Communication skills of professional physical therapists as assessed by physiotherapy students: A cross-sectional study

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RESUMEN

Objective: The main objective of this study was to analyse if physical therapy students could identify emotions using the categorization system of the therapist's verbal behaviour (SISC-CVT).

Methods: The principal variable was the verbal behaviour of the physiotherapist and was coded using Frojá-Parga's categorization system of the therapist's verbal behaviour (SISC-CVT). This system includes several different types of verbal behaviours: discriminative, evocative, reinforcement, punishment, informative, instructional, motivational. Recordings were performed during a first clinical session of seven different physiotherapists. The assessment tool (SISC-CVT) was applied by two physiotherapy students after viewing recordings of the sessions.

Results: Kappa values for inter-rater reliability were modest: very good (1), good (1), moderate (6), weak (7), and poor (2). The discriminative category was the most repeated with an average of 71.20 interventions per session followed by the reinforcement category with an average of 59.05 interventions per session. There was less frequency in the evocative category with an average of 4.4 interventions per session. The punitive category appeared twice for every first five clinical sessions.

Conclusions: Physiotherapy students could identify verbal behaviours using the SISC-CVT with moderate reliability and could identify differences between the observed physiotherapists. Of the eight categories included, three were the most frequently identified (discriminative, reinforcement, and informative). The implementation of this assessment tool could be an interesting strategy for learning communication skills. We encourage other researchers to continue exploring the verbal behaviour of physiotherapists.

Palabras clave: verbal behaviour, observational methodology, physiotherapy, communication skills.

INTRODUCTION

According to Bar et al. first impressions are formed in a very short space of time: about 40 milliseconds (Bar et al., 2006). Moreover, once first impressions are formed, they are difficult to change and thus have great robustness (Bar et al., 2006; Tongue, 2007). In fact, many attempts and interactions are needed to change a first impression (Bar et al., 2006; Tongue, 2007).

There are three aspects that physiotherapy students need to develop: 1) assessment skills; 2) technical skills for practical procedures; and 3) communication and management skills (Michels et al., 2012). They acquire practical skills through the integration of theorical, practical (Bugaj, Nikendei, 2016; Korpi et al., 2017), tacit, and situational knowledge in a socialization process (Korpi et al., 2017). According to the results of an expert committee, the acquisition of clinical skills includes three components: learning how to perform certain movements (procedural knowledge), why a procedure should be performed (underlying scientific knowledge), and the meaning of possible findings (clinical reasoning) (Michels et al., 2012).

During the first clinical session, the clinical interview has great potential for extracting information about the patient's problem (Kollhoff et al., 2017). In addition, the interview can establish a good rapport in the therapist-patient relationship; finally, this approach can inform and communicate the clinical results of the evaluation or evolution of the clinical problem.

According to Laerum et al., correct consultation requires the patient to have a perception that he/she has been treated seriously and professionally, that the language used by the clinician has been understandable, that the environment created is pleasant and calm, and finally, that the patient has received information regarding what he/she can receive as treatment (Lærum et al., 2006).

The communication skills of the physiotherapists and healthcare providers in general are a crucial part of their assistance. Indeed, some attempts have been promoted to improve them (Martin et al., 2013; Shahnazi et al., 2021; Wilkinson et al., 2003) including among medical students (Przymuszała et al., 2021; Talwalkar et al., 2021). When an undergraduate of physiotherapy is learning, they usually receive extensive training on diagnostic and therapeutic techniques, clinical reasoning, and how to extract information through a clinical interview. However, the communication skills are complicated to teach and train, and there is the need for focus (Jones et al., 1998; MacDonald-Wicks, Levett-Jones, 2012). Furthermore, not all universities in which physiotherapy is taught include training in communication skills (Parry, Brown, 2009).

The objective of physiotherapists in a first clinical session is to obtain a clinical diagnostic judgment through a semi-structured interview. Objective tests can be used to re-evaluate the diagnostic hypotheses, and patients are informed of these findings. Here, we authors hypothesize that the interview will be a useful tool for the students to learn communication skills through the analysis of the verbal commands that the physiotherapist uses at the first clinical session with their patients. Previous research has been done regarding the observation of a first clinical session in physiotherapy; however, the results discuss percentages of physiotherapist and patient verbal interventions, time dedicated to history, and time spent on advice/suggestions or restatement (Roberts et al., 2013).

The main objective of this study was to analyse the inter-rater reliability of physical therapy students to identify verbal behaviours using the categorization system of the therapist's verbal behaviour (SISC-CVT). A secondary objective was to analyse the physiotherapists' verbal behaviour.

METHODS

Study design

An observational, cross-sectional pilot study was conducted to assess the verbal behaviour of a sample of physiotherapists during the first clinical sessions by physiotherapy students. The design followed the international recommendations for Strengthening the Reporting of Observational Studies in Epidemiology (von Elm et al., 2008). Written informed consent was obtained from all participants before their inclusion. All participants received an explanation of the study

procedures, which were planned according to the ethical standards of the Declaration of Helsinki, and which had been approved by the ethics committee of the La Salle University Centre for Higher Education (CSEULS) (CSEULS-PI-133/2016).

Participants

Non-probabilistic sampling consisting of seven physiotherapist employees of the Instituto de Rehabilitación Funcional La Salle (Madrid). These were chosen to conduct the first 13 clinical sessions. All physiotherapists had studied at the CSEULS and were educated under a biopsychosocial model of physical therapy based on scientific evidence and focused on the patient. They had a MSc in physical therapy for the treatment of pain and had between three to four years of clinical experience.

Inclusion and exclusion criteria

Only physical therapists and IRF La Salle workers were included in this study. Exclusion criteria included all physiotherapists who had not studied at the CSEU La Salle.

Inclusion required that they had never had a previous session with the corresponding physiotherapist. The age and gender of the patients were not collected. Patients were excluded if they did had serious cognitive alterations that could deteriorate their verbal behaviour. We also excluded those with illnesses or behavioural disorders as manifested in the recording during the clinical interview. Finally, patients who did not accept the conditions of the study by rejecting informed consent were excluded.

Outcome Measure

Primary outcomes

The main variable used in this study was the verbal behaviour of the physiotherapist. This was specified in eight categories defined in the SISC-CVT through different types of behaviour: discriminative, evocative, reinforcement, punishment, informative, instructional, motivational, and other functions (Froján-Parga et al., 2008). This instrument has shown adequate validity and was used in the analysis of recordings (Virues-Ortega et al., 2011). A description of the different types of behaviour is summarized in Table 1 (Froján-Parga et al., 2008). We classified

different categories set out above into two types within the SISC-CVT category system: event and state. The event type categories (discriminative, evocative, reinforcement, punishment, and other functions) were evaluated by registering the number of times the behaviour appears during the session. In the state type categories (informative, instructional, motivational), the duration of the behaviour employed by the professional was registered. Therefore, they required delimitations at the beginning and at the end of the verbalization.

A functional analysis of which behaviours preceded or followed others was carried out. This variable was visually evaluated through graphic outputs provided by the Observer XT software.

The behaviours that preceded each other the most were evaluated using the timelines of the sessions with the highest inter-judge reliability index while considering the time of the session in which they occurred (Montaño-Fidalgo et al., 2011).

Procedures

Here, 13 first clinical sessions (four hours and fifty-seven minutes) were recorded between 04/12/2018 and 06/03/2019 for a total of seven different physiotherapists. Subsequent coding and analysis of the physiotherapist's verbal behaviour was done via Observer XT software version 13.0. The recording and coding team was composed of two physiotherapy students in the fourth grade (last year of the degree) who were trained in the use of SISC-CVT.

Data analysis

The data analysis was performed using the Statistical Package for the Social Sciences (SPSS 25.00, IBM Inc., USA). The data analysis used a confidence interval of 95% considering that all values had a p-value of less than 0.05 to be statistically significant.

The results were analysed using two methods: numerical and visual. These were both carried out using Observer XT software. The inter-judge reliability was calculated for all complete and codable recordings.

The concordance between the results used Cohen's kappa coefficient (κ) (Landis, Koch, 1977). This coefficient establishes the strength of agreement with

the following values: a) <0.00, no agreement; b) 0.00 a 0.20, slight; c) 0.21 to 0.40, fair; c) 0.41 to 0.60, moderate; d) 0.61 to 0.80, substantial; and e) 0.81 to 1 is perfect agreement.

The results of the event type categories coded are shown as the number of times that it occurs. The state type categories are presented as seconds of duration for each one.

RESULTS

The agreement percentages (AP) and κ coefficient resulted from a comparison of the records (Table 2). A tolerance window of one second was considered for the behaviours described by the students doing the coding. Five sessions were excluded including four for not having the recording of the complete interview. Recording was performed under mutual agreement of the researchers who considered it unrecordable due to a sound deficit.

Kappa values ranged from 0.20-0.84 (p < .01) where one of the observations was determined as very good (κ = 0.84, AP = 90%), another observation as good (κ = 0.77, AP = 84%), six observations with moderate values (κ = 0.45-0.53, AP = 57-64%), seven

Table 1. Categories of the Therapist's Verbal Behaviour Categorization System.

Category	Brief description
Discriminatory function	Verbalization of the therapist that leads to client behaviour (verbal or not) followed by reinforcement or punishment (event category)
Evocative function	Verbalization of the therapist that results in an emotional response manifested in the client accompanied by verbalization or not (event category)
Reinforcement function	Verbalization of the therapist showing approval, agreement, and/or acceptance of the behaviour issued by the client (event category)
Punishment function	Verbalization of the therapist that shows disapproval, rejection and/or non-acceptance of the behaviour issued by the client and/or that interrupts. This occurs although without presenting any nuance indicating approval, agreement, or acceptance (event category)
Information function	Verbalization of the therapist conveying technical or clinical knowledge to a non-expert (state category)
Instructional function	Verbalization of the therapist aimed at encouraging the emergence of future client behaviour outside the clinical context. The consequences do not have to be explicitly mentioned, but the steps of the action to be promoted must be described (state category)
Motivational function	Therapist's verbalizations that anticipate the positive or negative effects that the client's performance (whether such performance is explicitly mentioned in the therapist's verbalization) will have, is having, or has had on the clinical change (state category)
Others	Any therapist verbalization that cannot be included within the above categories (event category)

as weak (κ = 0.22-0.40, AP = 36-53%), and poor in the remaining two (κ = 0.1-0.2, AP = 22-37%); one was excluded because of its low rate.

Regarding the event type categories, the discriminative category was the most repeated with an average of 71.20 interventions per session followed by the reinforcement category with an average of 59.05 interventions per session. At the other extreme, we find an evocative category with an average of 4.4 interventions per session as well as punitive category that appeared twice for every five clinical sessions

(Figure 1). In addition, the informative type was the most often used by the subjects: It had an average duration of 375.05 seconds for each interview, which corresponds to an interval between 21.74% and 36.21% of the total time of the sessions. This prevailed in the final part of the interview and was followed by the instructional category with an average of 64.91 seconds per session. Finally, there is the motivational category with an average of only 3.34 seconds per interview (Figure 2).

Table 2. Agreement percentages and Cohen's kappa coefficient.

	AP (%)	κ	p-value
Ph 1 E2	53	0.40	.01
Ph 1 E3	52	0.40	.01
Ph 1 E3 P2	37	0.20	.01
Ph 2 E1 P1	90	0.84	.01
Ph 2 E1 P2	57	0.45	.01
Ph 3 P1	64	0.51	.01
Ph 4 E1 P1	61	0.48	.01
Ph 4 E2 P2	36	0.22	.01
Ph 4 E1 P2	47	0.35	.01
Ph 4 E2 P1	62	0.53	.01
Ph 5 E1	49	0.35	.01
Ph 5 E2 P1	84	0.77	.01
Ph 5 E2 P2	41	0.27	.01
Ph 6 E1 P1	64	0.53	.01
Ph 6 E1 P2	43	0.25	.01
Ph 7 E1 P1	61	0.48	.01
Ph 7 E1 P2 (excluded)	22	0.10	.22

Ph: physiotherapist; AP: Agreement percentages; k: Kappa coefficient; E: corresponds to the interview number within the entire content of the same subject; P1: It corresponds to the first part of an interview marked by the continuous recording capacity of the instrument; and P2: It corresponds to the second part of an interview marked by the continuous recording capacity of the instrument.

Figure 1. Mean of the number of interventions per session of the coded event type categories.
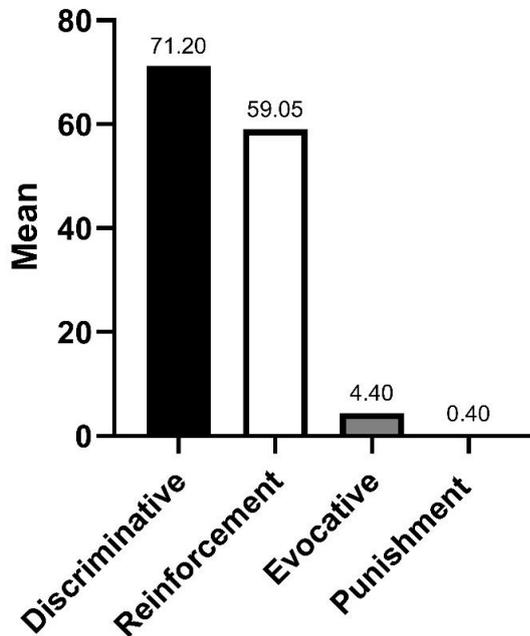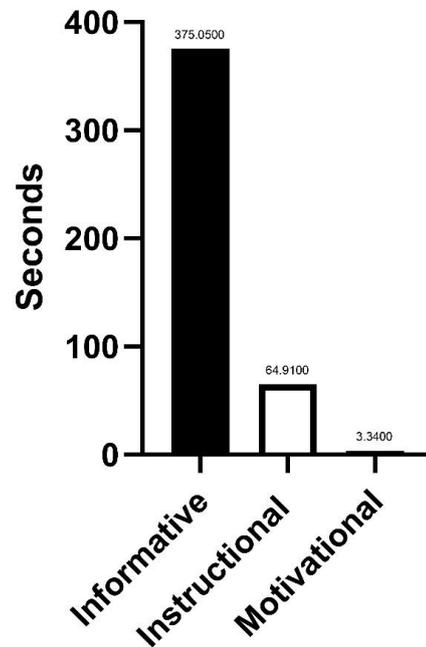

Figure 2. Duration measured per second of the coded state type categories.

DISCUSSION

It might be possible to register the verbal behaviour of physiotherapists using SISC-CVT although it was designed to be used with psychologists. Preliminary results show that physical therapy students could identify verbal behaviours. Of the eight categories included in the SISC-CVT, three of them were the most frequently coded (discriminative, reinforcement, and informative).

The assessors in this research were students, and it seems that students can extract information from the assessment of the first clinical sessions by observation; thus, this tool seems useful for the objective assessment of verbal behaviours. Our results suggest that different verbal behaviours are employed by physiotherapists in clinical practice. However, our reliability data inspires us to continue in the pursuit of progressing in this methodology. The students may need more training in communication skills to perform a correct assessment and reach a greater reliability and obtain similar results among them.

Verbal behaviour patterns are found in psychologists and physical education teachers among others (Froján-Parga et al., 2011; García-Fariña et al.,

2018; Virues-Ortega et al., 2011). However, no previous verbal behaviour patterns have been described among physiotherapists. Several of our outcomes pointed to the existence of some similar verbal commands between physiotherapist and psychologists who practice cognitive-behavioural therapy although some variability was found among the different physiotherapists. Considering event-type categories, our results are coincident with Froján-Parga et al. who obtained more discriminative followed by reinforcement-type responses (Froján-Parga et al., 2011). Regarding state-type categories, the most common were informative and instructional responses. As Froján-Parga reported, this is a moment to explain their therapeutic framework and deal with patients' expectations (Froján-Parga et al., 2011). Our results suggest that students could identify a verbal pattern. Some categories were more frequently identified than others; however, a generalized conclusion about verbal patterns in the physiotherapist cannot be drawn due to the students' inherent inexperience.

Importantly, the students could identify a variety of verbal commands. This suggests that the SISC-CVT

tool could be used in the context of training and education of communication skills with the technology support of Observer XT software. The extraction of verbal behaviours out of the first session through observations may be an interesting task for physiotherapy students to perform during their curriculum.

The communicative skills can be learned, trained, and improved via practice (Soundy et al., 2021). It is crucial to support and facilitate these skills over the short-term as students deal with patients in their professional practice. Moreover, better communication skills can lead to better clinical results including better adherence to treatment (Lonsdale et al., 2017; Vargas-De La Cruz et al., 2018).

Better communication skills positively influence healthcare environments over the health results of the patients, and improved communication is a common goal (Curtis et al., 2013; Liaw et al., 2020; Tavakoly Sany et al., 2020). To achieve this aim, we need to work on training of verbal commands in different situations and thus improve verbal behaviours and skills. Several tools and strategies have been tested such as e-learning, virtual reality, and direct observation (Kogan et al., 2009; Liaw et al., 2020; Shahnazi et al., 2021; Soundy et al., 2021; Vargas-De La Cruz et al., 2018; Virues-Ortega et al., 2011).

This study introduces the assessment of physiotherapists' verbal behaviour as an education strategy to learn better communication skills during undergraduate physiotherapy education. The assessment of verbal behaviours through the identification of verbal commands is critical to learning communication skills while implementing them in clinical environments at the patient-physiotherapist interaction. Thus, this is an interesting approach to include as part of a project-based learning approach (Stentoft, 2019).

Here, the students analysed a series of real scenarios of physiotherapy practice to extract the verbal commands used by professionals. This permits the students to realize and be familiarized with the proper language and verbal constructions used in a clinical setting (via observation and assessment of those recorded sessions). It is difficult for the health students to behave and respond in certain clinical situations with real patients. That is why the activity we propose here might be critical for undergraduate students who have not yet made contact with patients or are new. This practice shows the students how to verbally react to patient questions or demands, thus leading to learning that can improve the therapeutic relationship with the physiotherapist (Miciak et al., 2018).

We propose a sequence for communication skills learning. An initial classroom teaching or lecture should be followed by an activity based on observations of the physiotherapist-patient interactions as previously explained (and herein assessed) followed by a final role-playing exercise (Mumtaz, Zahra, 2016). In this way students are prepared to cope with their clinical practices and real-life patients/situations. Finally, at the clinical setting, the clinical tutors act as a role-model for the students; however, a previous learning protocol in which the students received enough knowledge about communication skills will permit them to critically evaluate observations and hence adopt or reject role-modelled behaviour and attitudes (Douglas et al., 2021). This reduces the students' stress, increases their self-confidence, and improves their literacy (Botelho et al., 2020) when attending their clinical practices.

Limitations

Limitations include a non-probabilistic sample in this pilot study. The inclusion of undergraduate students limits the possibility to draw conclusions about a specific verbal behaviour pattern of physiotherapists. Research with postgraduate physiotherapists as assessors is needed to ensure better coding of the sessions; hopefully, the kappa values could approach the Froján-Parga standards (between 0.68 and 0.84). The proposed assessment with the SISC-CVT, might not obtain the same results regarding the kappa scores if it was performed by younger students (first-second year); thus, this will have to be tested. Another limitation is a lack of data about the patients seen by the physiotherapists.

Clinical and learning implications

Improved physiotherapist skills include not only clinical skills but also communication skills. These are a crucial part of the patients' assistance. We present

here a way of assessing these skills that will have clinical repercussions. Recording the sessions will lead to feedback for the professional. It is also a learning tool for the assessor himself/herself.

Changing the verbal behaviour of physiotherapists can be targeted during the formation period to maximize skills and improve clinical results. A cornerstone of improving physiotherapist skills is to record some sessions and analyse them: This should ideally be done during the last years of the education after some lectures, contents, or activities about communication skills have been reviewed.

CONCLUSION

Physiotherapy students analysed the physiotherapist's verbal behaviour using the SISC-CVT and Observer XT software with a moderate reliability. In addition, they identified eight categories included in the SISC-CVT—these were the three most frequently used by the physiotherapists (discriminative, reinforcement, and informative). There were differences in the verbal behaviour of the seven physiotherapists assessed here. The implementation of this assessment system could be an interesting strategy for communication skills learning. This paper presents some preliminary results from a different approach and can research the physiotherapists' verbal behaviour. More research is needed about this topic.

HIGHLIGHTS

➢ Physiotherapy students could reliably identify verbal behaviours in physiotherapists' first session.

➢ Discriminative, reinforcing, and informative verbal behaviours were more frequently identified among physiotherapists using a biobehavioural approach.

➢ The task of identifying verbal behaviours could contribute to the physiotherapy students learning communication skills.

➢ The observer XT software is a useful technology for the assessment of verbal responses when combined with a coding system like SISC-CVT

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