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Article

What place for art in Medical Education? A narrative review

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Abstract. Using art for medical education is a part of the Medical Humanities approach, which fosters observation skills and a better relationship between health professionals and patients. This article summarizes a body of research in the use of visual arts in medical education, including its neurobiological basis and reports about an experience at the medical curriculum of the University Sapienza of Rome. The use of art in medical training is widespread worldwide, but it is an innovation in the Italian university medical curricula. It is fundamental to teach observational skills, improve psychosocial abilities and lower stress in order to educate professional and resilient healthcare workers.

Keywords: Medical Humanities, Visual Thinking Strategies, medical education, soft skills.

Introduction and context

Medical Humanities (MH) have been defined as "an integrated, interdisciplinary, philosophical approach to recording and interpreting human experiences of illness, disability, and medical intervention…" (1). The humanities have been introduced in medical curriculum since the '80s to achieve the bio-psycho-social approach considered essential to "bring" the healthcare staff to the patient, overcoming the bio-medical concept that the body is as a machine, and the disease is the

consequence of a breakdown (2). In this context, MH have been considered useful to the needs of both basic and continuing education in the training of clinical observation, to develop empathy, to enhance resilience and self-care of medical students and staff, reducing stress and burn out (3,4).

The domain of MH encompasses literature, philosophy, history, religion, social sciences (anthropology, psychology and sociology), and the arts (theatre, dance, cinema, music and visual arts). MH are used not only in medical education but also in the clinical context, to develop skills such as teamwork, orientation towards patient's needs and understanding of the socio-familiar context (5).

The use of methods and practices related to the arts, and, in particular, to the visual arts in undergraduate medical education or in continuing medical education, has proved to be very useful to help students and doctors to improve their skills (6). In this article we discuss what is the role of arts in medical education and, in more details, what is the role of visual arts; we then describe an Italian running experiences of the use of visual arts with medical students.

Art and Medicine

To better understand the relationship between art and medicine we could retrace the history of the relationship between art and medicine over the centuries. In fact, doctors considered the artist's work as an instrument of knowledge, at a time when the dissection on real bodies was socially disapproved. Anatomical studies are also at the basis of the iconographic structure of the works of artists. In fact, it is through the anatomy lessons of important artists we have the representation of the dissection techniques developed over the centuries. We can consider for example the anatomy lesson of Dr. Nicolas Tulp (1632) by Rembrandt van Rijn. In this painting it is possible to see all the anatomical details, such as the tendons, which allow the flexion of the fingers. Iconodiagnostic is another interesting field of study. The concept was introduced for the first time in 1983 by Anneliese Pontius, a psychiatrist from Harvard, to demonstrate the presence of Crouzon Syndrome in the archipelago of Cook by examining the ancient statues found in those islands (7). This approach to art was already indicated by Giovanni Franceschini who, as early as 1906, in an article, wrote about the usefulness to study disappeared diseases through ancient artworks confirming the presence of a solid link between art and medicine (8).

Art for the development of skills

Some of the educational needs in the healthcare context, such as observation skill, communication skill and tolerance of ambiguity, can find an adequate answer through practice with artworks (9, 10). To pay attention to details and to systematically record all data are basic recommendations since the time of Hippocrates (11). Beyond the technical skill of a careful and comprehensive observation, contemporary medicine is also urged by the theme of "humanizing the care" by rebuilding the bridge between the science and the art of medicine.

According to these reflections, since the 80's, particularly in the United States, courses based on the use of visual arts are undertaken in medical and nursing education. The scientific literature suggests that this practice improves both observation and empathy (12, 13). Several methods and practices are

applied with visual art in medical education (6). At Harvard University in Boston, from the academic year 2003-2004 the 1st year students of the Harvard University of Medicine and Dentistry in collaboration with the Museum of Fine Arts in Boston have the opportunity to attend a 9-week course of Visual Thinking Strategies (VTS) with the aim to improve observational skills, increase self-confidence, improve physical examination and diagnosis process. Students are then given the opportunity to apply these skills in clinical practice (14).

This method is based on a guided discussion through three questions: What is happening in this image? What are the visual elements that can prove what you said? What else can we find / identify in the image? These questions allow the development of a process of participation and learning of skills as Problem Solving, Critical Thinking, Collaborative Work and therefore respect of the other's ideas. VTS also allows the development of self-confidence, communication and tolerance of ambiguity, that are core abilities to best express own role in the field of healthcare (15). Studies document how visual art can represent a powerful resource for mental and physical well-being, reducing stress and burn-out (16). People can develop greater mental plasticity and critical thinking according to the multiplicity of interpretations that an artwork can suggest, stimulating the divergent thinking at the basis of creativity (17).

Furthermore, some research has shown that exposure to art allows stress reduction, increases self enhancement and self-awareness, induces behavior patterns change, normalizing heart rate, blood pressure or cortisol levels (18).

The international scientific literature provides studies and research on this topic. It is worth mentioning an article by Mangione that reports about an online survey submitted by five American universities to their students. The results revealed that the students exposed to the arts developed more skills linked to empathy, tolerance to ambiguity, emotional management, prevention of burnout, spatial ability and self-efficacy (19). A possible neurobiological basis for these effects can be mirror neurons. These cells can act by imitation, when we observe someone making a gesture, reflecting like a mirror, what they "see" in the brain of others. It has been shown that this also happens when people look at artworks (20).

An Italian experience

The introduction of Medical Humanities in Italy started with some very preliminary initiatives in the 90's and went on in the following years with a rather limited presence in the national literature (21).

Since 2014, a research group of art and MH started the introduction of some art practices in elective courses and seminars at undergraduate curricula in Medicine and in Nursing, as well as at the postgraduate program in General Medicine (12). These activities were carried out at the Universities of Rome Sapienza, Tor Vergata, Campus Biomedico and Cattolica. Questionnaires were administered to record students' reflections on the impact of these pedagogical development methods.

Findings from the qualitative research in answer to the question "What did you learn?" suggest that this method can be very useful in Medical and Nursing Education. The following is a sample of answers from medical (**Table 1**) and nursing (**Table 2**) students:

Table 1

The medical student opinions about the visual art activities in medicine curriculum

To observe everything, every detail with great care
This course taught me that you can get a lot information from an accurate and critical observation
Careful observation can help me in the diagnosis
Observation was one of the useful things, above all because it allowed to put into practice critical and "investigative" skills.
I learned to observe carefully and critically, to formulate hypotheses by consulting with others and to integrate the different ideas and knowledge

Table 2

The nursing student opinions about the visual art activities in nursing curriculum

Everyone has their own point of view; Observation is very important and at the same time difficult
That great importance must be given to observation for the patient
The importance of communication through art also in the health sector
Importance of observation
The difference between "looking" and "seeing" a work of art, but in our case the person we are facing to understand not only the illness itself but also the experience and the state of mind

From 2015/2016 the "C" curriculum in Medicine of Sapienza University of Rome has embedded the art practice into official courses to deepen students' skill of observation, collaboration, communication and flexible thinking. More in particular curriculum activities were distributed across 3 under graduated years and included:

• 3rd year - Observation of visual art with the VTS method and laboratory practice at the Museum - 9 meetings in the course of Clinical Methodology (Introduction to clinical medicine)
• 4th year - Application of VTS, Iconodiagnostics and other visual practices in the context of during the first and second semester, linked to clinical courses
• 5th year - VTS practice and clinical Iconodiagnostics in electives in the first and second semester and application of VTS method to the observation of patients in clinical settings.

Questionnaires were administered to assess the impact of these methods on the development of the skills of observation, critical thinking and empathy. During the activities we also aim to assess the promotion of well-being of the students and the possible reduction of stress and burnout from the practice with visual art. The assessment of the first cohort of students is still ongoing, but when these results are available, they will provide essential data to inform future curriculum development of health professionals.

Conclusion

The preliminary analysis of our experience (22) confirms that art can be useful in medical education to respond to training needs for students and healthcare staff. Engagement with Medical Humanities can improve soft skills, communication, inter-professional collaboration and empathy with the patient and family members. Its psycho-social benefits are that it can limit stress to promote awareness of importance of self-care. Strong evidence of effectiveness of MH in medical education is still lacking, because of the difficulty to objectively measure the skills we are dealing with, but there is a growing international discourse (23) supporting the belief that in medical and allied health professions curricula, as well as in continuing professional development, the introduction of Medical Humanities at large and visual arts in particular can foster a holistic approach to care and the wellbeing of healthcare staff.

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