception of the risk of SARS-CoV-2 infection of 1st year students who do their traineeship during the pandemic. The purpose of the study is to identify their experience of the elements determining the risk of infection and the behaviours adopted for the management of the risk of SARS-CoV-2 infection in the pandemic context; the uniqueness of the study lies in documenting the experiences of students entering internships for the first time in a complex healthcare setting, without prior experience in the pre-pandemic

period, further burdened on the care and organizational front by the pandemic situation.

Methods

Due to the type of question, objective, and purpose of the study, we chose to design a descriptive qualitative study, to analyse in more depth what elements affect their perception of the risk of SARS-CoV-2 infection during the curricular internship. The technique used to collect the data is the Focus Group (FG). The research project was presented to the students in the classroom by the Responsible for Professional Teaching Activities (RPTA) of the SC to which they belong, in relation to the topic, purpose and study objective, in order to give them the opportunity to ask clarifying questions and to allow them to freely choose to participate; the maximum anonymity of the content that emerged and the same training treatment was guaranteed regardless of participation in the study, as required by the regulations for the protection of study subjects quoted by the Declaration of Helsinki. The FG were conducted by experienced personnel; 4 FG were carried out before and 4 FG after the homogenous internship, that is, each FG was attended by the students of the 1st AY of the same SC. The study was approved by the relevant SC Boards and followed by the Bioethics Committee of the University of Bologna, Protocol No. 200201 of 25/08/2021. The choice of participants fell on first-year students of the 2021/2022 academic year, as they lacked previous internship experiences within healthcare settings. The unit of analysis is the 1st year AY 2021/2022 students of the SC of Professional Education (PE), Physiotherapy (Pt), Nursing (Nur) and Environmental and Workplace Prevention Technician (EWPT) belonging to the University of Bologna of the training centre of Imola, and the sampling of the subjects is defined as proposed for convenience. The subjects provided for each FG may vary from 8 to 15 students.

The criteria for inclusion of the reference sample are:

- 1st year students of AY 2021/2022 of the SC regularly enrolled in the year of attendance;
- in their year of study

- Not having previously carried out curricular internship experiences of any HCP SC.
- Individuals about to begin their internship experience (for those who participated in the FG before starting their curricular internship)
- Subjects who have completed the internship, for those who will participate in the FG after completing the curricular internship.

The exclusion criteria were:

- second- and third-year students, as they have previously experienced curricular internships in healthcare settings in the absence of COVID-19;
- Students who participated in the pre-internship FG could not take part in the post-internship FG.

The RPTA of each course year of the HCP has sent an email to the students with the inclusion criteria, to gather the participations. The 8 in-person FGs were carried out at the Imola training centre in compliance with the safety regulations in force regarding the prevention of the risk of SARS-CoV-2 infection; the organisation provided for the semi-circle arrangement of the participants in the classroom with the delivery and

withdrawal of informed consent by each participant and the information on the management and protection of personal data of each of them. Each FG was recorded on audio-video supports and subsequently the contents were transcribed in full form; following data analysis, the video-recordings were destroyed. The duration times of the FG vary from a minimum of 28 minutes to a maximum of 1 hour and 38 minutes. During the FG, the most important contents were summarised and noted on a flipchart and at the end of each session they were confirmed by the participants themselves. As shown in Figure 1, the participants in the 4 FG carried out before entering the internship were 41, including 10 from PE, 11 from Pt, 12 from Nur and 8 from EWPT. As shown in Figure 1, the numerical diversity of participation was influenced by the total number of students admitted to the internship, in compliance with the exclusion criteria.

Figure 2 shows the gender representativeness of the students who participated in the FG carried out before starting the internship. The gender representation observed in the FG participation reflects the same gender proportion when all students attending the SC are combined.

As shown in Figure 3, the participants in the 4 FG carried out after the internship were 27, of which

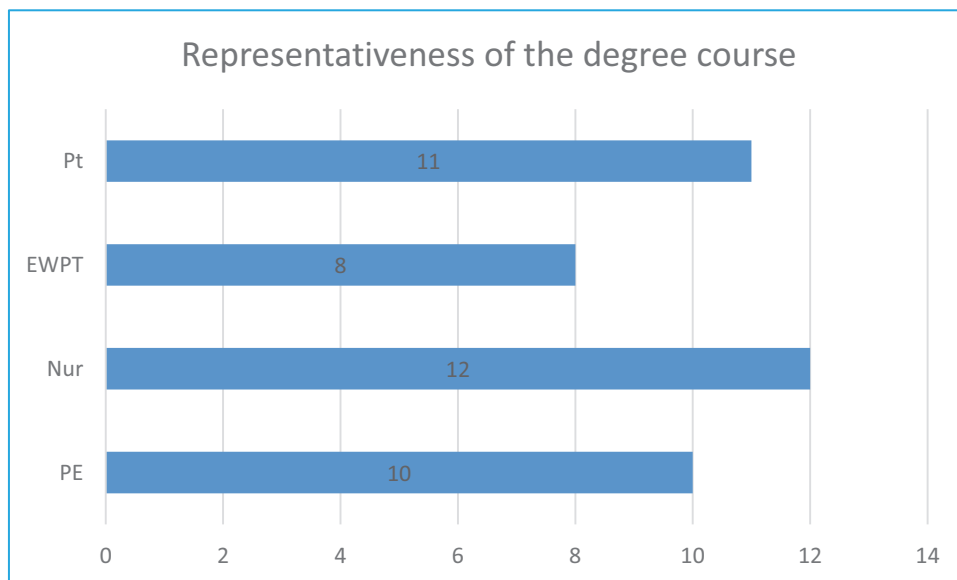


Figure 1. Distribution of students who participated in the study by degree programme before clinical training.

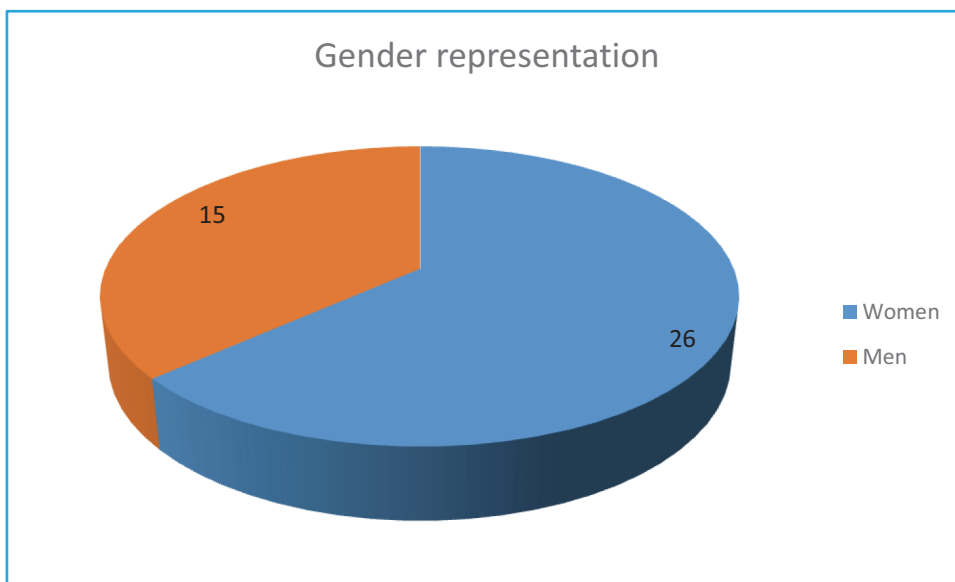


Figure 2. Gender distribution of participating students before clinical training.

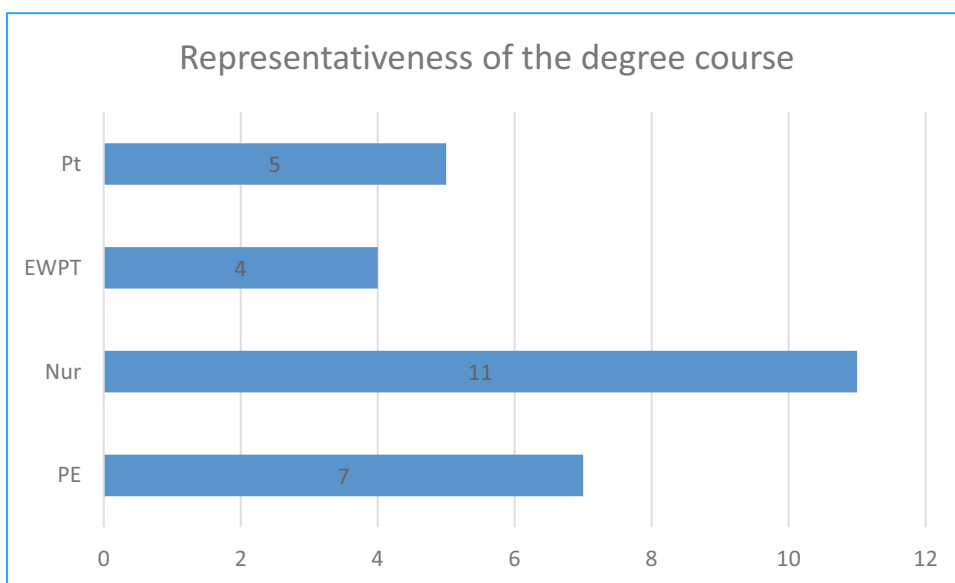


Figure 3. Distribution of students who participated in the study by degree programme after clinical training.

7 of PE, 5 of Pt, 11 of Nur and 4 of EWPT. The numerical diversity of participation was influenced by the total number of students admitted to the internship and in compliance with the exclusion criteria.

Figure 4 shows the gender representation of the students who participated in the FG after completing the internship.

The testimonies of the students that emerged in each FG were transcribed in full, guaranteeing anonymity in the form of numbers anticipated by the initials of the SC. The completeness of the data was guaranteed by the saturation of the same and the robustness of the data was ensured through the triangulation of the researchers. Data analysis was carried

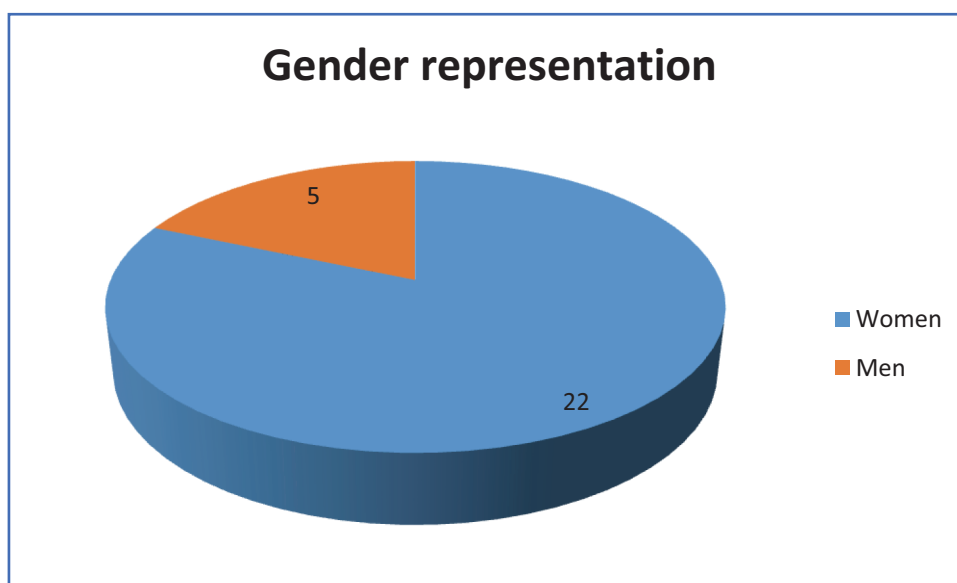


Figure 4. Gender distribution of participating students after clinical training.

out according to the inductive method Hsieh & E Shannon (2005). The authors analysed the contents of the transcripts of the FG which did not concern the students of the SC they were affiliated with, to avoid forms of subjection or subordination to which the students would have felt subjected. Then, in plenary session, the authors shared the labels, grouped them by similarity into codes and the codes, by analogy, collected them into themes. The themes that emerged were compared to assess the perception of the risk of infection before and after the curricular internship.

Results

From the testimonies that emerged from the FG both before and after the internship experience, three themes emerged vision of the pandemic, perception of the risk of SARS-CoV-2 infection, expectations related to the curricular internship. The FG carried out after the internship showed: vision of the pandemic after the internship experience, the perception of risk after the internship and the experience of the internship experience. For the coding of the testimonies, the first digit indicates the number assigned to the student in the FG, the second is the number assigned to the FG.

Students who are waiting to start the internship, experience emotions, such as excitement, anxiety, and concern about how and where the internship will take place; they are afraid that the internship will give them a negative vision of their professional life project.

“So much desire to start what until now has only been theory - transformation into practice; a little anxiety about the situation of uncertainty caused by the pandemic” (4.1)

Topic 1: Pandemic vision

Students experience the pandemic as a “normal” condition; they are used to wearing masks and gloves, to keeping distances between people.

“I honestly cannot say that I have become accustomed to it... we are living with it, therefore, everyone takes the necessary precautions; actually, from this point of view I am not worried” (3.6).

Some students declare that they had to adapt to the pandemic condition and do not intend to be infected by the disease in important moments of life such as during the internship.

“I am aware of the situation, there are times when I may be a little more afraid because I know that I have to do certain things, one which is the Internship; Therefore, if I were be infected later, it would be a problem” (2.1)

Covid disease and mourning have been life experiences that have deeply marked some students.

“Well, my experience is not positive, because a family member died of covid ... it means that you can't see them for months, it means that you can't have any contact with this person, you don't even have time to rationalise death, while during a normal funeral the person's body can be seen; with covid patients, you can't see the body, so you can't even conceive the fact that this person is no longer there” (4.8)

Topic 2: Perceived risk of SARS-CoV-2 infection

The perception of the risk of SARS-CoV-2 infection is the main topic on which the students expressed themselves on several fronts and on which they provided more elements, such as: protective and preventive factors, personal experiences that characterise emotionality, the contagion of the virus.

Before starting the internship, the students adhered to the vaccination campaign, as an indispensable condition to be able to access the internship contexts in the social welfare field; the vaccine was considered a protective element against the virus and, from a psychological point of view, the experience was faced with greater peace of mind.

“... I hope that the vaccine really works, so I can do the internship less worried, not with anxiety” (4-3)

The mandatory training provided, before entering the internship, on the correct use of MDs and behaviours to prevent the risk of infection, made students feel prepared and aware.

“I am relaxed, especially thanks to all the courses on infections ... on infection transmission precautions, that is, from this point of view we are well trained

here, they have given us very clear explanations when to use certain devices and when not to” (4-7)

In the perception of risk, students carry with them the fears of infecting their family members.

“Since I live with my parents, I am afraid that they will get sick and have more serious consequences” (3.9)

The health environment is seen as a safe environment, equipped with directives and procedures that protect those who work unlike any other work or social environment.

“I feel calmer because I know that in such an environment, all the directives and procedures are strictly complied with” (3.2)

Students anticipate that it will be a first internship experience that will require a lot of energy and lead to stress.

“I am agitated because it is my first time, I want to start in person and start well; therefore, I am trying to see few people, to go out as less as possible to avoid coming into contact with other people whom I know that are as careful as I am” (2.2)

Students are sensitive to potential contagion to people most at risk, such as frail patients. Protection from contagion to others is a responsibility they feel they have to repay as students, as people, and as future professionals.

“It worries me a little because ... maybe I could become a risk factor for the most fragile people we will meet during the internship” (3.8)

Contracting the disease, testing positive for the Covid test or having been in contact with a person positive to covid and in quarantine, as described by current legislation, can compromise the internship experience, consequently, the course of study.

“I am afraid of losing the experience of the internship due to a possible contagion and not being

able to carry out the internship; therefore, of not being able to recover the lost experience” (2.8)

On the other hand, students believe that having the opportunity to carry out the internship in the covid era in a health context offers them the opportunity to live the experience with all the organisational aspects connected, in an almost privileged way, to have a richer experience than the other students who preceded them.

“Understanding and having information on how private companies, public administrations and public health deal with the pandemic situation is very enriching; those who preceded us did not experience this...” (2.4)

Topic 3: internship expectations

Students expect to be able to have a relationship with the patient, to be supportive of lonely people in a period when establishing a relationship with patients is much more difficult. There are several barriers that hinder communication: the obligation to wear face masks, the number of contacts reduced exclusively to the assistance activities essential for the treatment of the disease, not being able to compare verbal communication with non-verbal communication.

“I expect that it will also be very difficult to understand the sensitivity of each patient. That is, the limit to be respected...” (3.5)

Students fear that the continuation of these restrictions may create in patients a sense of detachment and mistrust; the internship will help them learn those modes and communication strategies that, prior to covid, were not studied in-depth.

“I would see people who need me, and I could be there with them and give them a hand. True, I will not be able to touch them, if I touch them, I will have to constantly sanitise my hands, but it will be different and more human and more empathetic and closer” (1.10)

Some students say they have difficulty imagining what the relationship with patients will be like; others,

on the other hand, cannot wait to get involved, precisely because the pandemic period has limited relationships.

“The nurse’s job is also to have the relationship with patients, so I ... being a 1st year student, this human contact is what I think I expect, to understand if it is what I like to do ...” (4.4)

Students expect that the internship, regardless of the pandemic period, will be a positive experience. Students hope to be able to observe and apply in the field the theoretical content learned in the classroom in a coherent way, to gain experience and acquire the expected skills.

“I expect to take home more tools to put in my case to take with me on my various paths; in practice they have more value, because we see them put in place at a particular time that is not normal or in any case our normality of three years ago that we would have expected to live” (2.3)

As regards the tutors, students expect to be followed and directed by them in explaining correct behaviours aimed at reducing the risk of infection; they see this figure as a professional example/model to follow for their professional development. Students believe that the course of study they have chosen will make them responsible professionals, therefore, curricular internships will be important to acquire the skills required by the reference professional profiles.

“I will observe the situation a little, then, in case I have problems, I will ask the other educators, I will ask the tutor for help, I will make sure that maybe someone can help me” (2.2)

The themes that emerged from the students’ internship experience are vision of the pandemic after the internship experience; perception of the risk of SARS-CoV-2 infection after the internship experience; the internship experience.

Topic 4: vision of the pandemic after the internship experience

For some students, having lived the experience of COVID-19 disease and having carried out the

internship during the pandemic period were relevant experiences; for others it was simply a disease, the pandemic is experienced as everyday life and COVID-19 is not considered a threat and some have experienced grief with the death of family members.

“When I started, I was not particularly afraid of this situation, partly because I had already been infected by Covid previously and partly thanks to vaccines, so I was quite relaxed” (1.6)

For some students, the internship experience has left them with the awareness of having to maintain a high level of attention towards covid.

“The same thing that has consolidated in these two years is attention; therefore, it is now a natural thing that we will probably take with us a little further” (4.2)

The precautions adopted in the internship context were considered established practices.

“From the very first moment we started the internship, we used masks and other personal protective equipment according to the patient’s clinical situation... it was normal to wear masks or to put on protective gear to go to the patient’s bedside... the pandemic was just a normal part of the situation...” (3.3)

The behaviors introduced during the pandemic are conditions to be applied in any context, regardless of COVID.

“For us, doing internships in group homes, it was normal to decontaminate and clean the areas where the person ate or slept ... it was the right thing to do, independent of the pandemic” (1.2).

Topic 5: Perception of risk after the internship experience

There were several aspects identified by the students during the internship inherent to the perception of the risk from SARS-CoV-2: some stressed the

importance of preventive factors and others testified how correct behaviours can reduce contagion.

“We had very clear procedures, that is, written and performed; we were a very compact team on what to do and when to do, whether to do or not, to do, that is, it was very simple” (1.7)

The vaccine and monitoring with nasal swabs are recognized as protective factors during the internship.

“Also, because after doing three vaccines I said: let’s hope it doesn’t happen. I got vaccinated, my mother is vaccinated I felt a little more protected so to speak ...” (1.4)

About the emotions experienced, a feeling of overall tranquillity emerges throughout the duration of the internship; anxiety and fear of contagion are emotions experienced in the initial phase of the internship and, over time, have subsided or even disappeared.

“I work in a facility, I must say that I had no worries, because the patients always stayed the same, there were no new ones admitted and everyone had at least one dose of vaccine, every 2 weeks, both guests and operators, did a Covid swab test, we kept using the mask, the patients used the FPP1 mask and the operators used FPP2 plus the visor, if a patient had fever they were placed in precautionary isolation and we wore our full uniform while waiting for the swab results, so it was very safe in this regard ...” (3.9)

The students who carried out the curricular internship at care homes attended by guests with whom it is necessary to interact, expressed the difficulties related to the absence of contact with people because it was considered a favourable element for contagion.

“I missed the sentimental part a little, because I am a “bugger” and you couldn’t touch anyone; therefore, I got one of those paper suits used by those who paint or who cut grass... when you want, I can wear it and you do what you want ... that is, the spontaneity of a “physical relationship” (1.7)

In social and healthcare contexts, users have characterised the situations in which contagion can occur; students have recognised them and have dealt with them responsibly. Guests can be carriers of the virus and, by not adopting correct behaviours, they can still induce in others that discomfort that makes the internship experience difficult or unpleasant.

“There were times when I risked being infected, because there was this girl who drooled and challenged the trainees, she spat, and I took a lot of spat in my face. Then it went well, but initially with her it went like this ... some episodes could be risky.” (1.1)

Regarding the potential risk of contagion, students reported feeling rather responsible if they had infected others.

“...the only time I was afraid was when I got infected with Covid and I was concerned that I had infected the girl, and it was a bad experience... in fact I sent messages all the time: are you okay? I had a bad time worrying about infecting someone... I had a terrible two weeks.” (1.1)

Topic no. 6: the experience during the internship

What did the students learn from their internship experience during the pandemic? Insecurity, fear of making mistakes, worry, agitation, anxiety, are the emotions that accompanied the beginning of the internship; then, everything settled down within a few days.

“After breaking the ice, I felt very good. In the end, it was a good experience.” (2.5)

In addition to the emotional aspects, students could see that the theoretical and practical training acquired in the classroom were a fundamental reference for adopting the correct behaviours in the internship context to reduce the risk of contagion.

“We started by attending two lectures in the classroom, where the theoretical contents of the

training related to clinical risk were discussed; then, we took the courses on safety. In January, we were already ready, so when we started our internship, the foundations were already in place.” (4.1)

In support of the theoretical content learned in the classroom, students report that they have been guided by tutors or the service team and have observed their behaviours before acting independently.

“When I arrived at the internship, the first thing my tutor taught me was how I should behave in the department, in my opinion he did a great job ... because from that point on, I no longer had any worries in the department ... because I knew how to protect myself.” (3.2)

The application of the directives and regulations on pandemic management within social and healthcare facilities through documents such as internal procedures or internal verification paths related to clinical risk proved to be an opportunity. The difficulty that emerged was the often-sudden change in the directives/regulations that made it difficult to apply them.

“In my opinion ... we would need, as soon as possible, a “fixed” regulation that concerns COVID and that evens out the behaviours to be adopted while you are in the department, because one thing I have noticed in recent months is that regional provisions change every 2 weeks. If there were a regulation that said what to do in certain situations, or stable provisions over time ... because: how long will this thing last?! ... we don’t know ...” (3.7)

The experience was an opportunity to observe how professional responsibility is exercised during the exercise of their profession. The responsibility concerns several areas: continuous training, to guarantee the quality of care, and ethical responsibility.

“a professional should be the first to update themselves and understand if they are up to date with the latest scientific evidence... as for students ... for those who want to learn how to do things well” (3.6)

The pandemic, for the students, had become a condition of life that was part of everyday life; before entering their first internship, they stated that they would not want to miss the experience, despite some having experienced losses in their families (9). Regarding the perception of risk, the performance of the internship in the pandemic era was conditioned by the obligation of vaccination and monitoring with nasal swabs; the students experienced these two elements as forms of protection for themselves (20). The testimonies of the students after the internship experience document that perception of the risk of infection was supported by the consistency of the theory with what was observed and applied in practice, therefore, they stated that preventive actions are effective in limiting the potential risk of infection while always maintaining high attention towards the spread of the virus (11). Following the start of the internship experience, students, to achieve the goal linked to their life project, are willing to give up or limit their social life, experiencing it as a moment of personal and professional challenge (2), unlike other students who felt their health was at risk (6). The emotions experienced by students before entering the internship are focused on starting the experience; the pandemic phenomenon is seen as a condition that makes the internship experience more challenging with strong energy demands and generating stress, particularly due to the presence of complex patients for whom, to ensure safe and effective performance, a solid theoretical preparation was necessary (2). The main concern is not to become carriers of infection (4,7). After completing the internship, the students reported that they had experienced some initial moments of anxiety and worry, then they felt part of a much more protected system compared to external social contexts and, for this reason, they felt calm even in situations in which they were potentially at risk of infection and gratified by the experience (4). The responsibility of contagion towards other people was real and the students fell into the role of future professionals, experiencing it as a moment of personal and professional growth. The students feared that the pandemic could limit the internship experience, but at its end they report that the same limitations were an opportunity despite the sudden changes in regulations that required continuous changes (2), to confirm

that their tutors have been a guiding element and a guarantee to allow them to achieve their objectives in organisational contexts that are somewhat affected by the pandemic that is still ongoing (3,7).

Conclusions

This study allowed the authors to understand the experience of students who had not had any curricular internship experience in the social and healthcare field prior to the pandemic, during the internship on the perception of the risk of SARS-CoV-2 infection. What emerges is that the students were not afraid of falling ill with COVID-19 but were instead concerned about infecting others (2,3). After completing the internship, they confirmed that they felt responsible for preventive behaviours and the use of PPE and MD according to the indications of current legislation and the internal rules of the organisation (2,4,5). The students of the SC of the HP did not express the will to choose or prefer some contexts rather than others for fear of being infected and have expressed the desire to and willingness to carry out the curricular internship also during the pandemic period in the times and ways provided for by the educational system. The pandemic period, seen as the normality, is perceived as an opportunity to test oneself by applying the training received in the classroom with the support of one's tutor that would guide them towards the correct behaviours. The pandemic was not an obstacle to the internship and was experienced as the first and true opportunity for growth towards the development of the profession (2,3,5). The levels of anxiety and fear were very low and, in any case, were decreased shortly time after the start of the internship; the elements characterising the perception of the risk of SARS-CoV-2 infection in the training context of the DCs were detected through the statements of the students regarding the consistent application of the procedures dedicated to the prevention and protection of people living in the social healthcare context (5). Personal experiences have had a significant impact on the level of attention paid to infection prevention measures and the degree of caution that was maintained throughout the internship, which however took place in an atmosphere of tranquillity. The further

development of the topic could be oriented on the perception of the risk of infection on any type of infection in the context of the internship and how students evaluate the perception of risk according to the application of prevention and protection measures in a concrete and real situation. Students are the professionals of tomorrow and identifying the elements that characterize risk perception will enable a structured and consistent approach to the topic within the curriculum. This will prepare them to be capable and competent in their future profession to handle any new pandemic events that may arise. The limitations of the study are due to the fact that the DCs involved in qualitative research, despite having guaranteed the homogeneity of the FGs by professional profile, carry out the internships in very different contexts: Students in Nursing (Nur) and Physiotherapy (Ft) completed their internships in hospitals or physiotherapy clinics, students in Educational Sciences (PE) worked in residential or semi-residential facilities with individuals facing mental health issues or physical disabilities, while students in Environmental and Workplace Health and Safety (EWPT) were placed in companies in the agro-food sector and industrial sector. The analysis of the data in the grouping of common issues expressed by the students, therefore, originated from very different experiences and contexts was challenging. In addition, the time elapsed between the events and the analysis of the data were prolonged and, in the post lockdown period, the measures required by the regulations for the containment of the spread of the infection changed frequently and quickly; this could have been a disruptive element in risk perception and in the adoption of updated correct behaviors for preventing infection.

Ethic Approval: Bioethics Committee of the University of Bologna, Protocol No. 200201 of 25/08/2021.

Conflict of Interest: Each author declares that he or she has no commercial associations (e.g. consultancies, stock ownership, equity interest, patent/licensing arrangement etc.) that might pose a conflict of interest in connection with the submitted article.

Authors Contribution: All authors of the manuscript declare that they: have made a substantial contribution to the concept or design

of the article, or to the acquisition, analysis, or interpretation of data for the article; have drafted the article or critically revised it for important intellectual content; Have approved the version to be published; have agreed to be responsible for all aspects of the work in ensuring that issues relating to the accuracy or integrity of any part of the work are properly investigated and resolved.

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