



The potential of medical comics to teach palliative care skills: a cross-sectional study of 668 medical students

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Background: Palliative care (PC) skills are important when caring for patients with advanced illness in a broad range of settings. Students need to be trained in communication and empathy, both representing essential PC skills. Therefore, creative approaches could promote the understanding of relevant PC skills.

Methods: In an online lecture about graphic medicine, different medical comics (MC) were used to introduce the field of graphic medicine and to illustrate relevant skills in PC. After the lecture, an online survey was conducted. The survey consisted of each respondent's sociodemographic profile and a questionnaire on multiple aspects related to the field of MC. Spearman correlation coefficients and Cohen's effect sizes were used for statistical analysis.

Results: The survey respondents comprised 668 students, 337 female, 326 male and 5 diverse. The results showed that the students had never (27.2%) or had very rarely (31.9%) been involved in with the field of MC. The largest number would rate their interest as somewhat or very interested (58.8%). When considering the use of MC to understand different perspectives, the students mainly rated them as useful (54.6%) or very useful (23.4%). Women had a more positive attitude towards MC than men ($P < 0.001$). Students who placed more importance on PC skills were more likely to recommend the use of MC in general medical education ($r = 0.11$, $P = 0.005$). The majority of the students (58.8%) moderately or strongly agreed on the use of MC as a teaching method in PC.

Conclusions: After a single lecture on graphic medicine, the students were positive about using MC for teaching PC skills. Since the lecture was short and the majority of the medical students stated that they had not been previously exposed to the field of MC, this study demonstrates that it is promising to further use and evaluate a set of visual and narrative illustrations as a teaching method in PC.

Keywords: Communication; humanities; neoplasms; palliative care (PC); terminal care

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Introduction

It is vital to equip future medical professionals with appropriate values, perspectives and professionalism. However, a gap still exists between theoretical teaching and clinical practice (1). Concerns about deficiencies in these qualities have led to changes in medical curricula that now aim to focus more on communication skills, ethics and social sciences (2). The latest developments in medicine entail challenges for students' training: it is not just high-tech that is important, but also high touch. A study suggests that many junior doctors lack training in regard to end-of-life (EOL) care (3). Therefore, creative approaches could promote understanding of relevant palliative care skills.

Medical comics (MC) constitute an art form that has evolved over decades and offers the possibility to address challenging situations in medical settings by using graphic illustrations. In many cases, MC were used to express subversive tendencies. In the first half of the 20th century, comics developed into a mass phenomenon with a broad spectrum from fantasy comics to superhero comics (4). MC can be developed into comprehensive picture stories or stand on their own, and they offer a broad palette of topics that can be illustrated by visual expression. Thus, patient stories, communication skills, palliative care (PC) skills, as well as different perspectives of patients, caregivers, relatives or medical staff can be addressed (5,6). This provides an opportunity to tackle difficult everyday topics and make them easier to understand.

The term *medical humanities* (MH) covers a wide range of topics mostly involving the social sciences, the humanities and the arts that have an impact on medicine and the way that we deal with complex issues (7). The term *graphic medicine*, introduced by the British physician and artist Ian Williams, describes the use of comics as a subject in healthcare. Many initiatives have been subsumed under this term since 2007, which can be found at www.graphicmedicine.org (8). The MC field meets the need to reflect on what the medical profession is about and links medical science with humanities.

Concerning advanced diseases, PC skills become increasingly important in different fields of medical practice. From the broad range of skills that PC demands

from a doctor, we focused on the following aspects that can be illustrated by MC's: advanced care planning (ACP), breaking bad news, compassion, communication, EOL discussions, empathy, listening and respect.

Regarding EOL topics, emotions, including anxiety can influence both doctors and patients. As it has been shown in the field of cardiology, MC can be useful in reducing anxiety concerning medical interventions. Cardiologists at the Charité Berlin tested whether a comic would help patients better understand the procedure for cardiac catheter examinations. The patients initially had the procedure explained to them using a classic questionnaire. Half of the participants were then randomly selected to receive a 15-page comic that illustrated the catheter and stent implantation. Overall, 72% of the patients were satisfied with the explanation in the comic, in comparison to only 41% in the control group (9).

In medical education, the inherent potential of MC may raise awareness of important skills and help develop abilities that are of special relevance to PC, such as communication, empathy, emotion and creativity (10). Working in the field of PC requires high ethical integrity, communication skills, defining goals of care, participative decision making and professional knowledge (11). MC might help impart a number of those qualities.

Due to the COVID-19 pandemic, education of students has changed. Lectures were switched to online sessions at many universities and due to numerous challenges in clinical practice, research and teaching, everyday processes also had to be adapted for teachers (12). While research indicates that empathy declines during training in medical school (13), empathy is emphasized as an essential quality in medicine. MC are suitable for conveying emotional information or teaching communication also as part of an online format. MC can express many situations in a vivid and space-saving way. Innovative educational interventions may foster desirable characteristics of a good doctor. Professionalism and reflection can be promoted in this way.

PC demands do involve the patients themselves, not just the information read in the patient charts, as a significant part of the PC files deals with the intersection of disease, patient experience, and EOL issues. The so-called "*narratives*" relating to the individual patient's life especially

matter in PC. The remarkable pioneer of *narrative medicine* Rita Charon described it as “medicine practiced with the narrative skills of recognizing, absorbing, interpreting, and being moved by the stories of illness” (14). MC support the development of *tacit knowledge*, which describes skills and experiences that are difficult to transfer to another person by writing or verbalizing them. MC as an interplay of images, words and dialogue might also serve as narratives as they are able to tell visual stories.

Providing a holistic perspectives is of particular value when teaching PC skills (15). A broad range of graphic medicine is available in regard to PC: to illustrate challenges and important skills, to impart knowledge, to criticize, to offer solutions, to show the way forward, and to offer hope (16). The importance of both soft and hard skills should be acknowledged, and MC support efforts to develop competent and compassionate physicians (17).

MC show how useful it can be to step outside one's own role. Comics might serve as an effective vehicle to give voice to varied experiences; besides critically reading and discussing MC, students might also be inspired to create their own original comics (18). MC also present an option to introduce a stronger focus on communication skills, ethics and social sciences and to train “well-rounded doctors” who are able to adapt to the needs of patients from different backgrounds (19).

Our aim in this study was to explore medical students opinions and perceptions on three aspects: (I) their general interest in graphic medicine and MC; (II) the feasibility of MC as a general teaching method in medical education; and (III) the feasibility of MC as a specific method of teaching PC skills. We further aimed to determine gender- and age-related differences and to explore the influence of previous exposure to the fields of graphic medicine and MC, the subjective importance of PC skills, as well as the students' current perceptions on MC. We present the following article in accordance with the STROBE reporting checklist (available at <https://apm.amegroups.com/article/view/10.21037/apm-22-637/rc>).

Methods

Materials

Besides sociodemographic details, the questionnaire used in this study comprised four aspects: (I) previous experience with MC (1 item); (II) general importance of PC skills (1 item); (III) perception on MC in medical education (2

items); and (IV) perception on MC in teaching PC skills (2 items) (Appendix 1).

The non-validated questionnaire was developed by a multi-professional team from the Division of Palliative Medicine and the Teaching Center of the Medical University of Vienna, following a best practice model (20). It was tested in a pilot phase with 12 students before we started this study. The students provided feedback on their perceptions and the phrasing of the questions. One question had to be re-phrased, following students' feedback.

Procedure

A 30-minute online lecture on PC and MC was prepared for students in their fifth or sixth year at the Medical University of Vienna and held by EKM, a professor of palliative medicine. During this lecture, the following aspects of PC were illustrated using MC: PC conversation skills, communication about prognosis, breaking bad news, dealing with death and dying, visibility and invisibility of symptoms, staff overwork and compassion fatigue. Furthermore, different perspectives of patients, caregivers, relatives or medical staff were illustrated using MC. Prior to this lecture, the students had already attended classes in medical communication and a seminar on the legal aspects of PC. However, they had never been in contact with the field until then. Some students had taken elective courses in PC. The purpose of the short lecture was to present essential aspects of the PC field using MC. The illustrations used in the lecture were from published scientific papers or well-known books (e.g., illustrations 1–3) in the MC field. The lecture consisted of 15 MC and was extended by theoretical information. Three examples are provided in illustrations 1–3.

The lecture was held in January 2022 as part of the so-called *Grand Rounds* in the penultimate year of medical studies. Participation is compulsory for students. After the lecture, the students had to fill out an online survey containing the questionnaire of this study. Double responses were prevented by the system to ensure the quality of the data. Since all students in their penultimate year of studies were required to complete the questionnaire, no sampling method was applied, but complete enumeration could be achieved.

The data that support the findings of this study have been made openly available in OSF at <https://doi.org/10.17605/OSF.IO/QE4F5>. The study was conducted in accordance with the Declaration of Helsinki (as revised in 2013). The

ethical approval and informed consent were exempted by the ethics committee of the Medical University of Vienna because the study was not classified as a clinical study and was planned and conducted in compliance with good scientific practice.

Statistical analysis

We used percentages to report prevalence and descriptive results. To examine gender-differences, chi-squared tests were applied. The effects of age, prior exposure to the MC-field, and the importance of PC skills on the evaluation of MC were explored using Spearman's correlation coefficients. The alpha level was set at $P < 0.05$. However, since p-values are strongly dependent on the sample size, our interpretation relied on effect sizes, which do not depend on sample size and are not influenced by multiple testing. For the effect sizes we used correlation coefficients and applied Cohen's guidelines for interpretation, with $r \geq 0.1$, $r \geq 0.3$, and $r \geq 0.5$ pertaining to small, medium and large effects, respectively. We had no missing data due to forced choice questionnaire format. The analysis was performed using SPSS 27. The figure was created in MS Excel.

Results

The total sample comprised 668 students, of whom 337 (50.4%) were female, 326 (48.8%) were male, and 5 (0.7%) were diverse. Most students ($n=453$; 67.8%) were 25 years old or younger, 185 (27.7%) were aged 26–30, 26 (3.9%) were aged 31–40 and 4 (0.6%) were over 40 years old. More than half of all students (59.1%) indicated that they never or very rarely came into contact with the field of graphic medicine or MC. Only 4.9% stated having frequent or very frequent previous contact with this field. All sample characteristics and descriptive results are presented in *Table 1*.

The majority of the students rated their interest in MC as somewhat or very interested (58.8%). Most students would classify the appropriate use of MC in medical education as occasionally (43.9%) or frequently (29.8%). When considering the use of MC to understand different perspectives (e.g., of caregivers, healthcare professionals, patients), the students mainly rated MC as useful (54.6%) or very useful (23.4%). The majority of the students perceived MC as useful or very useful (61.6%) for understanding challenging and relevant PC skills. Likewise 60% of the students moderately or strongly agreed on the use of MC as

a teaching method in PC.

Gender had a small effect on the evaluation of MC in all aspects, with women showing a more positive attitude towards MC. They were more likely to recommend the use of MC in medical education ($r=0.15$, $P=0.013$) and to support its use for understanding different perspectives ($r=0.18$, $P < 0.001$). They also found MC more useful for understanding PC skills ($r=0.17$, $P=0.001$) and more often agreed on the use of MC as a teaching method in PC ($r=0.13$, $P < 0.038$).

Neither age nor prior contact with MC had an effect on the general evaluation of MC or on the recommended use of MC in PC ($r_s < 0.08$). The data by gender are depicted in *Figure 1*.

Regarding the general importance of PC skills in medical education, 80.3% of the students indicated that they considered such skills important or very important. There was a small effect of gender, with women placing more importance on PC skills [$\chi^2(4, N=663) = 23.19$, $r=0.19$]. The importance of PC skills had a small effect on the evaluation of MC. The students who placed more importance on PC skills were more likely to recommend the use of MC in general medical education ($r=0.11$, $P=0.005$) and to support its use for understanding different perspectives ($r=0.19$, $P < 0.001$). They also found MC more useful for understanding PC skills ($r=0.23$, $P < 0.001$) and more often agreed on the use of MC as teaching method in PC ($r=0.21$, $P < 0.001$).

Discussion

In this study, our main finding is that after attending a single lecture on graphic medicine, the students were generally interested in MC. The majority found MC useful as a teaching method in PC and would recommend their use. Since the lecture was short and the majority of the 668 medical students stated that they had not been previously in contact with the MC-field, it seems promising to further use and evaluate visual and narrative illustrations as an innovative teaching approach in PC.

Regarding PC education, MC's are effective in communicating PC skills due to their diverse and multifaceted presentations. The largest number of students rated PC skills as very important or important, with women rating such skills higher than men did. Most of the students perceived MC as useful or even very useful for understanding challenging and relevant PC skills.

MC may encourage medical professionals to understand

Table 1 Characteristics of the sample and descriptive statistics

Characteristics	n	%
Gender		
Female	337	50.4
Male	326	48.8
Divers	5	0.7
Age (years)		
≤25	453	67.8
26–30	185	27.7
31–40	26	3.9
40<	4	0.6
Prior contact with graphic medicine and MC		
Never	182	27.2
Very rarely	213	31.9
Rarely	117	17.5
Occasionally	123	18.4
Frequently	24	3.6
Very frequently	9	1.3
Interest in MC		
Very uninterested	31	4.6
Somewhat uninterested	67	10.0
Neutral	177	26.5
Somewhat interested	276	41.3
Very interested	117	17.5
Perception of MC in regard to medical education. Should they be used		
Never	17	2.5
Very rarely	26	3.9
Rarely	58	8.7
Occasionally	293	43.9
Frequently	199	29.8
Very frequently	75	11.2
Evaluation of MC to understand different perspectives (e.g., caregivers, patients)		
Very useless	16	2.4
Useless	20	3.0
Neither useful nor useless	111	16.6

Table 1 (continued)**Table 1** (continued)

Characteristics	n	%
Useful	365	54.6
Very useful	156	23.4
Importance of palliative care skills		
Unimportant	5	0.7
Of little importance	10	1.5
Moderately important	56	8.4
Important	214	32.0
Very important	383	57.3
Perception of MC in regard to understanding PC skills		
Very useless	26	3.9
Useless	33	4.9
Neither useful nor useless	198	29.6
Useful	323	48.4
Very useful	88	13.2
Agreement with the use of MC as a teaching method in PC		
Disagree strongly	17	2.5
Disagree moderately	18	2.7
Disagree slightly	45	6.7
Agree slightly	187	28.0
Agree moderately	276	41.3
Agree strongly	125	18.7

MC, medical comics; PC, palliative care.

important PC skills such as empathy, willingness to engage in reflection and professionalism. The MC used in the lecture was intended to portray the required skills concerning ACP, breaking bad news, compassion, communication, EOL discussions, empathy, listening and respect. The fifth study year of medical studies might be appropriate for the lecture, as students near the end of their studies might feel more confident than students in the earlier years of their studies (13).

The use of MC as a teaching method offers the possibility to address the individual relational and psychological dimensions that exist in tandem with physical illness. MC should not be regarded as “anti-science”, they simply aim to position people in the foreground and help

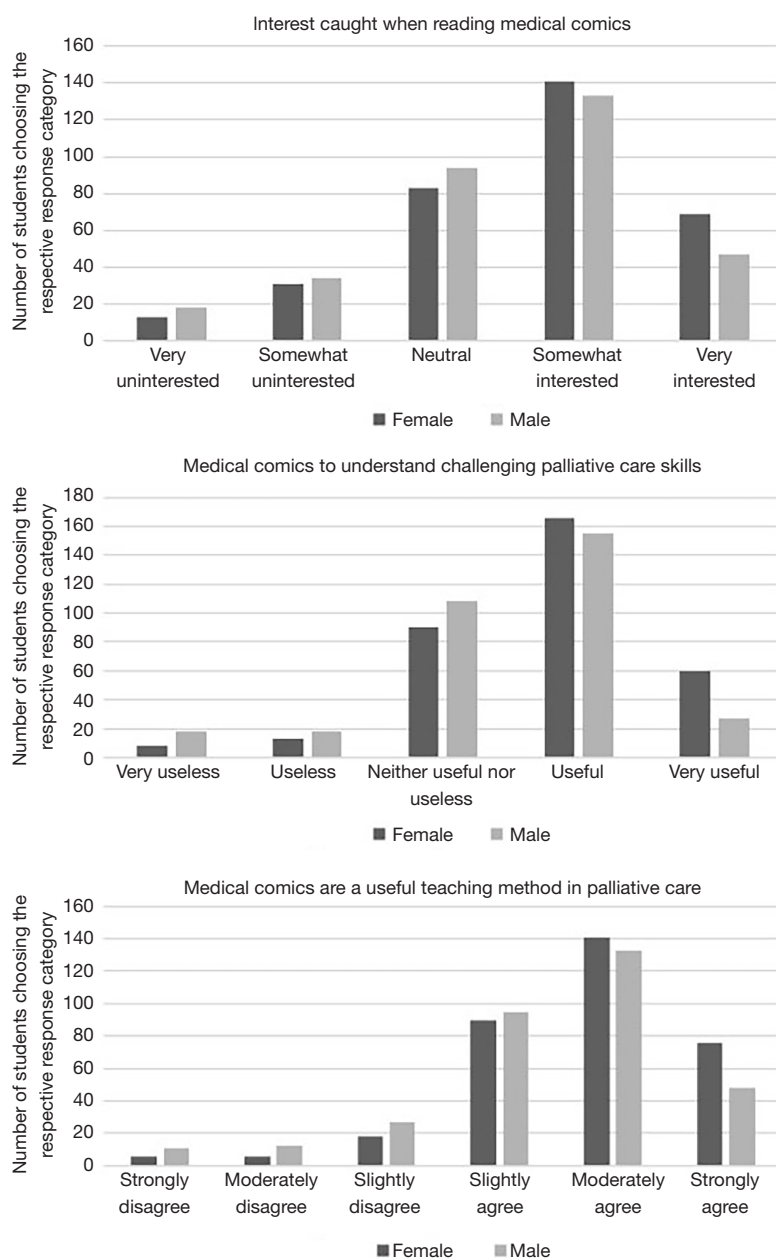


Figure 1 Distribution of student responses by gender.

the latter visualize different perspectives. This encourages engagement with complexity and ambiguity and may stimulate insight (18).

The importance of self-care is another significant aspect when facing PC issues. Regular supervision and case discussions are needed to be able to deal with EOL issues in the long term. MC can support this by illustrating the danger of burnout or compassion fatigue, among others.

Self-care may be encouraged through self-reflection, which can be supported by using MC (15).

Looking at MC enables a change of perspective. In this way, different needs can be taken into account, and one can step out of one's own role. MC impressively point out varied perceptions about situations. Training the eye to perceive different needs would certainly help in handling challenging conversations and situations. The variety of

topics addressed and several forms of presentation used in MC are suitable for illustrating skills relevant to PC.

The current study's limitations have to be addressed. The findings are not generalizable beyond the surveyed participants. Therefore, this study's results are not transferrable to other educational contexts. The intervention consisting of a lecture using MC as a teaching method in PC had a short duration. Concerning the survey that the medical students had to complete, there was no control group. Therefore, this topic needs further in-depth investigation. Examining whether competency in PC skills actually increased as a result of using MC is beyond the scope of this study. The effectiveness of MC is limited to being self-reported. Nonetheless, the COVID-19 pandemic has also enhanced flexibility and creativity in teaching concerning the necessity of creating innovative online lectures. Due to numerous challenges in clinical practice, research and teaching, everyday processes also had to be adapted for teachers. MC are highly suitable for online lectures due to their creative content, which is a strength of this study. Due to the large number of students attending the lecture, this presented an excellent opportunity to explore the feasibility of MC as a teaching method.

MC's open new perspectives on medical education. There is an ongoing initiative, the MC-exhibition project *Impression - Expression - Interaction, Perception in Medicine* at the Medical University of Vienna that started in the year 2019 (see: www.meduniwien.ac.at/medical-comics).

Conclusions

Our research team aims to further implement the use of MC as a teaching method to continuously reach out to students and healthcare professionals, as well as patients and their families. MC allow these groups to take different perspectives by empathizing with different characters. In future research projects, medical students could be asked to create MC themselves, which provides an opportunity to address challenging issues in a creative way (2).

In summary, MC embody multi-faceted, linguistic-visual rhetoric and can help students, patients, caregivers, and medical staff to understand and learn PC aspects.

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Footnote

Reporting Checklist: The authors have completed the STROBE reporting checklist. Available at <https://apm.amegroups.com/article/view/10.21037/apm-22-637/rc>

Peer Review File: Available at <https://apm.amegroups.com/article/view/10.21037/apm-22-637/prf>

Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at <https://apm.amegroups.com/article/view/10.21037/apm-22-637/coif>). Eva Katharina Masel serves as an unpaid editorial board member of *Annals of Palliative Medicine* from February 2022 to January 2024. The other authors have no conflicts of interest to declare.

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Questionnaire

Sociodemographic Data

What is your gender?

Male Female Divers

What is your age?

<25 26–30 30–40 >40

Q. 1: Have you ever been in touch with the field of graphic medicine and medical comics?

Very Frequently Frequently Occasionally Rarely Very Rarely Never

Q. 2: How would you rate the interest you caught when reading medical comics?

Very interested Somewhat interested Neutral Somewhat uninterested Very uninterested

Q. 3: What is your perception of medical comics in regard to medical education?

Should they be used Very Frequently Frequently Occasionally Rarely Very Rarely Never

Q. 4: What is your opinion of using medical comics to understand different perspectives (eg caregivers, healthcare professionals, patients)? Do you find them

Very useful Useful Neither useful nor useless Useless Very useless

Q. 5: Concerning your career as a medical student, how would you rate the importance of palliative care skills?

Very Important Important Moderately Important Of Little Importance Unimportant

Q. 6: What is your perception of medical comics in regard to understanding challenging and relevant PC skills? Do you find them

Very useful Useful Neither useful nor useless Useless Very useless

Q. 7: What is your opinion about using medical comics as a teaching method in palliative care? Concerning their use, would you

Agree Strongly Agree Moderately Agree Slightly Disagree Slightly Disagree Moderately
Disagree Strongly

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Illustration 1 Invisibility of symptoms (21).

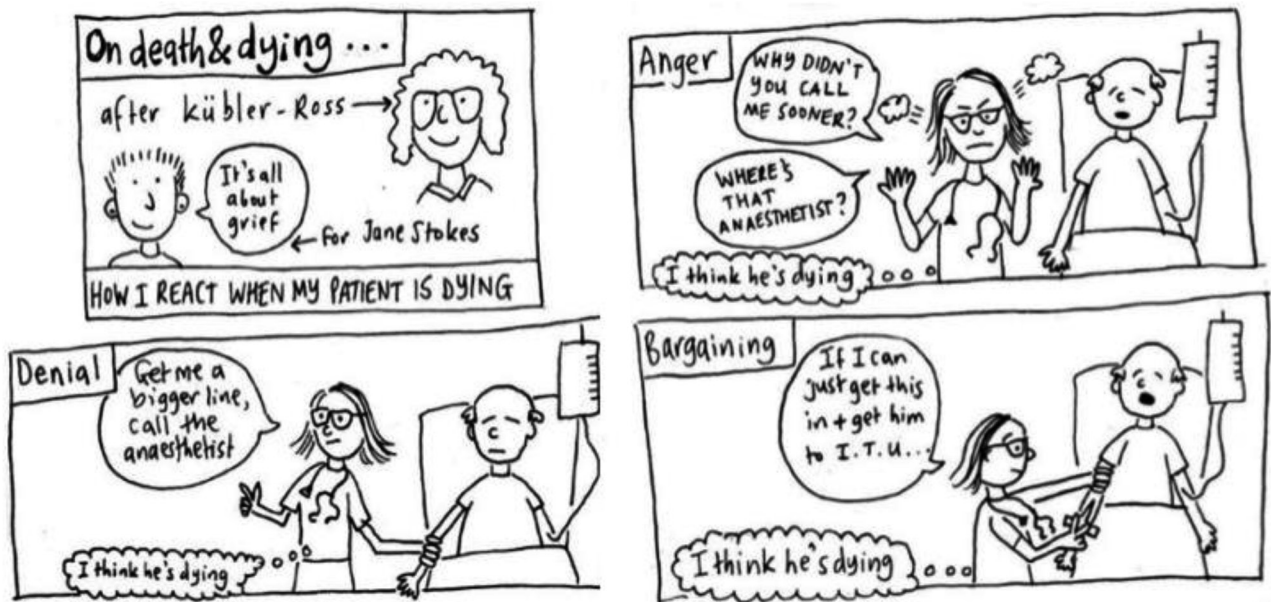


Illustration 2 Dealing with death and dying (22). Permission for illustration by the artist: Muna Al-Jawad.



Illustration 3 Communication about prognosis (23). Permission for illustration by copyright holder: Brian Fies.