ISSN: 2687 –4393

SBED-2023 : 6(1)

Sağlık Bilimlerinde Eğitim Dergisi

Effect Of Creative Drama Education Provided Before Clinical Placement On Communication And Empathy Skills, Anxiety, Stress, And Motivation: A Single-Blind Randomized Controlled Study On Physiotherapy Students

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Abstract

Students who will provide healthcare services are expected to have good communication and empathy skills while meeting with patients. The purpose of this study is to investigate the impact of integrating communication skills training, combined with creative drama (CD), on physiotherapy students, specifically examining its effects on their communication and empathy skills with patients, as well as their perceived anxiety, stress, and motivation levels. In this study, second-year students were randomly classified into two groups: those who did not receive CD education (control group, n=20) and those who received CD education (CD group, n=20). At the beginning and after 14 weeks of the training period, all students were assessed using the interpersonal communication questionnaire (ICQ) and Jefferson Scale of Empathy-Health Professional Students (JSE-HS); the assessments of anxiety, stress, and motivation levels were conducted using the visual analog scale. Regarding the ICQ results, communication anxiety (p=0.027) and confidence score (p=0.050) were positive changes in the CD group than in the control group. With respect to the scores of the JSE-HS questionnaire, no intergroup or intragroup differences were identified between the two groups (p>0.05). Anxiety and stres levels were significantly lower in the CD group than in the control group (p=0.032, p=0.007). Physiotherapy students have participated the effective communication course with CD in healthcare demonstrated a positive change in communication anxiety and perceived anxiety and stres levels, as well as increased confidence. However, no significant difference was found in empathy skills. Nonetheless, further research is needed in this area.

Keywords: Communication, drama, empathy, physiotherapystudents

Klinik Uygulama Öncesinde Uygulanan Yaratıcı Drama Eğitiminin İletişim ile Empati Becerilerine, Anksiyete, Stres ve Motivasyona Etkisi: Fizyoterapi Öğrencilerinde Tek Kör Randomize Kontrollü Çalışma

Öz

Geleceğin sağlık hizmetlerini verecek öğrencilerin, hasta ile karşılaştıkları zaman iletişim ile empati yeteneklerinin yüksek olması beklenir. Mevcut çalışmada, Fizyoterapi ve Rehabilitasyon Bölümü öğrencilerinde yaratıcı drama (YD) ile bütünleştirilmiş iletişim becerileri eğitiminin, öğrencilerin hasta ile kuracakları iletişime ve empati becerisine, algılanan anksiyete, stres ile motivasyon seviyesine olan etkisini araştırmak amaçlanmaktadır. Bu çalışmada ikinci sınıftaki öğrenciler randomize olarak; YD eğitimini almayan (Kontrol Grubu, n=20) ve eğitimi alan (YD Grubu, n=20) olarak iki gruba ayrıldı. Eğitim döneminin başında ve 14 haftalık eğitim döneminin sonunda tüm öğrencilere kişilerarası iletişim anketi (KİA), Jefferson empati ölçeği-

sağlık meslekleri öğrencileri (JE-SMÖ) ve görsel analog skala yardımı ile anksiyete, stres ve motivasyon seviyeleri değerlendirmeleri yapıldı. YD grubu KİA sonuçlarında iletişim anksiyetesi (p=0,027) ve kendine güven puanı (p=0,050) kontrol grubuna gore daha iyi sonuçlar gösterdi. JE-SMÖ'de grup içi ve gruplar arasında fark görülmedi (p>0,05). Eğitim grubunda, kontrol grubuna göre anksiyete ve stres seviyeleri anlamlı şekilde düşük olarak saptandı (p=0,032 ve p=0,007). Sağlıkta yaratıcı drama ile etkili iletişim dersini alan Fizyoterapi ve Rehabilitasyon Bölümü öğrencilerin dersi aldıktan sonra iletişim anksiyetesi ve özyeterliliklerinde, algılanan anksiyete ile stres seviyelerinde olumlu yönde değişim bulunurken, empati becerilerinde bir fark bulunamamıştır. Yine de bu konuda yapılacak daha fazla çalışmaya ihtiyaç bulunmaktadır.

Anahtar kelimeler: *İletişim, drama, empati, fizyoterapi öğrencileri*

Geliş Tarihi: 31.08.2023 ***Kabul Tarihi: 20.12.2023***

GİRİŞ

Health professionals, including physicians, physical therapists, and nurses, should possess strong communication skills in addition to their Professional knowledge and expertise (Kong et al., 2023; Lewandowski et al., 2023). The positive impact of effectivec ommunication skills on treatment outcomes is well established, particularly in the management of musculoskeletal disorders and stroke rehabilitation (Health&Council, 2013; Plant et al., 2016; Silberman et al., 2018; Sugavanam et al., 2013). Therefore, it has been suggested worldwide that the ability of physiotherapy students to communicate effectively should be developed as an essential part of the physiotherapy curriculum at the introductory level (Jones, 2019). In Turkey, there are 100 undergraduate physical therapist education institutions. The physical therapy curriculum at these institutions typically consists of a four-year, eight-semester program with at least 1,000 hours of clinical placement (internship). Overall, 30 of the 100 institutions (30%) have a curriculum that incorporates more theory-based electives or core courses related to communication skills. However, only two of these 30 institutions offer a communication skills course based on creative drama (CD), suggesting that physiotherapy students in Turkey primarily develop their communication skills through clinical internships or theoretical classes. This approach may cause students to feel unprepared and lacking in communication self-efficacy when they encounter patients

In terms of patient-therapist relationships, empathy is considered the most crucial component of healthcare. Research indicates that high levels of empathy among health professionals can reduce patient stres and anxiety, improve treatment adherence, and contribute to beter disease outcomes (Hojat et al., 2013; Sulzer et al., 2016; Yucel& Acar, 2016). Studies involving physiotherapy students have shown that stres and anxiety levels are elevated before clinical placement, where they engage in face-to-face interactions with patients for the first time. It is recommended that various educational methods be employed prior to clinical placement to allow students to practice all aspects of physical therapy as realistically as possible. This approach can help alleviate practice-related anxiety, enhance performance, and improve overall understanding of the clinical setting (Black &Marcoux, 2002; Cunningham et al., 2018; Lewis et al., 2008; Roberts & Cooper, 2019).

CD encourages the exploration of problems, ideas, emotions, and experiences through imaginary roles and scenarios. CD activities are known to enhance critical thinking, problem-solving, empathy, collaboration, communication, creativity, and self-awareness, particularly among health professionals and students (Çınar et al., 2019; Er-Türküresin, 2020; Jiang et al., 2020). To date, only one study, conducted by Çınar et al. (2019), has specifically investigated the impact of CD on the communication skills and empathic tendencies of physiotherapy students. The study by Çınar et al. (2019) did not find a significant effect of CD on the seskills. However, the study did not evaluate communication and empathy skills based on patien tcharacteristics; instead, a general communication and empathy scale was utilized. Additionally, the study solely involved first-year students. Notably, the students in Çınar et al.'s study (2019) lacked proficiency in fundamental assessment and treatment procedures, which are integral components of the introductory physical therapy and rehabilitation curriculum. Importantly, these students had not yet completed this course during the year in which they commenced their clinical placements.

In light of the aforementioned information, the primary objective of our study is to examine the impact of CD education on the communication self-efficacy and empathy of physiotherapy students towards patients. The secondary objective is to determine whether the communication anxiety, stress, and motivation of students participating in clinical placement for the first time change or not through this education. The hypothesis of the study is that communication training integrated into CD will have a

positive effect on perceived anxiety, stress, sense of motivation, communication, and empathy skills prior to clinical practice. The null hypothesis is that it will produce no additional effects.

METHODS

Participants and procedure

The present study was a prospective, single-blind, randomized, controlled trial. Ethical approval was obtained from Acıbadem Mehmet Ali Aydınlar University and Acıbadem Healthcare Institutions Medical Research Ethics Committee (reference number: ATADEK-2021/22/06) for the study, and the US National Library of Medicine Clinical Trial assigned the study number NCT05208151. The study enrolled 40 second-year physiotherapy students at the Faculty of Health Sciences, Department of Physical Therapy and Rehabilitation, in Acıbadem University, who volunteered to participate in the study. The study was conducted in accordance with the Helsinki criteria, and the students provided their verbal and written informed consent. Adıguzel and Timucin (2010) suggested the inclusion of 16-20 subjects in the group CD. Therefore, 40 students were included in the present study. Additionally, it was observed through a post hoc power analysis that the sample size was sufficient. G*Power package software program (Version 3.1.9.2, Franz Faul, Universitat Kiel, Germany) was used to determine the required sample size for this study. Post hoc power was determined as 88.35 % regarding ICQ total score (its pre-education and post- education scores, and standard deviation were used for effect size=0.88). Students who had been diagnosed with a diagnosed psychiatric disorder and/or were undergoing psychological treatment were excluded from participation in the study. The study's flowchart is depicted in Figure 1. Patients were randomly allocated to one of two parallel groups, maintaining a 1:1 ratio. This allocation was carried out using a block randomization procedure. A researcher with no clinical involvement in the study generated a computer-based list through an online randomization service (https://www.randomizer.org) and managed the distribution accordingly. Each participant selected a sealed opaque envelope to determine their group assignment. The individuals responsible for assessing outcomes and compiling statistics remained blinded to the group assignments. The participants were divided into two groups

- Control group: Those who had not attended the Effective Healthcare Communication with Creative Drama course during the study period (n=20)
- CD group: Those who had attended the Effective Healthcare Communication with Creative Drama course during the study period (n=20)

The course was led by a CD instructor (RA), and the course content and drama training were supervised by the principal researcher (NA). The CD instructor is an academic at our university with ten years of experience in theater training and creative drama education. She is currently conducting research on the applications of creative drama and continues to provide training. The course content was enriched by all the researchers.

Participant evaluations were conducted at the beginning and end of the 14-week course period, which was held from October 2021 to January 2022. A blinded researcher (ÖH) performed the evaluations and statistical analyses.

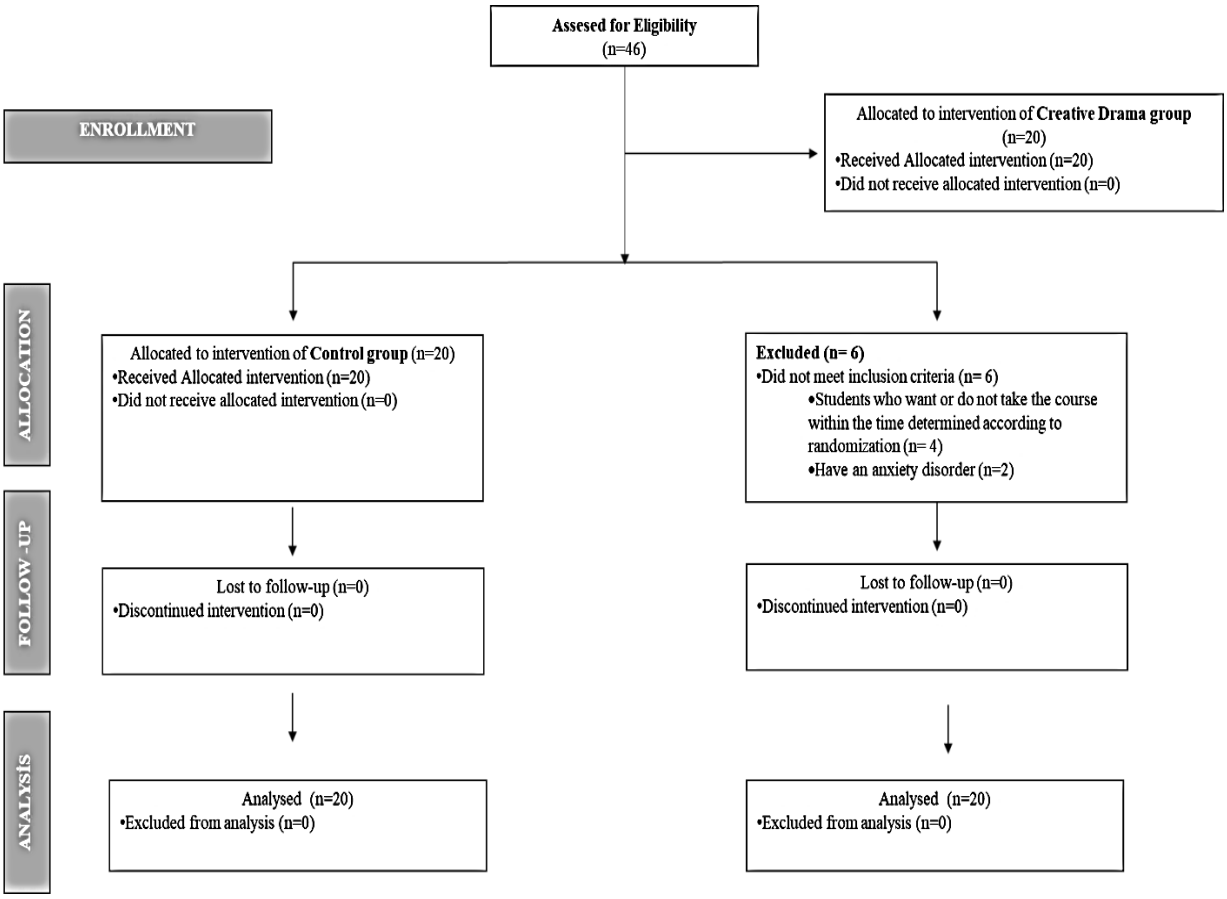

Figure 1. The Participant Flow Diagram

Course Content

The course objectives, learning outcomes, and weekly content are presented in Table 1. All resources, presentations, and contents of the 14-week course were uploaded to the university's education management system at the beginning of the 2021-2022 Fall Semester.

Preparatory (warm-up) work was conducted according to the CD components. During this phase, the instructor informed the students about the course content, purpose, learning outcomes, process, and assessment; the instructor then provided theoretical training on communication and body language.

Lesson structure: After the two-week training, each lesson consisted of a 15-minute presentation by the instructor outlining the fundamental ideas of the lesson's subject, followed by 15-30 minutes of improvised drama performance.

Stage events: One or two stage events were conducted during the course. During these events, the instructor role-played as the physiotherapist or patient, and the student role-played as the patient or physiotherapist accordingly. Other students provided feedback on the communication mistakes they noticed in the play and the situations they liked.

Animation phase: In the session marking the beginning of the animation phase, in addition to a 45-minute lesson, a theatrical play was improvised in two sessions with the students acting as patients, patients' relatives, or physiotherapists. During the evaluation-discussion phase, feedback was provided to the play that other students had improvised.

Improvisation participation: The students participating in the improvisation were changed after each lesson week.

Midterm project: As part of the midterm project, the students (classified into groups of two) had to submit video presentations. The students created their desired situation in the form of a two-session video play by switching between the roles of the physiotherapist and the patient or patient's relative. The students preparing the video presentations were instructed to create a brief plan before performing the play (considering actual settings, such as a hospital, home, or physiotherapy application unit, with optional clothing), and to produce the play in a more improvisational manner. After these videos were evaluated by the teacher, they were evaluated by all students in the class and discussed for three weeks.

Post-midterm lessons: In the following weeks, lessons were held in accordance as before the midterm exam.

Real role models: In the last week, real role models (three graduated physiotherapists with CD training, those involved in amateur theater, and those working in the field of athletes, children, and management) demonstrated examples of improvised plays about the challenges faced by physiotherapists working in the field of athletes, children, and management.

Instruments

A blinded researcher (ÖH) performed all evaluations at the start of the training session and the end of the 14-week course period. The primary outcome measures for the study included the Interpersonal Communication Questionnaire (ICQ) and using the Visual Analog Scale for anxiety and stress. The secondary outcome measures encompassed the modified Jefferson Scale of Empathy-Health Professional Students (JSE-HS) applied to physiotherapy students and the Visual Analog Scale for motivation.

Evaluation of communication skills

In the present study, ICQ—introduced by Lewis et al. (2008) to measure the perceived interpersonal communication skills related to patient interaction among physiotherapy and rehabilitation students—was used for evaluating communication skills. The sum of the scores of the first four items in the questionnaire indicates communication anxiety, whereas the sum of the scores of the last four items indicates communication confidence. Each item (Question 6 will be reverse scored) was scored on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). An increase in the subscale score (4–20 points) indicates an increase in anxiety and a decrease in confidence (4–20 points) (Lewis et al., 2008). Turkish validity and reliability of ICQ was done by the authors and was found to have acceptable-to-excellent internal validity and consistency(Cronbach's α coefficient=0.701–911), and very good test-retest reliability(ICC=0.753–0.772). (Alaca & Kocaer, 2023).

Evaluation of empathy

The modified version of JSE-HS for physiotherapy students was used to assess empathy. Moreover, three subscales of JSE-HS, including “perspective taking,” “compassionate care,” and “standing in the patient’s shoes,” were constructed (Hojat, 2016). The questionnaire consists of 20 questions, each of which needs to be answered on a 7-point Likert-type scale. Positively expressed items included 2, 4, 5, 9, 10, 13, 15, 17, and 20, and the scores ranged from 1 (strongly disagree) to 7 (strongly agree). The remaining items (1, 3, 6–8, 11–12, 14, 18–19) were negatively expressed, and the scores were expressed from 1 (strongly disagree) to 7 (strongly agree) in a reverse order. The total score was obtained by totaling the scores of all items. Better mean scores indicate higher levels of empathy, and the total score ranges from 20 to 140 (Hojat, 2016; Yucel & Acar, 2016). The Turkish validity and reliability of the scale were established for medical students (with reliability coefficients ranging from

Table 1. Purpose of the course, learning outcomes, and weekly course syllabus

Effective Communication in Healthcare with Creative Drama Course	
Course Objectives	To help the student understand basic concepts related to interacting with the patient, their relatives, and people with disabilities as well as the knowledge and skills of effective communication and empathy in particular situations
Course Learning Outcomes	1. The student can explain and demonstrate the basic concepts of empathy and effective communication with patients and their relatives. 2. The student can explain and demonstrate the basic concepts of empathy and effective communication with patients and their relatives in special in situations that may be related to disability and physiotherapy and rehabilitation
Weekly Course Syllabus	
1st week	Introduction of resources and sharing the course content, Basic rules about behavior in patient-health personnel communication-I
2nd week	Basic rules about behavior in patient-health personnel communication-II
3rd week	Communication with a pediatric patient and creative drama technique
4th week	Empathy, communication with the elderly patient, and creative drama technique
5th week	Communication with patients with special conditions-1 and creative drama technique (anger-panic-refusal-paralyzed)
6th week	Communication with patients with special conditions-2 and creative drama technique (mental health-trauma-closed consciousness)
7th week	Communication with relatives of patients with special conditions and creative drama technique
8th week	Creative drama project work-I (video presentations)
9th week	Creative drama project work-II (video presentations)
10th week	Creative drama project work-III (video presentations)
11th week	Communication patients with visual-speech-hearing-mental disabilities and creative drama technique
12th week	Empathy and communication with other patients with physical disability and creative drama technique
13th week	Communication in special cases (natural disasters), earthquake, flood, and epidemic
14th week	Creative drama technique with real physiotherapists who are role models (athlete physiotherapist, executive physiotherapist, and child physiotherapist)

0.62 to 0.84) and nursing students (Cronbach's alpha coefficient was 0.73) (Bilgel & Ozcakir, 2017; Yanık & Saygılı, 2014). Subsequently, the reference to nursing or medical students was updated to PTR students, following the convention used by Yücel and Acar in their studies involving PTR students (Hojat, 2016).

Evaluation of anxiety, stress, and motivation

Anxiety, stress, and motivation that may be experienced when students enter clinical practice and interact with patients were assessed using a visual analog scale (VAS) ranging from 0 (none) to 10 (worst imaginable) (Black & Marcoux, 2002). The use of a self-reported VAS for stress in a clinical setting is equally reliable and valid as other questionnaires (Alaca N. , 2020; Black & Marcoux, 2002).

Statistical analysis

The SPSS package statistics program version 21.0 (Statistical Package for Social Sciences Inc, Chicago, IL, USA) was used for the analysis of the obtained data. The Shapiro–Wilk test was employed to assess the normal distribution of the data, and the data were found to deviate from normality. Data were presented as median (minimum–maximum) and mean ± standard deviation. Demographic data were analyzed using the chi-square test for categorical variables and the Mann–Whitney U test for non-categorical data. For other data analysis, intragroup comparisons were performed using the Wilcoxon signed-rank test, while differences in intragroup changes were assessed using the Mann–Whitney U test for between-group comparisons. A p-value of ≤ 0.05 (two-sided) was considered indicative of statistical significance.

RESULTS

Table 2 shows the sociodemographic characteristics of the students according to the groups($p>0.05$).

Table 2. Demographic Characteristics of Students

	Control group	**Creative Drama group**	
Demographiccharacteristics	***Median (Minimum–Maximum) orthenumber of people (%)***	***Median (Minimum–Maximum) orthenumber of people (%)***	**p**
Age (years)	20 (19–25)	19 (18–23)	0.249*
Sex;			
Male	4 (20.00%)	6 (30.00%)	
Female	16 (80.00%)	14 (70.00%)	0.465†
Body Mass Index (kg/m^2)	21.91 (16.95–30.39)	22.49 (16.90–32.39)	0.880*

*, Mann–Whitney U test; †, Chi-square test

Based on the outcomes of the questionnaire assessing perceived interpersonal communication skills in patient interaction, it was observed that the total score in the control group exhibited a significant increase in intragroup comparison ($p = 0.025$, Table 3). Conversely, in the CD group, the total score displayed a significant decrease after the course ($p = 0.018$, Table 3). When comparing the two groups, these alterations in the total scores were found to be statistically significant ($p = 0.002$, Table 3). While no statistically significant differences were noted in the communication anxiety and communication confidence subscales within both the CD and control groups during intragroup comparisons ($p > 0.05$, Table 3), a significant difference was observed between the groups ($p = 0.027$ and $p = 0.050$, respectively, Table 3). An overview of the survey questions and the corresponding results is provided in Table 3.

In both the control and CD groups, there were no statistically significant differences in the JSE-HS results for any of the subscales or total scores within and between groups ($p>0.05$, Table 4).

In terms of the VAS (anxiety, stress, and motivation) outcomes, when comparing the results from the course's outset, the control group exhibited slight increases in anxiety, stress, and motivation; however, these increases were not statistically significant ($p > 0.05$, Table 4). Conversely, within the CD group, significant reductions were observed in anxiety and stress levels compared to the beginning of the course ($p = 0.020$ and $p = 0.050$, respectively; Table 4), while motivation demonstrated a noteworthy increase ($p = 0.050$, Table 4). Although the anxiety ($p = 0.032$) and stress ($p = 0.007$) levels significantly differed between the two groups (Table 4), no distinction was noted in the motivation scores ($p = 0.274$, Table 4).

DISCUSSION AND INTERPRETATION

In this study, CD training significantly reduced communication anxiety and increased communication confidence among physiotherapy students in the CD group compared to the control group. Moreover, while CD training had no significant effect on empathy levels, it did reduce anxiety and stress levels compared to the control group. Although the CD group showed a significant increase in motivation, no significant difference was found between the two groups.

Studies on drama-based education have revealed that this learning approach can help healthcare professionals communicate more effectively. However, studies evaluating communication skills are few, and these studies have mostly been conducted on medical and nursing students (Jefferies et al., 2021; Jeong & Kim, 2017; Nestel & Tierney, 2007; Pilnick et al., 2018). Jeong et al. (2017) investigated the effects of communication skills on nurses' performance and concluded that the performance of nurses with superior communication skills was greater (Jeong & Kim, 2017). In a review published by Jefferies and colleagues in 2017, it wasfound that interpersonal skills can be enhanced through educational interventions utilizing drama, thereby facilitating the development of these skills (Jefferies et al., 2021). In the studies conducted by Nestel and Tierney (2007), it was found that role-playing activities among medical students contribute to the development of their communication skills. To the best of our knowledge, only one study was found on physiotherapy students, i.e., the studyby Çınar et al. (2019), and in contrast to our study results, Çınar et al. (2019) reported that CD had no effect on communication skills. However, their study included first-year students. Moreover, their study was conducted using a questionnaire measuring the communication skills of the individual and not those related to patient communication. In the present study, ICQ, which is a questionnaire created by Lewis et al. (2008) for physiotherapy students, was used for the assessment. This questionnaire evaluates communication anxiety and confidence in terms of the content of the course. The use of the questionnaire in our study represents a strong aspect of our study as we found that communication anxiety and confidence were closely related, and these aspects positively enhanced students’ skills (Barrows, 1993; Lewis et al., 2008). The present study, compared to the control group, physiotherapy undergraduate students reported feeling less anxious and more confident regarding future patient interactions after undergoing CD-integrated communication skills training.

Table 3. Results of the Students' Perceived Interpersonal Communication Skills Questionnaire on Patient Interaction

Parameters	Control group			Creative Drama group			Intergroup comparison of differences
	Pre training	Post training	Intragroup comparison	Pre training	Post training	Intragroup comparison	
(1 = strongly disagree to 5 = strongly agree)	***Median (Minimum–Maximum)***		**p***	***Median (Minimum–Maximum)***		**p***	**p†**
1. The thought of assessing patients makes me nervous	2 (1–5)	2 (1–5)	0.174	2 (1–4)	2 (1–5)	0.860	0.254
2. I am not sure whether I am comfortable in talking topatients	1 (1–5)	1 (1–5)	**0.033**	1 (1–3)	1 (1–2)	0.174	**0.008**
3. I worry about speaking to patients	1 (1–3)	1 (1–5)	0.062	1 (1–3)	1 (1–2)	0.065	**0.021**
4. I am not quite sure of myself wheninteracting with patients	2 (1–5)	2 (1–5)	0.600	2 (1–4)	1 (1–4)	**0.047**	0.104
5. I am confident that I can interact with patients	4 (1–5)	5 (1–5)	0.171	4 (2–5)	4.50 (1–5)	0.679	0.223
6. Having to talk to patients is a frightening possibility	4 (3–5)	4 (1–5)	0.065	4 (3–5)	4 (4–5)	0.071	**0.007**
7. I am positive that examining patients will not be a problem	4 (1–5)	4.50 (2–5)	0.872	4 (2–5)	4 (1–5)	0.250	0.663
8. I think that talking to patients will be apositive experience	5 (4–5)	5 (3–5)	0.454	5 (4–5)	5 (1–5)	0.279	0.706
The Interpersonal Communication Questionnaire-Communication—anxiety	6 (4–16)	6.50 (4–16)	0.077	6 (4–12)	5.50 (4–9)	0.101	**0.027**
The Interpersonal Communication Questionnaire-Communication—confidence	15 (10–17)	15 (10–18);	0.186	14 (11–16)	16 (8–17)	0.191	**0.050**
The Interpersonal Communication Questionnaire—Score	20 (15–30)	19 (14–40)	**0.025**	20 (18–27)	19 (9–24)	**0.018**	**0.002**

*, Wilcoxon signed-rank test; †, The first 8 questions p-value, chi-square test other Mann–Whitney U test, Bold values indicate statistical significance.

Table 4. Results of the Students' Jefferson Scale of Empathy-Health Professional Students and Visual Analog Scale (Anxiety, Stress, and Motivation)

Parameters	Control group			Creative Drama group			Intergroup comparison of difference
	Pre training	Post training	Intragroup comparison	Pre	Post	Intragroup comparison	
	Median (Minimum–Maximum); Mean ± Standard Deviation		p*	*Median (Minimum–Maximum); Mean ± Standard Deviation*		p*	p†
Physiotherapist Empathy (Total value: 20–140 points)	117.50 (89–127)	112.50 (80–128)	0.051	113.50 (92–122)	109.38 (78–124)	0.897	0.156
Perspective taking: Understanding the patient's point of view (10–70 points)	52 (40–62)	49.50 (37–58)	0.212	50 (38–59)	48 (37–60)	0.731	0.414
Compassionate care: Beingsensitive while providing healthcare (8–56 points)	52.50 (35–56)	49 (33–56)	0.073	51.50 (36–56)	50 (33–55)	0.221	0.619
Standing in the patient's shoes: understanding the patient (2–14 points)	13.50 (9–14)	13 (9–14)	0.115	13 (9–14)	14 (3–14)	0.605	0.202
Visual Analog Scale-Anxiety (0–10)	2 (0–6)	2.00 (0–7)	0.582	2 (0–7)	1.00 (0–10)	**0.020**	**0.032**
Visual Analog Scale-Stress (0–10)	1 (0–7)	2.50 (0–8)	0.105	1.50 (0–7)	1.00 (0–8)	**0.050**	**0.007**
Visual Analog Scale-Motivation (0–10)	9 (0–10)	9 (3–10)	0.648	8 (0–10)	9 (3–10)	**0.050**	0.274

*, Wilcoxon signed-rank test; †, Mann–Whitney U test, Bold values indicate statistical significance.

Clinical placement model has many similarities to apprenticeship. However, apprenticeship programs might not be the most effective way of training healthcare professionals(Ladyshewsky, 2002). Because these students, as apprentices primarily interpret empathy through these educators and because the empathy levels of trainers vary (even among those training students with similar curricula and demographics), empathy levels of students may differ (Gabard et al., 2013; Yucel & Acar, 2016). As a result, courses or information about empathy-related techniques should be introduced in the curriculum, particularly during the second year of the physiotherapy course. CD training has been reported to help nursing students understand the patient experience and subsequently improve their ability to empathize (Jefferies et al., 2021). However, according to a study, systematically reviewing 23 studies investigating the effect of CD training on empathy levels in nursing students, CD was found to have little impact on empathy levels (Levett-Jones et al., 2019). In a study conducted by Lim and colleagues in 2011, the researchers investigated whether medical students' empathy changes when they assume the role of a patient. In this study, although the group that played the role showed an increase in empathy scores, similar to the current study, no significant difference was found compared to the control group (Lim et al., 2011). A study conducted on physiotherapy students reported that CD did not affect empathy skills among these students (Çınar et al., 2019). This was considered to be owing to the fact that the educational content is not focused more on communication skills, although the aim of the course was to teach both communication and empathy skills.It is also possible that although the students were aware of the potential complexity of a patient's situation, they only focused on the role-play and failed to empathize with the patient's situation. Additionally, questions focused on empathy skills, such as "how would you feel if you were in the patient's place" and "how would you feel if you were in the physiotherapist's place" are less addressed in this course, and they are mostly addressed in the context of communication skills. We believe that in the future, the course content should include these topics in order to measure students' empathy levels.

Stress acts as a stimulus for learning; however, excessive stress can hinder cognitive processes related to memory and learning and negatively affect academic outcomes (Gallasch et al., 2022; Jacob & Einstein, 2017; Judd et al., 2016; Macauley et al., 2018). In a cohort study conducted by Gallasch and colleagues in 2022 with 109 physiotherapy students, it was reported that students exhibited highly variable levels of stress and anxiety during their clinical placements and that as the levels increased, it affected their academic performance (Gallasch et al., 2022). Therefore, it is crucial to analyze information, such as clinical placement, and reduce stress and anxiety levels, especially among students who are new to practice, during physiotherapy applications requiring high performance. In a study conducted among physiotherapy students, similar to our study, students reported that they felt more prepared for clinical placements after they underwent peer-to-peer simulation training (Dalwood et al., 2018). The feeling of preparedness can be considered the reason for the stress- and anxiety-reducing effects of CD observed in our study.

CONCLUSIONS AND RECOMMENDATIONS

This study had some limitations. As only a one-semester student group was used in our study, the sample size was relatively small and the effect of this education on student performance during and after clinical practice could not be evaluated. The content of the course could not be fully established in terms of empathy skills. Additionally, physiotherapy students engage in clinical practice throughout their fourth (final) year. Therefore, it can be considered more appropriate to provide this education prior to the fourth year. However, our students also participate in a one-month clinical practice during their second and third years, as well as voluntary internships in between. Due to this, it was decided to conduct the research on communication self-efficacy before the students go for clinical practice in their second year. However, it is possible to further enhance this topic by measuring students'

communication self-efficacy and incorporating new training programs before the fourth year. In the current study, the communication self-efficacy of students upon reaching the fourth year has not been investigated. This constitutes another limitation of our study. Therefore, further studies considering these situations are required.

Physiotherapy students who participated in the CD-integrated communication skills course experienced a positive change in communication anxiety and confidence after attending the course, but no difference was found in their empathy skills. Pre-clinical placement course students' perceived levels of stress and anxiety were lower, and their motivation was higher than those who did not participate in the course. More research on this topic is required to fully understand the impact of CD-integrated communication skills training on physiotherapy students.

Declaration of Interest: The authors declare no conflicts of interest

Sources of Support: The authors received no financial support for the research, authorship, and/ or publication of this article.

***Conflict of Interest*:** The authors declare no conflicts of interest.

Author Contributions: Concept – NA, RA; Design- NA, RA; Supervision – NA, RA; Resources and Financial Support - NA, RA, ÖH; Materials – NA, RA, ÖH; Data Collection and/or Processing - NA, RA, ÖH; Analysis and/or Interpretation - NA, RA, ÖH; Literature Search - NA, RA, ÖH; Writing Manuscript – NA, ÖH; Critical Review – NA, RA, ÖH.

Explanations: None

Acknowledgments: The authors acknowledge all the physiotherapy students who voluntarily participated in the study.

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