

# Patient experiences of a student-led physiotherapy neurological rehabilitation clinic: a mixed methods study.

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# Patient experiences of a student-led physiotherapy neurological rehabilitation clinic: a mixed methods study

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## Abstract

**Background:** Student-led clinics (SLCs) are becoming increasingly prevalent across allied health professions curricula; however, little is known about patient experiences of these clinics. This study explored the experiences of patients attending a physiotherapy neurological rehabilitation SLC. **Methods:** This study utilized a sequential explanatory mixed methods approach focusing on people with neurological conditions who voluntarily attended a SLC of 12 weeks duration. The data collection process was initiated following the conclusion of the final SLC session. The methodology employed a survey followed by semi-structured interviews to explore emerging areas in more depth. Interview data were descriptively analyzed, and reflexive thematic analysis guided the analysis of the interview data. **Results:** Twelve participants completed the survey, and seven also participated in a semi-structured

interview. Overall, patients were very satisfied with the service received at the SLC. Three themes were identified from the interview data: patients' perceptions of the benefits and impact of the SLC; the importance of individualized care, and patients' preferences for SLC delivery. **Discussion:** The findings of this study indicate that participants perceived this SLC positively in relation to care quality, student skills, and individualized rehabilitation. This suggests that SLCs of this type may potentially be acceptable and applicable across different settings, student groups, and possibly for those living with other health conditions. Future research should investigate patient experiences of SLCs with larger sample sizes, different student cohorts, stages, and patient groups and establish the effectiveness of patient clinical outcomes.

**Keywords:** patients, experiences, student-led clinic, physiotherapy, neurological rehabilitation.

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## Background

Worldwide, neurological conditions are a significant contributor to the burden of diseases and rank as the second most prevalent cause of mortality.<sup>1</sup> Neurological conditions encompass a wide range of diseases and disorders<sup>2</sup> and contribute to 7.1% of the total global burden of disease measured in disability-adjusted life years for all ages and conditions.<sup>3</sup> In the United Kingdom (UK), it is estimated that one in six people live with one or more neurological conditions.<sup>2</sup> Rehabilitation for people living with neurological conditions is vital to maintain and improve function and quality of life,<sup>4</sup>

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and for secondary prevention.<sup>5</sup> The World Health Organization (WHO) Rehabilitation 2030 strategy underscores rehabilitation as an essential service that should be accessible to all individuals throughout the lifespan.<sup>6</sup> However, a recent scoping review<sup>7</sup> identified that there is a global deficit in availability of rehabilitation services with demand outstripping supply. Individual access to rehabilitation services is limited, with a high proportion of people with neurological conditions reporting unmet need,<sup>8</sup> particularly those living in rural locations.<sup>9</sup>

Student-led clinics (SLCs) are healthcare services which are primarily led by students under the supervision of registered health professionals<sup>10</sup> and have emerged as a potential solution to address such gaps in healthcare delivery.<sup>11</sup> While traditionally established within medical and nursing curricula,<sup>12</sup> SLCs are expanding across other allied health professions, including physiotherapy.<sup>13</sup>

SLCs serve various purposes, including providing practice-based learning experiences,<sup>14</sup> developing students' clinical skills,<sup>15,16</sup> and benefiting communities through the provision of healthcare services.<sup>17</sup> These clinics align with the United Nations' Sustainable Development Goals (SDGs), particularly SDG 3 (Good Health and Well-being), SDG 4 (Quality Education), and SDG 10 (Reduced Inequalities).<sup>18</sup> SLCs have been shown to provide quality healthcare services,<sup>19</sup> improve education for healthcare professions students in aspects such as development and consolidation of clinical skills, leadership and teamworking,<sup>19,20,21</sup> and address healthcare inequalities by providing cost-effective care.<sup>22</sup> Despite the growing literature on student perspectives and experiences within SLCs,<sup>16,20,21</sup> there is a paucity of research exploring patient experiences, particularly in the context of neurological rehabilitation. Existing studies evaluating patient outcomes in neurological SLCs have shown promising results, indicating improved functional outcomes<sup>22,23</sup> and high levels of patient satisfaction.<sup>24</sup> However, it is suggested that the views of people with neurological conditions are under-represented in respect to health care needs in general.<sup>25</sup> Consequently, there is a need to explore patient experiences with neurological SLCs to ensure the provision of high-quality, patient-centered care.

This study explored patients' experiences of a physiotherapy neurological rehabilitation SLC. Through a mixed methods approach, including surveys and semi-structured interviews, this study explored the patient perspective within the context of SLCs, to inform development of future practice to optimize SLC delivery.

## Methods

### Setting

Led by senior students from the undergraduate [BSc (Hons) Physiotherapy] and graduate entry [MSc (pre-registration)] programs, the neurological

rehabilitation SLC at Robert Gordon University (RGU) is an integral part of the curriculum. The SLC spans twelve weeks and supports 16 patients per week accommodating eight patients per one-hour session. Patients are enrolled to attend the full 12-week SLC block. Students are required to participate for a minimum of six consecutive sessions to ensure consistency of care. Under the supervision of a qualified physiotherapist, students lead the SLC and are responsible for tasks including assessment, clinical intervention and record-keeping. The SLC supports people with a wide range of functional abilities and uses a circuit-based model to ensure an individualized approach to rehabilitation.

### Study design

This was a mixed methods explanatory sequential study employing a survey followed by in-depth interviews. Full ethical approval was granted by the RGU School of Health Sciences Research Ethics Committee Reference number: SHS/20/31. Priority, implementation, and integration were considered as part of the study design.<sup>26</sup> Priority was given to the qualitative aspect of the design to generate in-depth findings which was implemented to explore the reasons for the survey responses in more detail. Integration of the quantitative and qualitative stages occurred at two junctures in the study; firstly, after the survey analysis, to guide development of the semi-structured interview guide, and secondly during interpretation and reporting of the findings of the study as a whole.

### Participants and Recruitment

Patients attending the SLC were recruited using convenience sampling. Recruitment took the form of a letter of invitation, a poster at the SLC venue, and in-person information sessions with the lead researcher. Patients who were attending the SLC and who were able to provide informed consent were eligible for inclusion. Those who were unable to participate in the interview in English were ineligible to participate in the study due to lack of funding for translation services.

### Data Collection

#### Stage One: Patient Survey

A survey, based on the one published by Niwa and Maclellan<sup>19</sup> which investigated patient experiences of a physiotherapy SLC, was adapted according to the aims of the study. Modifications to the survey consisted of minor adjustments to the phrasing and structure of the questions. The survey focused on key areas such as supervision, timing, quality of

treatment, and setting. To best support the needs of the participants and based on feedback from the Study Steering Group, the survey consisted of questions using Likert scales for responses, with one open question at the end of the survey. The survey was piloted with participants from the RGU Volunteer Patient program, and minor updates based on feedback were made to the survey before being used in the study.

The survey was sent at the end of the 12-week SLC block to all participants who provided informed consent. Print or electronic formats (Jisc Online Surveys; GDPR compliant) were issued according to the individual choice of the patient. Participants completed the survey at the end of SLC sessions and all completed paper copies were returned to the researcher at the site. No participants elected to complete an online version of the survey.

### **Stage Two: Semi-Structured Individual Interviews**

Purposive sampling, based on age, gender, and health condition, was used to select participants to take part in semi-structured interviews from those who had completed the survey and consented to be considered for interview. A topic guide with open questions was developed to address the research aim based on the findings of the survey and the evidence base on patient satisfaction with SLCs. The topic guide was piloted with two patients to test the clarity and number of questions with minor amendments being made prior to use in the study. The interviews were conducted by a researcher (ES) who was not known to the participants, in a private room on university premises arranged at a time convenient for each participant. Participants were able to attend the interview with a spouse or caregiver if they wanted. The interviews were recorded on a password protected GDPR compliant audio recording device with verbal consent recorded separately. The researcher then promptly uploaded the recording to a secure GDPR-compliant University platform and deleted it from the audio recording device. Taking care to ensure anonymity was preserved, files were deidentified with codes assigned to participants prior to verbatim transcription being conducted.

### **Data Analysis**

#### **Patient Satisfaction Survey**

Data from anonymized paper surveys were inputted manually into Microsoft Excel, and due to the small sample size, descriptive statistics were calculated.

There were no responses to the open-ended survey question.

### **Individual Interviews**

The transcribed interview data were analyzed using Braun and Clarke's<sup>27</sup> reflexive thematic analysis. The lead researcher (DW) familiarized themselves with the interview data, scrutinizing transcripts line by line to create initial codes in line with the study's aim. Additional codes were generated as new concepts were identified, resulting in a total of 72 codes labelled on the transcripts. These codes were then refined and collated into subthemes and finally themes. A second researcher (ES) was involved at all stages of this process to support transparency and minimize bias.

Lincoln and Guba's<sup>28</sup> four criteria (credibility, transferability, dependability, and confirmability) for trustworthiness of qualitative research underpinned this study. Credibility was enhanced by the lead researcher's (DW) involvement in creating the SLC and working closely with the students. However, acknowledging the potential bias resulting from this involvement, efforts were made to ensure confirmability and reduce bias by conducting member checks with participants. Analyst triangulation, involved regular discussions with a second researcher (ES), to enhance the credibility of the findings. To improve dependability, detailed documentation of discussions and decisions was maintained.<sup>29</sup> Thorough analysis of the data supported transferability of the findings. Reflexivity was sustained by ensuring the inclusion of pertinent codes and detailed documentation regarding theme development.<sup>27</sup>

### **Results**

Twelve participants (five males, seven females; mean age 56 years) from the SLC population (n=16) representing a response rate of 75%, provided informed consent and participated in the survey. Seven participants who completed the survey also took part in the semi-structured interviews. The mean interview duration was 26 minutes (range 21 to 37 minutes). Five participants had acquired brain injury, four had suffered a cerebrovascular accident (CVA), two had multiple sclerosis, and one had Parkinson's disease. Functional levels of the participants varied from being non-ambulant and wheelchair-dependent to being independently mobile. Participants experienced a range of cognitive and communication challenges which ranged from mild symptoms to severe impairments



requiring the support of caregivers. Participants had attended a median of 11 of the 12 available SLC sessions (range 10-12). The sample had a range of individuals with varying functional levels and cognition and communication issues. Participants recruited (n=12) were not materially different to non-responders (n=4) in terms of gender (two males and two females), age (mean age 56 years) and functional characteristics, however given the varying nature of neurological conditions and the small sample size recruited, it is not possible to consider all variables in terms of subset analysis.

### Survey Findings

The 12 participants strongly agreed that they were completely satisfied with the services they received from the SLC and that they would return for future sessions. In all survey items, the median response was “strongly agree”, indicating a very high level of satisfaction with the SLC experience. The survey items that were rated most highly related to the time students spent with the patients [strongly agree n=10 (83%); agree n=2 (17%)]; the respect with which the patients were treated [strongly agree n=11 (92%); agree n=1 (8%)]; the extent to which the patients were listened to [strongly agree n=12 (100%)] and their concerns were addressed [strongly agree n=11 (92%); agree n=1 (8%)]. The only survey response that had responses other than “agree” and “strongly agree” was related to the students who advised patients on ways to avoid future problems, to which the participants responded, “neither agree nor disagree” [n=2 (17%)], “agree” [n=4 (34%)] and “strongly agree” [n=7(58%)], indicating lower satisfaction in this domain.

### Semi-Structured Interviews

Analysis of the data resulted in three themes: 1) Patients' perceptions of the benefits and impact of the SLC; 2) The importance of individualized care for patients; and 3) Patient preferences for SLC delivery.

#### Theme One: Patients' Perceptions of the Benefits and Impact of the SLC

Participants reported the benefits and impact they attributed to attending the SLC. Subthemes included: access to student skills and expertise; additional benefit of the supervisor's role; motivation and social support, and functional and well-being outcomes.

The participants expressed clear satisfaction with the rehabilitation received at the SLC, attributing it

to the high level of skill and professionalism of the students. Participants exhibited confidence in the students' ability to deliver exercise and progress interventions throughout SLC sessions, and many expressed gratitude for the opportunity to access rehabilitation services. One participant specifically referred to access to “expert” assistance, highlighting the perceived high standard of care at the SLC. In addition, the education component provided by the students during the SLC sessions was highlighted as very beneficial in supporting rehabilitation and was welcomed by many participants.

*“I found the individual students really knowledgeable, really well set up to help us achieve our goals... I'm really impressed actually...” [P1]*

Most participants perceived the supervision in the SLC to be effective and helpful—but not intrusive and considered that the supervisors were using their experience to assist the students and contribute to the supportive atmosphere and spirit of the SLC. In general, participants perceived that the SLC supervisor improved student interactions, interventions, and the overall service provided to patients attending the SLC.

*“The lady [supervisor] in charge was excellent. She would come along and correct them or suggest another way. We always knew she was there. .... the students were obviously learning from the lady in charge as well. I was too...” [P6].*

Several participants mentioned being motivated to attend the SLC due to the objective measurement and reporting of their progress. Being part of a group with the opportunity to access social support was universally perceived by the participants as a motivator. It was evident that some participants perceived that attending the SLC had a mutual benefit for patients and students: it aided in their rehabilitation whilst contributing to the development of the students' skills.

Participants frequently reported positive outcomes of attending the SLC in terms of function and well-being, with some specifically noting outcomes such as improved strength, walking ability and mental health. One participant felt that their goal of improving their fitness had been achieved and this had resulted in an overall increase in general function.

*“It [the SLC] makes you feel a lot better mentally and physically as well. I think my mental health has improved. Real benefit...” [P7]*

### Theme Two: Individualized Care for Patients

Participants reported the individualized care they experienced when attending the SLC. This theme comprised the subthemes of an individualized approach based on patients’ goals, and consistency of contact.

Receiving individualized, person-centered care at the SLC, where the focus was on setting and achieving mutually agreed goals for patients, was a key aspect perceived as useful by participants. They reported that the circuit-based nature of the SLC improved the individualized approach to treatment. One patient questioned how achievable their self-identified goals were, but there was general recognition from participants that the students were aware of the potential impact of exercise on an individual’s potential for progression or change in function.

*“Yeah, well it’s [the SLC] probably suited to everybody. Everybody’s got different needs and different things that they are able to do better than others. So like I say, you’ve got to try and accommodate everyone... play to their strengths... to get the most out of the session.” [P5]*

Participants perceived that the ability to attend the SLC consistently for a prolonged period of time and interact with the same students allowed the development of relationships with the students with whom they worked; an experience that participants noted was of value to them in their rehabilitation. Some participants reported that the development of this therapeutic relationship allowed them to develop trust in being able to be open and honest with students about their challenges. Participants valued the provision of home exercise programs, noting that this enabled them to develop healthy exercise behaviors and for them to be active partners in their rehabilitation.

*“That really hit home, how well organized it [the SLC] is to achieve goals. You really got a lot out of it being able to take something away from it and being able to do it at home.....Definitely that feels good, it put the onus back on us...” [P1]*

### Theme Three: Patients’ Preferences for SLC Delivery

Patient preferences was a theme in which participants expressed their views on positive organizational aspects of SLC delivery and aspects that could be improved. This theme included subthemes relating to methods of information-sharing, session duration and timing, and flexibility of attendance.

Participants had varying opinions on the effectiveness of information exchange methods. Although some participants found student-led information on aspects such as exercise programs highly effective, others believed that significant improvements were necessary. The responses indicated various needs among the participants, highlighting instances where certain individuals, such as those with short-term memory difficulties, may have required specific methods for information-sharing that were not consistently met. Those who were less content with the dissemination of information expressed a preference for written information, occasionally supplemented by electronic means such as emails, for better follow-up and to aid recall. Furthermore, some participants remarked on the use of medical terminology or jargon by students during communication. Naturally, this was seen as an area where feedback could be provided to students, allowing them to improve their communication skills and adopt more suitable approaches during sessions.

*“... verbal information that you get is good , but think written down or some kind of handout could maybe add on what that is actually doing, but just the exercises so that you can see what you’re supposed to be doing.... A reminder of how you’re supposed to be doing [them] that day as well...” [P2]*

The duration and timing of the SLC sessions were aspects that participants frequently discussed. Most participants indicated that the length of the individual SLC session was optimal at one hour, giving the ability to achieve the session’s goals and to progress, with only one participant commenting that the session was too long. As a group, participants expressed that while the 12-week SLC block was sufficient to achieve their goals, they would appreciate a longer duration beyond 12 weeks. Many participants indicated that SLC was their only access to a rehabilitation service.

*“So yeah, you’ve got to a certain point and then you’ve had to stop....” [P4]*

Flexibility of attendance was an aspect raised by some participants with respect to the desire to have more choice of class times. Some participants indicated that they would appreciate the ability to “book into” slots on a weekly basis rather than having a fixed and allocated time across the SLC block. These views primarily came from participants in the younger age range of the study cohort, indicating that perhaps more flexibility is required for those of working age or with caring responsibilities.

*“Yeah, the timing is not very good for your other commitments.... Losing that [choice of SLC attendance times] is a real loss of that flexibility.”*  
[P1]

## Discussion

The aim of this study was to investigate patients’ satisfaction with a neurological rehabilitation SLC. The findings of this study add to the limited evidence base in relation to patient satisfaction with SLCs overall.<sup>19,30</sup>

This study has established that patients attending this neurological rehabilitation SLC have a high level of satisfaction. Using quantitative and qualitative methods to explore the multifaceted nature of satisfaction,<sup>31</sup> the factors which contribute to and reasons for patient satisfaction have been explored.

A key finding related to the perceived positive benefits and impact for patients from attending the SLC was the quality of care received. These findings are consistent with previous research on patient satisfaction with physiotherapy SLCs by Forbes and Nolan<sup>24</sup> and they further add to the body of knowledge that SLCs can provide effective and high-quality care to patients attending physiotherapy SLCs. The finding that patients perceived benefit to their level of function from the level of skill and professionalism of the students supports previous research evaluating patient outcomes from a range of different SLCs<sup>32</sup> and in particular physiotherapy SLCs<sup>22,23</sup> where significant functional improvements were reported for those with neurological conditions.

The findings indicate that patients who were satisfied with the SLC service attributed safe and effective supervision to the improved overall quality of care provided, which is consistent with the findings of a study of an outpatient

physiotherapy SLC by Forbes and Nolan.<sup>24</sup> Furthermore, the supervisor to student ratio in this SLC (1:6) was lower than usual in traditional clinical practice, which typically ranges from one to one, up to one to four.<sup>33</sup> This ratio did not appear to impact the quality of service provided to those accessing the SLC. However, it must be recognized that the SLC in this study was led by senior students who had a variety of clinical and placement experiences to draw upon, which would not be the case with less experienced students.

Participants felt that they received high-quality person-centered care related to their own goals. This concept of individualized, person-centered care was, according to the participants in this study, underpinned by good communication, relationship building and the development of trust. Effective communication underpins a positive therapeutic relationship<sup>34,35</sup> which is strongly linked to high levels of patient satisfaction,<sup>24</sup> as seen in this study. In addition, participants valued the consistency of interaction that facilitated the development of this person-centered approach, allowing the development of trust. This contrasts with the dissatisfaction of patients with a physiotherapy SLC in a study by Forbes,<sup>30</sup> which in that study arose from inconsistent care and lack of effective communication suggesting that consistent interactions are more likely to foster better levels of satisfaction.

The participants welcomed the opportunity to work in partnership with the students in the SLC to define and achieve their goals. This is an approach advocated by the principles of the Scottish Government's rehabilitation framework<sup>36</sup> which advocates for shared decision-making to be at the heart of all rehabilitation approaches and is supported by research by Rose et al.<sup>37</sup> Furthermore, several participants positively commented on the education that students provided regarding general health and the self-management approach adopted through the provision of home exercise programs as beneficial. These findings are supported by research by Kent, Marting and Keating<sup>38</sup> who found that students in an interprofessional SLC were highly effective in delivering self-management interventions to people with long-term conditions, indicating that students in SLCs, supported by consistent and frequent interactions with patients, are well placed to offer self-management strategies as a core part of rehabilitation.

Information provision for patients was an aspect that received mixed feedback in this study. People with neurological conditions experience a diverse range of signs and symptoms that can affect cognition, memory, and communication, which requires a personalized approach<sup>25</sup> and particular attention must be paid to the provision of accessible information and follow-up of home exercise programs.<sup>39</sup> These findings highlight the need for enhanced preparation of students' induction for neurological SLCs, as well as the provision of additional support for students when communicating information and providing follow-up to patients.

Consistent with the findings of the SLC physiotherapy studies by Niwa and MacLellan<sup>19</sup> and Forbes and Nolan,<sup>24</sup> there was a clear recognition among participants that they played a dual role in the SLC: one as a recipient of rehabilitation and another as a facilitator of student learning. These findings support the mutual benefit of SLCs for both patients and students. Overall, participants expressed gratitude for the opportunity to access rehabilitation services, and many reported that this was their only access to such services. This is consistent with the findings of a study of patients with neurological conditions, which identified significant unmet needs for physical rehabilitation.<sup>40</sup> These collective findings indicate the potential of SLCs in providing high-quality rehabilitation to support people with unmet needs.

### Limitations

Although every effort was made to minimize limitations in this study, aspects that impact the transferability of the findings must be acknowledged. The participants in this study were self-selecting, and as such, can only represent the views of those interviewed. It should be noted that the opinions of those who chose not to participate (n=4, 25% of the population) may be different and therefore not fully considered as part of this study. Responder bias is therefore acknowledged as a

possible limitation of this study, however the sampling technique did aim to diversify the range of opinions available. Whilst the survey was based on one previously used in the literature, patient experiences encompass many domains<sup>41</sup> and there may have been aspects that were not explored in detail. Considering that individuals with neurological conditions can experience challenges with cognition, steps were taken to limit the extent of questioning imposed on them to prevent undue stress. It is acknowledged that this approach could potentially constrain the breadth and depth of the study findings however as an under-researched population with complex needs<sup>25</sup> this method was deemed to be the most appropriate to maximize opportunity for inclusion and participation. Conducted at one SLC site with a small sample size, it is acknowledged that the transferability of the findings of this study may be limited, nonetheless this study provides important initial findings for an under-represented population in a novel area of research.

### Conclusions

This study explored patients' experiences within a physiotherapy neurological rehabilitation SLC, with the aim of expanding the understanding of patients as recipients of rehabilitation in this setting. Using a mixed methods approach, the findings established a high level of satisfaction among this patient population. Positive impacts were identified in relation to quality of care, the level of skill of the students, and the individualized approach to rehabilitation, highlighting the perceived standards of care delivered in the SLC and the potential for these findings to be transferred to other settings, professional groups, and for those living with different conditions. Future research should explore patient experiences with larger sample sizes, different cohorts and stages of students in SLCs, as well as the experiences of different group of patients, and establish effectiveness in terms of clinical outcomes for patients accessing SLCs.

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