Examining the impact of prescribing medication on the role identity of physiotherapists – a mixed methods study

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Declaration

I certify that this work has not been accepted in substance for any degree and is not concurrently being submitted for any degree other than that of Doctor of Philosophy being studied at the Universities of Greenwich and Kent. I also declare that this work is the result of my own investigations except where otherwise identified by references and that I have not plagiarised the work of others.

Student Signature

Name Date

Supervisor Signature

Name Date

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Abstract

Introduction - There is a paucity of literature regarding the impact and processes of role identity change when physiotherapists undertake further education to become non-medical prescribers.

Aims – 1 To develop a substantive theory of role identity change for physiotherapists becoming prescribers.2 To assess the credibility of the theory within a wider sample of physiotherapists3 To determine how prescribing medication changes the viewpoints of prescribing physiotherapists

Methods - The thesis presents an exploratory sequential QUAL/QUAN mixed methods study consisting of three phases. **Phase 1** used constructivist grounded theory, interviewing a range of stakeholder groups, members of the public, and physiotherapists. Interviews were analysed using the constant comparison method. **Phase 2** developed a bespoke questionnaire using source material from interview data collected in phase 1 organised according to emergent categories from theoretical coding applied to focused coding. **Phase 3** circulated the finalised questionnaire with a larger sample group of physiotherapists, with results analysed using descriptive statistics, factor analysis and inferential statistics to assess differences between defined groups of physiotherapists

Results - **Phase 1** developed key categories informing role identity change in physiotherapists. **Phase 2** developed a bespoke survey, Cronbach $\alpha = 0.833$. **Phase 3** revealed support for the substantive theory of role change via factor analysis. Kruskal–Wallis applied to groupings of physiotherapists revealed significant differences between prescribers and non – prescribers. . Key differences revealed differences between activity for prescribers versus non prescribers ($\rho<0.005$), frustration concerning current restrictions to prescribing for physiotherapists ($\rho<0.001$), and widespread support for the introduction of basic pharmacology in pre-registration programmes.

Discussion – Support for the theory of role identity change adds knowledge to the profession in awareness of challenges faced by prospective non-medical prescribers

Tables

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Glossary

Abbreviation	Definition
ACP	Advanced Clinical Practitioner
AHP	Allied Health Professional
ANP	Advanced Nurse Practitioner
BDA	British Dietetic Association
BNF	British National Formulary
CD	Controlled Drugs
CGT	Constructivist Grounded Theory
CHM	Commission on Human Medicines
CINAHL	Cumulative Index to Nursing & Allied Health Literature.
CMP	Clinical Management Plan
CSP	Chartered Society of Physiotherapy
DHSC	Department of Health and Social Care
DHSS	Department of Health and Social Security
ENP	Emergency Nurse Practitioners
EU	Europe
EUICE	Emory University Internship Clinical Evaluation
FCP	First Contact Physiotherapist
FIFA	Fédération Internationale de Football Association
FOI	Freedom of Information
GDPR	General Data Protection Regulation
GMC	General Medical Council
GP	General Practitioner
GPhC	General Pharmaceutical Council
GT	Grounded Theory
HCA	Healthcare Assistance
HCP	Healthcare Professional
HCPC	Health and Care Professions Council
HEE	Health Education England
HMSO	His Majesty's Stationery Office
IBM	(International Business Machines Corporation
ICU	Intensive Care Unit
IP	Independent Prescriber
JBI	Joanna Briggs Institute
MBI	Medical Burnout Inventory
MCSP	Member of Chartered Society of Physiotherapy

MM	Mixed Methods
MMAT	Mixed Methods Appraisal Tool
MS	Microsoft
MSK	Musculoskeletal
MSOP	Medway School of Pharmacy
NHS	National Health Service
NHSE	National Health Service England
NI	Northern Ireland
NIH	National Institute of Health
NIV	New International Version
NMC	Nursing and Midwifery Council
NMP	Non-Medical Prescriber
NZ	New Zealand
OT	Occupational Therapy(ist)
PCA	Principal Component Analysis
PICO	Problem, Intervention, Comparison, Outcome
PIQ	Professional Identity Questionnaire
PSD	Patient Specific Direction
QOF	Quality and Outcomes Framework
QR	Quick Response
QUAL	Qualitative
QUAN	Quantitative
RCT	Random Controlled Trial
RN	Registered Nurse
RPS	Royal Pharmaceutical Society of Great Britain
SP	Supplementary Prescriber
SPSS	Statistical Package for Social Sciences
UG	Undergraduate
USP	Unique Selling Point
WCPT	World Confederation of Physical Therapy

Contents

Chapter 1 Introduction

1.1 Introduction

This thesis will examine what happens to physiotherapists when they undertake further education and become prescribers of medication. The thesis incorporates a mixed methods exploratory sequential approach, seeking to outline a theory of role identity development for physiotherapists becoming prescribers This will enable development of a tool to assess the validity of the theory, and to test the application of this tool with the wider physiotherapy profession in the United Kingdom.

This chapter will define the accepted understanding of the term "physiotherapy". This will be expanded by discussing the historical development of the profession, from its origins in Sweden to the establishment of the Chartered Society of Physiotherapy here in the United Kingdom. The traditional scope of practice of physiotherapy will be discussed in relation to prescribing of medication, alongside the interaction that the profession has had with medication administration, and the consequent development of the relationship with medication to include prescribing. Due to the apparent limitation of the traditional scope of practice of physiotherapy to physical measures of health treatment, the concept of role identity will be introduced alongside an argument that more is needed to understand the professional role identity of physiotherapy.

1.2 Physiotherapy – a historical perspective

Historically, physiotherapy has had its origins in physical therapies. Ottoson (2016) provided an extremely useful overview of the complex history of the profession giving insight into the origins of physiotherapy in Sweden in the mid nineteenth century. He presents the view that "Diagnoses were based on physical examinations and patient case histories with treatment administered through detailed individual prescriptions of movements and manipulations" (p298) adding that physiotherapy initially was known most commonly as remedial gymnastics. The focus for physiotherapists of the day was on physical management of disability or illness. Ottoson highlights the apparent ignorance, or what he terms a "historical amnesia", challenging the commonly held version of the history of physiotherapy that it began towards the end of the 19th Century and beginning of the 20th Century. A development that in the United Kingdom led to the formation of the Royal Society of Masseuse, membership of which were predominantly female. Instead, he offers an insight into the complicated world of gender politics which saw a male domination of the profession's early years, promoted in part by the sociological norms of the time that promoted science as predominantly a masculine endeavour which only substantially changed for physiotherapy following the successful professionalisation of orthopaedists as surgeons at the turn of the twentieth century. One of the founding pioneers of Swedish physiotherapy was Pehr Henrik Ling (1776-1839), a fencer who founded the Royal Central Institute of Gymnastics in Stockholm. Ling's theories and system of gymnastics would underpin medical gymnastics – the field that

later became known as physiotherapy – and claimed a foundation in the natural sciences. Ling was hailed as a genius by the alumni of the institute who travelled to countries outside Sweden, using their historical roots in order to promote themselves as a profession of greater standing than medicine. It was following the development of specialisation among surgeons, that despite previous interest in physiotherapy as part of a conservative management, physiotherapy itself came to be viewed as less of a part of medical science and more of a craft. The reason behind this was that as physicians developed their own sense of professional identity, it became important that they created a sense of difference between themselves and lay proponents. As such Ling's work was replaced with that of a physician Dr Johan Metzger who coined the term scientific massage. This division between that deemed scientific and that deemed lay, led to physiotherapy losing its status as a professional grouping with a historical ground base. This status change was exacerbated by the embracing of a range of treatment modalities within physiotherapy such as bathing and electro-stimulation techniques, which gradually had the impact of separating physiotherapy from its historical base of remedial anatomical mechanics. The loss of status led to a loss of social standing and earning potential, making the field of practice less attractive for males. This subsequently opened the way for further opportunities for employment of women, thus being instrumental in the development of physiotherapy seen as a sub discipline of medicine. Meanwhile, in the United Kingdom at the end of the 19th Century, due in part to the Victorian attitudes of the time, female proponents of physiotherapy found themselves adversely impacted by a

scandal that erupted in the popular media following an article in the British Medical Journal about questionable massage practices in 1894. Subsequently, and within a very short time (six months) the Society of Trained Masseuses was formed, which in due course became the Chartered Society of Physiotherapy with a focus on treatments consisting of massage and electrical stimulation of muscles.

This confirms findings from Twomey and Cole (1985) who argued that physiotherapy interventions are usually non-invasive and are not strongly associated with drug therapies. Until recently, physiotherapy has been understood as the application of physical agents to promote healthcare and rehabilitation, including heat/cold, electro-physical agents such as ultrasound therapy, movement and exercise. Indeed, this was echoed in 2014 on the international stage, when the American Physical Therapy Association highlighted a new vision statement for the profession which focused primarily on movement, determining that it was the study of movement that would "form the basis of practice, education and research" within the profession (Sahrmann 2014). The World Confederation of Physiotherapy (WCPT) describes the profession in the following way: "Physiotherapy involves the interaction between physiotherapist, patients or clients, families and care-givers, in a process of assessing movement potential and in establishing agreed upon goals and objectives using knowledge and skills unique to physiotherapists" (WCPT 1999). As recently as 2011, and still current on the website of the United Kingdom Chartered Society of Physiotherapy, the

professional framework document states that the scope of practice for physiotherapy incorporates the following: manual therapy, exercise & movement, electrotherapy & other physical approaches (CSP 2011) . This document was updated in 2020 and notably continues to exclude prescribing as defined with the normal scope of practice.

1.3 Physiotherapy in the United Kingdom

The focus of this thesis will be on physiotherapy within the United Kingdom as it will be looking at the impact of prescribing medication on the identity of physiotherapists who undertake learning at an approved higher education provider to become a non-medical prescriber.

Current provision of physiotherapy in the United Kingdom consists of service provision within the National Health Service (NHS), Ministry of Defence, private hospitals, occupational physiotherapy within corporations, sports physiotherapy within Athletics, and professional sporting Clubs, theatre (Dance and Ballet), and private practices providing services directly to patients and the NHS. Despite the wider variation and potential availability of service provision, there has been a lack of nationwide reviews looking into physiotherapy provision within the UK, such that the question of how to access physiotherapy is one of the top ten current research priorities for the Chartered Society of Physiotherapy (Physiotherapy JLA PSP 2018) Prescribing medications can occur in any/all of these areas of practice most commonly within the specialist areas of neurology, respiratory, frailty and pain. The development of First Contact Practitioners (FCP) and Advanced

Clinical Practitioners offers further opportunities for physiotherapists to develop their scopes of practice, however a recent survey of the demographics of FCP posts within the United Kingdom reflects considerable variance with only 41% of respondents reporting as prescribers, the majority working less than 10 hours per week in a FCP role and the provision of FCP posts to primary care being markedly heterogenic with only less than 10% employed directly by the GP practice (Halls et al 2020)

1.4 Researcher positioning

Whilst application of a qualitative approach could suggest bias with regards my insider position (Creswell 2014). It is noted that both the mixed methods approach and constructivist Grounded Theory share a pragmatic ontological base (Charmaz 2014). This is the world view espoused by the researcher thus allowing for congruence between the ontological and methodological perspectives. In addition to this, the use of tools such as memoing, introduced and detailed later in the Chapter four allows for reflexivity and the development of empirical research within the real world. In undertaking the thesis, the researcher applied the approaches of Finlay (2002) and Bourdieu (2004) in respect of researcher positioning and reflexivity with reflexivity being applied throughout the thesis at the periods of preparation, data collection and analysis. In particular the three precepts put forward by Finlay (2002) of objectifying the position of the researcher, the position of the researcher within the specialty field under investigation and within the scholastic space.

The researcher is a physiotherapist and was one of the first physiotherapists within the United Kingdom to undertake further training to become a prescriber, initially as a supplementary prescriber and subsequently a further conversion programme to that of independent prescriber. As a physiotherapist, the researcher had developed a specialty within the field of musculoskeletal pain and dysfunction, and was an accredited tutor for acupuncture. Following attainment of prescribing skills, the researcher developed over ten years of experience of making prescribing decisions both within the National Health Service and within the private provision of healthcare, and for NHS Service providers. Experience which included barriers to prescribing and adverse attitudes to prescribing by physiotherapists among colleagues, which piqued initial interest into the reasons behind this. In recent times, the researcher has migrated to higher education, where the researcher is a AHP lead and is active in the education of healthcare professionals undertaking prescribing programmes. In this position, the researcher has noted that despite the ability of physiotherapists to train as independent and supplementary prescribers, the numbers applying remain low, especially in comparison to nurses and pharmacists. As an academic with experience in prescribing and as a physiotherapist the researcher is ideally placed to study the impact of role change on physiotherapists, providing an insider perspective whilst deliberately seeking out the views of others both within and without the profession, prior to assessing emergent themes for credibility

1.5 Involvement with medication and prescribing

In the United Kingdom, the involvement of physiotherapy in medicine provision dates to 1968 with the passing of the Medicines Act (1968) which decreed that a physiotherapist could supply and administer medicines under a Patient Specific Direction (PSD) following a prescription made by a doctor. With the publication of the Crown Report (DoH 1999) which recommended the use of prescribing skills by professionals other than doctors or dentists (initially nurses), and the development of the profession to include "Extended Scope" roles (Gardiner and Wagstaff 2001), there was the opportunity to make the argument for prescribing rights for physiotherapists. In 2005, following changes in legislation, physiotherapists were able to undertake further training towards annotation as a supplementary prescriber (DoH 2005) (Supplementary prescribing is a model wherein overall responsibility for the clinical management plan (CMP) is held by a doctor or dentist who holds responsibility for assessment and diagnosis with treatment being provided by the supplementary prescriber (SP)). This appears to sit in opposition to the autonomous nature of physiotherapy, a professional attainment that the profession had obtained in 1977 (DHSS 1977)**.** However, within the DHSS statement, the exact wording includes a phrase that allows the doctor to instruct the therapist to refrain from certain treatments if he/she feels that the patient may be harmed. This suggests that despite the profession having an autonomous nature, clinicians were still answerable to medical colleagues. A situation with its origins according to Ottoson (2016), dating back to the turn of the nineteenth century when male physicians actively sought to exclude

male physiotherapists from practice. This instead created a controlled environment where women would provide treatment under the oversight of a male physician. Within musculoskeletal departments specifically, supplementary prescribing (SP) proved to be a model that was not suitably sensitive or adaptive for physiotherapists who were accepting referrals from a large number of general practitioners (GPs), with whom they would not necessarily have a close working relationship (DoH 2012). This method of access to medicines did not pass on the benefit of seeing highly skilled autonomous practitioners with extra training to the patient. One of the many reasons for this is the episode-of-care model nature of musculoskeletal physiotherapy within primary care and the recent pressure on contracts applied by Clinical Commissioning Groups (CCGs). Following lengthy discussion and consultation, the Department of Health recommended changing the prescribing rights of physiotherapists to allow physiotherapists to qualify as Independent Prescribers (IPs).(DoH (2013). The first programmes, which enabled physiotherapists with SP status to convert to IP were introduced in 2013, with the first cohorts of physiotherapists qualifying as IPs from 2014. However, the uptake of prescribing by physiotherapists has been modest. A recent freedom of information request made by the researcher to the Health Care Professions Council (Email response FOI FR06321 09/09/2019 unreferenced) reveals that of a total of 56,897 physiotherapists on 29 August 2019, 1,135 were annotated as SP of whom 1017 have undertaken training to obtain annotation as IP. This equates to approximately 2% of the total number of physiotherapists. Within an equivalent time of

gaining prescribing rights, the percentage of pharmacists who had engaged with prescribing was in comparison estimated to be 15% (Email response FOI GPhC. 13/08/2019 unreferenced), whilst the current percentage of nurse prescribers sits at approximately 6% (Wickham, R. 2019. Email, FOI/2019/126 NMC, 29/04/2019 unreferenced)

Most of the published material to date focuses on the inclusion of non-medical prescribing within nursing, midwifery, and pharmacy. There have been few published studies on the outcome of the change in legislation for physiotherapists. The results of a major study evaluating the introduction of independent prescribing for physiotherapists and podiatrists (Carey et al 2017) were revealing. Physiotherapists interviewed in the study reported that they believed that among the impacts of IP, there would be a reduction in unnecessary appointments to GPs, increased patient satisfaction, and an increased ability to select the most appropriate treatment. However, this same group showed a lower level of belief in IP reducing the length of hospital stays, impacting on use of accident and emergency or "out of hours" services, or intriguingly providing more holistic care to their patients. Apart from small studies highlighting the use of independent prescribing, for example case studies assessing the use of NSAIDs (non-steroidal anti-inflammatory drugs) in low back pain(Loughrain and Rae 2015), there has been little work undertaken which addresses the effect of the introduction of prescribing on the physiotherapy profession.

Like physiotherapy, podiatry gained independent prescribing rights in 2013, which appeared at the time to herald an exciting time of development for both professions, however in the time since then, as for physiotherapy, podiatrists have been frustrated by ongoing limitations in the ability to prescribe controlled drugs. Fitzpatrick and Borthwich (2022) highlight these ongoing frustrations that are shared with physiotherapists as being due to irregularities within the current legislation (HMSO 2001). Gallagher (2022) suggests that these issues which he terms “drafting errors”, are irreconcilable without rewriting of the regulations. These frustrations are echoed in the other allied health professions, with therapeutic radiographers and paramedics continuing to encounter limitations (CoP 2018, SoR 2018)

It is worth noting the findings of Emary and Stuber (2014) who reported chiropractors’ thoughts on prescribing in their profession and found a substantial split in views. In Switzerland, where chiropractors already had limited prescribing rights, a majority of those questioned in the study (82%) felt that limited prescribing provided considerable advantages to the profession, whilst in countries where chiropractors do not prescribe medications, there was an opposing view, with most chiropractors in the UK (59%) arguing against the inclusion of prescribing for the profession. Likewise in the same year, McCourt et al (2014) reported on greater tensions within midwifery regarding the issue of prescribing, with doctors being more supportive for non-medical prescribing within midwifery than some midwives. There has been no published work yet looking at intra-professional

relationships within physiotherapy in the UK since the development of roles with prescribing and the impact of how prescribing physiotherapists and their non-prescribing colleagues perceive their own sense of identity within these roles.

1.5.1 Cost effectiveness of non-medical prescribing

Noblet et al (2018) conducted a systematic review of randomised controlled trials 9RCT) evaluating the cost effectiveness of non-medical prescribing, finding only one RCT if low bias which reported increased costs associated with the use of non-medical prescribing, whilst simultaneously offering positive health benefits. The conclusion was for further high quality low bias studies to be carried out addressing the health economics of non-medical prescribing. A similar conclusion was provided with the scoping review undertaken by Babasashi et al (2023) suggesting an ongoing lack of high quality RCTs addressing the question of cost effectiveness. In 2020, Carey et al presented the findings of a comparative case study reviewing activity between prescribing and non-prescribing physiotherapists and podiatrists which revealed and increase cost of independent prescribing associated with the Band of the practitioner with the most common banding in the sample of Band 8a on Agenda for Change (£53755 per annum). Costs associated with activity related to prescribing or non-prescribing were unable to be estimated due to lack of sufficient data. Whilst an increased cost was reported, it was not clear whether this was due to prescribing or associated activity or even different interprofessional methods of consultation. As such further work was

concluded as the key requirement in order to inform national and potentially international policy on the use of non-medical prescribing.

The focus of this thesis is on role identity change and as such, an in-depth economic analysis is not required, as it is not the aim of the thesis to determine value for money, but rather to understand better what happens to physiotherapists when they become non-medical prescribers.

This thesis, therefore, aims to plug a gap in the literature by generating a better understanding of how physiotherapists perceive their sense of identity within their varied roles, and how others perceive them. It also looks at whether this 'world view' has changed or is changing with the advent of prescribing and whether resistance to this change is at the heart of the adoption of independent prescribing across the profession. The thesis will seek to explore if prescribing physiotherapists are still perceived as physiotherapists by both physiotherapists themselves and by those outside of the profession (other professional colleagues and patients). If the introduction of prescribing has changed the identity of physiotherapy, then how has it done so? And perhaps most significantly, what of the physiotherapists studying to become independent prescribers themselves? If the processes of role identity change are better understood, then both prescribing programme educators, line managers and non-medical prescribing (NMP) leads can better support physiotherapists as they seek to undertake prescribing and in consolidating their new identity post qualification.

Being able to shed new light on these questions depends on knowledge of a clearly envisioned professional worldview, awareness of which would assist both the professionals undertaking this extended training and the organisation supporting them. This awareness has the potential to facilitate more effective workplace decisions to support prescribing and/or for prescribers to gain the maximum benefit.

Thus, with the development of the profession to include independent prescribing in several distinct specialisms within physiotherapy, it is timely and appropriate to clarify the current views or opinions on what the identity of physiotherapy is within these roles, and to determine the perceptions of physiotherapists themselves and a range of stakeholders.

1.6 Aims and Objectives

The aim of this thesis is to examine the impact of prescribing medication on the role identity of physiotherapists. The study will utilise a mixed methods approach utilising an exploratory sequential design model to initially explore perceptions from a range of stakeholders regarding the question of what it means to be a physiotherapist, and to explore the impact of prescribing medications. The developed conceptual framework will then be tested by the use of a questionnaire shared with the physiotherapy profession within the United Kingdom. The study will consist of three phases. Phase 1 will incorporate interviews with thought leaders, physiotherapists, and members of the public. From this initial phase, a theory of role identity change will be

developed which will be subsequently evaluated by use of a questionnaire, developed by the researcher. Phase 2 will assess the validity of the questionnaire during development via the use of an expert panel and cognitive interviews with physiotherapists. Finally Phase 3 will involve the dissemination of the questionnaire with the physiotherapy profession within the United Kingdom (physiotherapists who are members of the Chartered Society of Physiotherapy or the Health and Care Professions Council). After this the results will be analysed using a range of statistical tools which will be set out in Chapter 4 - Methodology and Methods.

1.7 Research Questions

The research questions presented in this thesis reflect the nature of the mixed methods approach to the problem and are set out below.

1.How do thought leaders, physiotherapists, and members of the public perceive the role of physiotherapy, and how do they anticipate it will evolve with the introduction of prescribing rights for physiotherapists? QUAL

2. What are the key differences in role identity perceptions between prescribing and non-prescribing physiotherapists? QUAN

3. Are the identified themes and conceptual framework about role identity shifts in physiotherapists undergoing prescribing training applicable to the wider physiotherapy community? MM

1.7.1 Hypotheses

Subset hypotheses from question 2 which were subsequently generated from the categories developed in Phase 1 of the thesis are as follows:

1 There will be a between group statistical difference in the perceptions of physiotherapy by prescribing and non-prescribing physiotherapists.

2 There will be a between group statistical difference between the four groups in perceptions of the activity undertaken during physiotherapy consultations.

3 There will be a between group statistical difference regarding reducing the time post qualification to one year prior to undertaking prescriber training.

4 There will be a between group statistical difference regarding physiotherapists views on leaving pre-registration programmes as a prescriber.

5 There will be a between group statistical difference regarding the inclusion of pharmacology within pre-registration.

6 There will be a between group statistical difference that lengthening the programme to include pharmacology would benefit the profession.

7 There will be a between group statistical difference regarding the potential harm that current restrictions on access to controlled drugs will cause patients.

8 There will be a between group statistical difference in beliefs that appropriate levels of support from the line manager will be present during training as a prescriber.

9 There will be a between group statistical difference in beliefs that appropriate levels of support from the line manager will be present after training as a prescriber.

1.8 Thesis overview

The thesis will set forth a scoping review of current literature (Chapter 2) where current knowledge gaps will be illustrated regarding role change and prescribing in physiotherapists. This will lead into and inform the conceptual framework used in the thesis to underpin the methodology, methods and questions posed by the thesis (Chapter 3). Chapter 4 will detail the approach to methodology, indicating how the application of a mixed methods approach fits with the insider positioning of the researcher and the researcher's ontological worldview. The steps regarding the methods applied during the successive phases of the thesis will be laid out in detail, including areas where qualitative and quantitative aspects of the thesis are merged. The results chapter (Chapter 5) will present outcomes from phase 1 the qualitative phase of the thesis, and quantitative results from the questionnaire developed using output from phase 1 (phases 2 and 3). In accord with best practice in mixed methods research (Cresswell & Plano-Clarke 2018) there will be clear identification of merged results, detailing how the contrasting phases contribute to answering the research questions posed by the thesis

Chapters 6 and 7 will present a discussion on the results of the thesis including relevant strengths and limitations, followed by impacts of the thesis containing recommendations for future work and application

1.8 Conclusion

This chapter has set forth a brief history of the historical development of physiotherapy from its origins in Sweden to the present day involvement within a range of specialities in the United Kingdom. Despite the speed of change in professional development, there is a dearth of published literature within the academic and professional domain regarding the concept of a physiotherapy identity and even less for how prescribing medication might challenge that. The researcher has set out their own positionality as a physiotherapist independent prescriber and academic educator, and has set out an overview of the thesis culminating in the research questions being addressed herein.

Chapter 2 Physiotherapists experiences of role identity change in becoming non-medical prescribers: A Scoping Review

2.1 Introduction

In the previous chapter, a review of the history of the physiotherapy profession revealed an apparent sense of identity that appeared to espouse physical measures of intervention as opposed to pharmacological, a viewpoint that has continued into the current era (Sahrmann 2014).

This chapter seeks to explore the current literature surrounding the relevance of role identity within professional occupations. Subsequent focus will be applied to health professions which have embraced non-medical prescribing, including physiotherapy. This chapter will illustrate the findings of a scoping review of the available literature with the aim of identifying the research gap in the literature regarding role identity development in physiotherapy. This the chapter also sets out the rationale for conducting a scoping review, highlighting methods used in searching the literature base. Results of the scoping review will be presented, leading to an explanation for the development of the thesis study design.

2.2 Methods

A scoping review involves conducting searches to help synthesize knowledge (Colquhoun et al., 2014), and allows for the exploration of the size, diversity, and characteristics of evidence related to a specific topic (Tricco et al., 2018). This review adheres to the methodology provided by the Joanna Briggs

Institute (JBI) (2015), which suggests that scoping reviews are appropriate for mapping the key concepts within a particular area of interest by utilizing a wide range of sources. Whilst unlike systematic reviews, scoping reviews do not always evaluate the quality of the included studies (Levac et al., 2010), this scoping review will utilise a quality assessment of included studies due to the heterogenic nature of the articles which contained qualitative, quantitative and mixed methods studies (Hong et al 2018)

This review employs the adaptations of Arksey & O'Malley's (2005) framework as refined by Levac et al. (2010). Levac and colleagues enhanced the methodology by introducing a six-step process to ensure thoroughness and accuracy in executing the review, as outlined in their methods. The six steps encompass demonstration of linking the purpose of the review to the research question, clarifying the search strategy, clear identification of data sources and methods of data extraction, incorporation of a numerical summary and thematic analysis of relevant sources. Whilst formal consultation with stakeholders was not carried out in this scoping review, it is of relevance to point out that policy documentation of the relevant stakeholders groups involved in non-medical prescribing within the professional bodies were included in the scoping review.

2.2.1 Search Criteria

The following databases were used for the literature search in order to create a review that was comprehensive: CINAHL, Scopus, PsycINFO, and PubMed. In addition to these electronic academic databases, searches were also made in the eBooks Collections of the researchers host universities, and

finally a search of published articles was carried out using Google Scholar. The latter source was included so as to ensure a minimal risk of missing available sources. In addition, professional policy documents for non-medical prescribing professions were reviewed.

2.2.3 Search Terms

The following search terms were used in the electronic academic databases:

Table 2-1 Search Terms

Search round	Terms	Ebscohost
S1	"role identity" OR "professional identity" AND "role change."	CINAHL, PUBMED. Scopus Psychinfo
S2	"non-medical prescribing" OR "non-medical prescriber" OR "non-medical prescribing" OR "non-medical prescriber" AND "physiotherapy" OR "physiotherapist" OR "physiotherapist*"	CINAHL, PUBMED. Scopus Psychinfo
S3	"non-medical prescribing" OR "non-medical prescriber" OR "non-medical prescribing" OR "non-medical prescriber" AND "nurse" OR "nurse*" OR "nursing"	CINAHL, PUBMED. Scopus Psychinfo
S4	"non-medical prescribing" OR "non-medical prescriber" OR "non-medical prescribing" OR "non-medical prescriber" AND "pharmacy" OR "pharmacist" OR "pharmacist*"	CINAHL, PUBMED. Scopus Psychinfo
S5	"non-medical prescribing" OR "non-medical prescriber" OR "non-medical prescribing" OR "non-medical prescriber" AND "Doctor" OR "medical practitioner"	CINAHL, PUBMED. Scopus Psychinfo

Search terms were developed utilising the PICO approach (Guyatt 1992) which has since been further developed with a range of acronyms highlighting the importance of using a disciplined framework in the creation of search items (Richardson et al 1995, Davies 2011). The first round of search terms incorporated a scoping review of the literature regarding role identity change was performed in 2019. The subsequent round of search terms included terminology to reflect the prescribing professions was performed in 2019-2020.

Searches on Google Scholar used the search terms identified above during the period 2019-2020. In addition, literature in the form of policies and supporting documents for prescribers produced by the prescribing professions, including the Nursing and Midwifery Council (NMC), the General Pharmaceutical Council (GPhC) and the Chartered Society of Physiotherapy (CSP), College of Paramedics (CoP), Society of Radiographers (SoR), Royal College of Podiatry (RCPod) and British Dietetic Association (BDA) were reviewed, including the Competency Framework for Prescribers (RPS 2021) in 2020-2021

2.2.4 Eligibility Criteria

The table below (Table 2.2 Inclusion/Exclusion Criteria) highlights the inclusion and exclusion criteria set for the scoping review. The exclusion of articles not written in English, was primarily due to the researcher being monolingual, supported by the majority of material being available within the English language for the topic of prescribing. Whilst language was limited to

English, this did not preclude work carried out outside of the United Kingdom. The limitation of available literature for non-medical prescribing and Allied Health Professions dates from 2006, however more general material related to role identity in the review was included from 1990 in order to maintain both relevance and breadth of spread of material.

Table 2-2 Inclusion/Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
English Language	Not written in English
Content relevant to role identity change and/or non-medical prescribing	
Literature included articles, books in print, PhD theses, profession specific policy documents	
Full text availability	
Date 1990-2020	

This strategy was followed to obtain material from published literature outside of healthcare in addition to contrasting between the three main non-medical prescribing professions, and to include opinions from the medical profession concerning the development of non-medical prescribing. The rationale for including nursing and pharmacy within the non-medical searching criteria relates to their being the professions that host the largest numbers of non-medical prescribers.

2.2.5 Assessment of articles

In determining the relevance of the articles to include or exclude, the researcher developed a bespoke 'traffic light' screening tool due to the unique, yet wide scope, of the review. Papers marked 'red' were excluded immediately following a brief review of the title and abstract. Papers marked 'amber' were subjected to a more in-depth review including assessment of methodology, relevance and scope. Papers initially reviewed as amber had to potential to be included or rejected from the final full text review. Papers marked 'green' indicated articles of direct relevance to the topic under investigation. An example is provided here to illustrate the approach.

Table 2-3 Traffic Light System

Author , Title, Publication	Approach	Design Quality	Outcome
Avery G, Todd J, Green G & Sains K (2007).Non-medical prescribing: the doctor-nurse relationship revisited. *Nurse Prescribing* , 5(3): 109–113	thematic analysis	good	include
Bhawan, S, Muller, K & White, B 2017, 'Reshaping the Existing Landscape: a collaborative approach to managing diabetes in General Practice', International Journal of Integrated Care (IJIC), vol. 17, no. 3, pp. 206–207	thematic analysis	good	potentially include
Abuzour AS, Lewis PJ, Tully MP. (2018), A qualitative study exploring how pharmacist and nurse independent prescribers make clinical decisions. Journal of Advanced Nursing. 74(1):65-	constant comparative data analysis approach, interviews transcribed and audio taped	good	exclude - not related to impact of role on profession

Search returns were initially assessed by title/abstract with final review following assessment of the full text source. Exclusion reasons by title/abstract are illustrated in Table 2.4 with exclusion reason by full text illustrated in Table 2.5.

The approach to evaluation and assessment of studies is highlighted in the Prisma Sc-R diagram on the subsequent page.

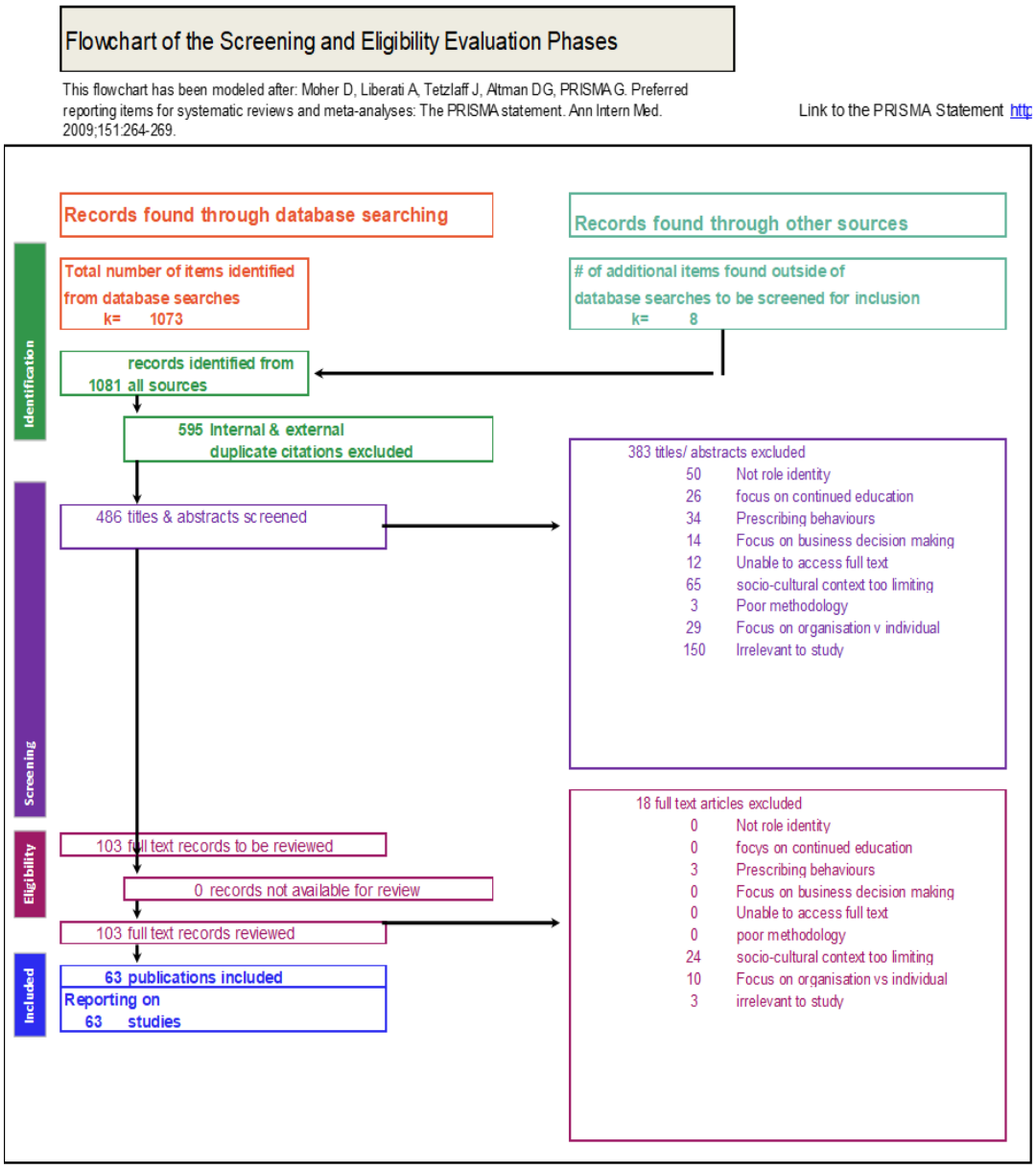

Figure 2-1 Prisma diagram

2.3 Results

A total of 1081 articles and documents were reviewed including 8 professional policy documents. The initial review checked for duplicates with subsequent iterative reviews being carried out by the reviewer to look for relevance and subsets of applicability to the topic under investigation.

Details of reasons for exclusion of titles and abstracts are found in Table 2.4 below.

Table 2-4 Exclusion reasons (Titles and Abstracts)

Not role identity	50
focus on continued education	26
Prescribing behaviours	34
Focus on business decision making	14
Unable to access full text	12
socio-cultural context too limiting	65
Poor methodology	3
Focus on organisation rather than individual	29
Irrelevant to study	150
Total	383

One hundred and three (103) articles were assessed via full text with the following excluded from final review with associated exclusion reasons. All articles were reviewed by accessing the full text of the article and assessing them against relevance and applicability factors as set out in the table included below.

Table 2-5 Exclusions reasons via full text

Prescribing behaviours	3
socio-cultural context too limiting	24
Focus on organisation rather than individual	10
Irrelevant to study	3
Total	40

2.3.1 Quality Assessment

Although a quality assessment is not usual in JBI Scoping Reviews, the opportunity to assess the materials from the included papers seemed pertinent. Due to the mixed methods approach to the thesis, quality assessment utilised the Mixed Methods Appraisal Tool (MMAT) appropriate for the assessment of a heterogenous range of published literature (Hong et al 2018) assessed in this scoping review.

Table 2-6 Quality Assessment of full text articles

Citation	Quality assessment
Abuzour, AS, Lewis, PJ & Tully, MP. (2018). Practice makes perfect: A systematic review of the expertise development of pharmacist and nurse independent prescribers in the United Kingdom, Research In Social & Administrative Pharmacy: RSAP, vol. 14(1): 6–17	Becoming a prescriber is a complex transition in role including multiple influences including emotional and knowledge based influences. Effective transtion is promoted by embedding learning with practice, ensuring students obtain real life experience of prescribing decision making linked with bioscience knowledge and pharmacological awareness
Abuzour AS, Lewis PJ, Tully MP. (2018), Factors influencing secondary care pharmacist and nurse independent prescribers' clinical reasoning: An interprofesional analysis, Journal of Interprofessional Care 32(2):160-168	Prescribers tended to refer on rather than make prescribing decisions., significant drivers for this were levels of confidence and/or cautiousness. value of interprofessional working, as with onset of NMP, profession blurring taking place with a blurring of boundaries and change in role; difference between professions - knowledge specific to

	clinical scenario, interprofessional mixing recommended to enable clinicians to blend thinking
Allan E (2014) “Nursing by the long stretch of the arm”: an exploration of community nursing middle managers’ experiences of role enactment within Community Health Partnerships in three regions of Scotland., Robert Gordon University Scotland	study is qualitative using phenomonology as mathodology of choice looking to provide insight into the lived esperience of CNMMs (Community Nurse Middle managers. Major outcome was textual and therefore not overtly open to measurement. outcomes of study was the elucidation and description of life experiences of CNNMs.Article showed good rigour in the iterative process of the study plus the focus on personal and professional reflection and reflexity shown by the author. CNNMs found change within organisations often unweildy with lack of ability to maintain face to face contact with patients a significant stress to individuals sometimes resulting in individuals leaving the role. More support was felt to be required of CNNMs in coping with role and identity change

Andrew N, Mcguinness C, Reid T, Corcoran T(2009) 'Greater than the sum of its parts: transition into the first year of undergraduate nursing', Nurse Education in Practice, 9(1), pp. 13–21. doi: 10.1016/j.nepr.2008.03.009.	Use of questionnaires and discussion groups to explore development of professional practice in first year undergraduate nursing studies. Data analysis minimal, authors aware of limitations. Questionnaires simplistic and therefore prone to limitations (done so as to meet limited time scales).New awareness gained, but can it be called knowledge and how reliable are the results. Potential to include as part of rationale for why I have chosen GT for my study
Arrowsmith V, (2016), From support worker to professional qualification The work role transition to Registered Nurse of student nurses who were formerlyemployed as Health Care Assistants Kings College London	Mixed methods desigh using survey and qualitative elements: survey offered to cohorts in Y 1,2,3, total of 20 interviews conduction in each year group 10 at each university; 2 universities included in project: To explore effects of role transformation from HCA to Nurse during undergraduate training. How do student nurses grow and develop in the sense of their sense of their role identiy as they progress from student nurses to fully qualified nurses, what factors are involved

Ashforth B, (2012), Role transitions in organisation life - an identity based perspective, Routledge NY	Seminal book on role transitions: looking at effects of change in role and how it imapacts on the individual refers to physical and psychological strain that role entry role transition and role exit can cause
Ashforth B Sluss D, Harrison S (2007), Socialization in Organizational contexts IN International review of Industrial and Organizational Psychology Vol 22, Hodgkinson G and Ford J Eds	Why do we see ourselves in the way we do, what drives humans to create roles and role identities? Determination of the role of social organisation and it's effects on development of roles within an organisation with impact on team and output. In particular the importance of socialisation of newcomers to the organisation and the value of this for organisational health. How does this relate to new starters in healthcare teams or the adoption of a new skillset and thus new role by an existing team member.
Avery G, Todd J, Green G & Sains K (2007).Non-medical prescribing: the doctor-nurse relationship revisited. Nurse Prescribing, 5(3): 109–113	NMP has changed the way that the healthcare professions relate to each other. Success of NMP requires pre-existing good relationships between professionals. Avery 2007 here recommends the need to always accept that Doctors will hold ultimate sway; given

	the changes in the last 10+ years this opinion can now be challenged given existense of nurse led clinics
Avery G, Todd J, Green G & Sains K 2007, 'The impact of non-medical prescribing on practice', Nurse Prescribing, vol. 5, no. 11, pp. 488–492,	NMP leading to increased throughput of patients, more people getting the care they need, change in work role for clinicians something that will need to be evaluated, for some NMPs role changes by default to include greater concentration on prescribing
Bhawan, S, Muller, K & White, B 2017, 'Reshaping the Existing Landscape: a collaborative approach to managing diabetes in General Practice', International Journal of Integrated Care (IJIC), vol. 17, no. 3, pp. 206–207	Successful implementation dependent on high quality staff, space and clearly defined role

Bradley E, Campbell P, Nolan P. (2005). Nurse prescribers: Who are they and how do they perceive their role? Journal of Advanced Nursing 51(5):439-448	Findings from a 2005 article therefore early in development of NMP in nurses. Maority of nurses at time did not feel it would change their role significantly importantly as they reported it would not change considerably their practice; this is not in line with findings from other studies that have shown change in role and or identity as a result of takingon new responsibilities
Bradley E, Wain P & Nolan P 2008, 'Putting mental health nurse prescribing into practice', Nurse Prescribing, vol. 6, no. 1, pp. 15–19	Conflict experienced between prescribing and non prescribing nurses, concerns that role would be lost and medicalised, concerns that lack of support, belief that need to work in teams, overall positive support from medics, courses not suited to mental health specialism
Bray K, Dawson D, Gibson V, Howells H, Cooper H, McCormick J, Plowright C. (2009). British Association of Critical Care Nurses	Pressure due to lack of junior doctors informing growth in pressure to supply NMP. IP role requires competency in diagnosti skill and to prescribe within scope of practice. Concerns held about how critical care scope can be held and can support IP. Call for ANP role,

position statement on prescribing in critical care. Nursing in Critical Care 14(5): 224-234	
Brodie, L., Donaldson, J., & Watt, S. (2014). Non-medical prescribers and benzodiazepines: A qualitative study. Nurse Prescribing, 12(7), 353–359.	NMPs feel that there is potential for value in role in benzodiazepine prescribing / deprescribing but concerns were raised about the systemic organisation of QOF in primary care and how this would mitigate against use of NMP in management of anxiety, consdieration that the NMP role is a particular role in itself
Burrows, L, Lesser TH, Kasbekar AV, Roland N, Billing M, 2017, Independent prescriber physiotherapist led balance clinic: the Southport and Ormskirk pathway Journal of Laryngology and Otology 131(5): 417-424	Balance clinic led by IP Physiotherapist ; new role in order to improve patient time waiting. Clinic popular with patients, deemed to be successful, reduction in patients referred for Consultant care, 48% of patients requiring medication

Butler C, Finniear J, Doherty A, Hill S (2014) "Exploring identity: a figurative character image-elicitation approach", Qualitative Research in Organizations and Management: An International Journal, Vol. 9 Issue: 2, pp.151-168, https://doi.org/10.1108/QROM-10-2012-1103	Use of novel visual cues to explore identity in workplace; to investigate role identity in the work place and investigate novel approaches to understanding the phenomenon; studying the creation of roles in office based work, how humans make sense of the world they find themselves in: interaction with cartoon images, meaning and reflection of how participants determined role: thematic analysis of interviews and response to cartoons: novel use of image to further understanding of peoples perception of their role at work that was often opposite to what was said during the interview
Caza, BB, Vough, H, Puranik, H. Identity work in organizations and occupations: Definitions, theories, and pathways forward. J Organ Behav. 2018; 39: 889– 910. https://doi.org/10.1002/job.2318	Systematic review of literature: to create a overarching framework of work in this area ; valuable to bring together the current literature and determine where future research could be aimed : useful piece of work, looking at the various theories and publised work on issues of identity

Chambers A, (2012), Student Physiotherapists. Narratives and the Construction of Professional Identities, PhD thesis, University of Manchester	Unstructured interviews appropriate to narrative based research based on ideas of Foucoult: A study to explore the sense of role in physiotherapy among final year physiotherapy students and whay they felt it meant to be a physiotherapist: identities constructed via a range of means, including preconceived ideas of ian ideal professional identity, labelling, battle ground images, dealing with conflict: small sample, findings self reported and analysis limited by impact of interpretation
Clarkson H, Thompson O, (2017), 'Sometimes I don't feel like an osteopath at all'- a qualitative study of final year osteopathy students' professional identities, International Journal of Osteopathic medicine, 26:18-27	Considering the similarities that exist between osteopath ad physiotherapy this is a useful piece of research that can be set against research within physiotherapy
Cooper, RJ, Bissell, P, Ward, P, Murphy, E, Anderson, C, Avery, T. (2012). Further	Looking at how SP is changing role identiy in the professions performing NMP and in perception of patients and doctors of their own role especially role of Doctor as lead

challenges to medical dominance? The case of nurse and pharmacist supplementary prescribing, Health 16(2):115–133	
Daughtry J & Hayter M. (2010). A qualitative study of practice nurses' prescribing experiences. *Practice Nursing*. 21(6): 310–314	Experiences mostly positive - some report of confusion about role, receptionists thinking of prescribing nurses as " mini doctors". Doctors offloading work onto nurses, nurses workload increasing, requirement to attend meetings in own times. Positives included ability to treat patients holistically.
Daynes, E & Horgan, T 2016, 'Is there a perceived risk of occupational stress among nurses and physiotherapists who are non-medical prescribers? An exploration...The 4th European Congress of the European Region of the World Confederation of Physical Therapy	Physiotherapists at increased risk of occupational stress from expansion of scope and the need for organisation support highlighted. Possible reasons for increased risk among physiotherapists than nurses was more recent legislative change enabling IP

(ER-WCPT) Abstracts, Liverpool, UK, 11-12 November 2016', Physiotherapy, vol. 102, pp. e89–e90	
Diehn, E. (2013). Looking within: a grounded theory study of the internal socialization of recently promoted leaders. Retrieved from the University of Minnesota Digital Conservancy, http://hdl.handle.net/11299/157826	Study looks at how promotions internally differ from promotions externally, the role transitions undertaking by managers and how this affectd them and their work
Dunleavy K, Galen S, Reid K, Dhar P, DiZazzo-Miller R, (2017), Impact of interprofessional peer teaching on physical and occupational therapy student's professional role	Students became aware of lack of knowledge of other professions and thus became more intent on developing their skills at presenting their own professional identity

identity, Journal of Interprofessional Education and Practice, 6:1-5	
Donahue, E, Robins, R, Roberts, B, John, O. The divided self: concurrent and longitudinal effects of psychological adjustment and social roles on self-concept differentiation. (1993) Journal of personality and social psychology, 64 (5), pp. 834-846	Higher levels of self concept differentiation alluded to a lack of congruency in the sense of self in the individual and was associated with higher levels of struggle
Fairley D 2005, 'Discovering the nature of advanced nursing practice in high dependency care: a critical care nurse consultant's	Consideration of lack of agreement with what it means to be an advanced practitioner, what is needed to develop the role.

experience', Intensive & Critical Care Nursing, vol. 21, no. 3, pp. 140–148	
Fox A, (2017), The Experience of Nurse Faculty New to a Full Time Academic Role and Intent to Stay in Academia, Widener University, ProQuest Dissertations Publishing	Role strain a major inhibitory factor in the first 3 years post role change, emotional exhaustion, role strain
Glasgow K, (2018), Re-negotiating the Boundaries: a Grounded Theory Study, Master Health Degree, University of Auckland	Role Mix, a name I have given to a constructed role containing elements of other discrete roles; is this what is happening here; is this what might be happening with NMP and Physiotherapy
Graham-Clarke E, Rushton A, Noblet T,Marriott J (2018) Facilitators and barriers to nonmedical prescribing – A systematic review andthematic	Set of themes and subthemes associated with prescribing including human themes, organisational themes, medical practitioner and financial . All themes interdependent and can be both barrier and facilitator dependent on context and setting. Eg poor managerial support = barrier, confidence and awareness of managers = facilitator

synthesis. PLoS ONE 13(4): e0196471 https://doi.org/10.1371/journal.pone.0196471	
Harmer V (2010) 'Are nurses blurring their identity by extending or delegating roles?', *British Journal of Nursing*, 19(5), pp. 295–299.	In expanding and extending roles nurses may have diluted their perceived role identity in the public gaze and within their own psyche. Engaging with the media and raising their profile sharing their successes will help legitimise their role
Hendrikx W, (2018).Priced not praised: professional identity of GPs within market-oriented healthcare reform, Journal of Professions and Organization, Volume 5, Issue 1, March 2018, Pages 12–27, https://doi.org/10.1093/jpo/jox011	Self image very resilient, with tendency to impact over and above role, whereas role has changed significantly secondary to market pressures self image has remained relatively untouched

Holden, MA, Whittle, R, Waterfield, J, Chesterton, L, Cottrell, E, Quicke, JG & Mallen, CD 2018, 'A mixed methods exploration of physiotherapist's approaches to analgesic use among patients with hip osteoarthritis', Physiotherapy,	Advise varied among physiotherapists, significantly for my study there were a number of physiotherapists interviewed who felt that prescribing shouldn't be in the remit of physiotherapy for issues stated as increased responsibility, increased risk of being sued, not being paid enough, no part of physiotherapy
Ibarra H, Barbulescu R, (2010), Identity As Narrative: Prevalence, Effectiveness, and Consequences of Narrative Identity Work in Macro Work Role Transitions, Academy of Management Review 35:1, 135-15	The use of narrative in explaining role change and identity change, how we explain to ourselves what we do/should do suggests that identity is socially embedded and is therefore susceptibe to the environment. Dependent on psychological theories and potentially dependent on accepted theory within occupational psychology.
Ibarra H, (1999), Provisional Selves: Experimenting with Image and Identity in	Discussion surrounding the liminality of selves, where identities are created and experimented with

Professional Adaptation, Administrative Science Quarterly, 44 :4, 764-791	
Ibarra H, Snook S, Guillen Ramo L, (2008), Identity-Based Leader Development, Handbook of Leadership[	Further deveopment of ideas around identity development and liminality from the earlier work
Ibarra H, (2005), Identity transitions: Possible selves, liminality and the dynamics of Career Change, Faculty & Research	Article by same author reviewing main theories and suggesting means of identity evolution - involving processes such as activities, relationships and events
Kroezen, M, Mistiaen, P, van Dijk, L, Groenewegen, PP & Francke, AL 2014, 'Negotiating jurisdiction in the workplace: a multiple-case study of nurse prescribing in	Significant jurisdiction differences were found to operate between nurses and medics at the workplace arena despite in law nurses being similar to medics in their legal ability to prescribe medication

hospital settings', Social Science & Medicine (1982), vol. 117, pp. 107–115.	
Lim, AG, North, N & Shaw, J 2017, 'Navigating professional and prescribing boundaries: Implementing nurse prescribing in New Zealand', Nurse Education in Practice, vol. 27, pp. 1–6	Accepting the concept that professional boundaries are fluid, this study showed that a key outcome of the development of prescribing within nursing was the growth of an interdependent relationship between nursing and medical colleagues rather than one where the nurse is in a relationship of deference to medical colleagues
Mackay B (2007) 'Leadership strategies for role development in primary health care nursing', *Nursing Journal*, (11), pp. 31–39.	Loss of confidence reported in findings in UK and NZ in nurses sense of professional identity contributed in part by significant ongoing role change and lack of confidence in relationships with other HCPs

Machin A, (2009), Role identity in a turbulent environment :the case of health visiting, University of Newcastle	GT study so useful and similar, good example of high quality research in HCP roles and impacts on role identity that is seen to be in a constant state of flux
Machin, A. I., Machin, T. and Pearson, P. (2012) 'Maintaining equilibrium in professional role identity: a grounded theory study of health visitors' perceptions of their changing professional practice context', *Journal of Advanced Nursing*, 68(7), pp. 1526–1537. doi: 10.1111/j.1365-2648.2011.05910.x.	GT study so similar, has shown development of theory. It is worth considering how the experiences of health visiting might correlate to physiotherapy
Maddox, C, Halsall, D, Hall, J & Tully, MP 2016, 'Factors influencing nurse and pharmacist willingness to take or not take	Range of influences on NMPs present, importantly NMPs felt clarification of role was very important in maintaining safety for patien and for professional.

responsibility for non-medical prescribing', Research in Social & Administrative Pharmacy, vol. 12, no. 1, pp. 41–55	
McCann, L, Lloyd, F, Parsons, C, Gormley, G, Haughey, S, Crealey, G & Hughes, C 2012, '"They come with multiple morbidities": A qualitative assessment of pharmacist prescribing', Journal of Interprofessional Care, vol. 26, no. 2, pp. 127–133, viewed 4 June 2019,	IP happy with scope of practice - defined area of expertise within which to prescribe, interprofessional working of value to the patient by blending expertise from different professions
Miscenko, D., & Day, D. V. (2016). Identity and identification at work. Organizational	Review article, note: identity refers to internal constructs whereas identification relates to external constructs, note reference to work by Ibarra (1999) and Chreim

Psychology Review, 6(3), 215–247. https://doi.org/10.1177/2041386615584009	
Morris, JH & Grimmer, K 2014, 'Non-medical prescribing by physiotherapists: issues reported in the current evidence', Manual Therapy, vol. 19, no. 1, pp. 82–86	Requirement of ongoing reflection by healthcare nationally of benefit of including prescribing within remit of physiotherapy, not to be done state by state.
Noblet, TD, Marriott, JF, Jones, T, Dean, C & Rushton, AB 2019, 'Perceptions of Australian physiotherapy students about the potential implementation of physiotherapist prescribing in Australia: a national survey', BMJ Open, vol. 9, no. 5, p. e026327	6% response rate (592), 87% approved adoption of prescribing, 91% stated they would train. Concerns re level of training, cost of training, lack of pharmacology in pre reg training

Noblet, TD, Marriott, JF, Jones, T, Dean, C & Rushton, AB 2019, 'Perceptions about the implementation of physiotherapist prescribing in Australia: a national survey of Australian physiotherapists', BMJ Open, vol. 9, no. 5, p. e024991	3% response rate. >70% felt that prescribing would provide benefits, including improved efficacy for healthcare resource, speedier access to required treatment for patients; >30% shared concerns - lack of remuneration, increased risks of safety; lack of pre -reg knowledge: >12 % felt not a physio role
Noblet, T, Marriott, J, Graham-Clarke, E & Rushton, A 2017, 'Barriers to and facilitators of independent non-medical prescribing in clinical practice: a mixed-methods systematic review', Journal of Physiotherapy (Elsevier), vol. 63, no. 4, pp. 221–234	4 main themes - political - push by central government to enable more prescribers, organisational - need for strategy, examples of qualified prescribers not prescribing due to lack of support, personal/professional enhanced responsibility, enhanced work load , financial factors - lack of renumeration. legal restrictions of scope unhelpful and prone to becoming obsolete - ? relevance to CD list in physiotherapy

Officer T, (2018), Nurse practitioners and pharmacist prescribers in primary health care: A realist evaluation of the New Zealand experience, University of Wellington	Realist methodology using theory generation as an aim and theory testing, from theoretical sampling thus showing similarities with approach fo GT and allows for role of researcher thus reflexive. not all attempts at creating advanced practititioner roles will be met with success, some depending on context will not succeed or will face much greater struggle to succeed, significant factors
Oliver, B. (2007) Connected identities: professional identity in tran-sition. Other, University of the West of England	Quote " identity is not seen as a fixed construct needing to be 'changed' but as one that is continuously moulded and shaped as discourses about practice develop"
Pritchard, MJ. (2017). Is it time to re-examine the doctor-nurse relationship since the introduction of the independent nurse	Changes in professional roles both within profession and echoed by wider societal change in perception are challenging norms of hierarchy within organisations. Not only limited to NHS, Medics and Nurses, impact of change also will drive forward

prescriber?, Australian Journal of Advanced *Nursing,* 35(2):31–37	development and differences in relationships between AHPs and Medics/other professions and patients
Schindel T, Yuksel N, Breault R, Daniels J, Varnhagen S, Hughes C, (2017), Perceptions of pharmacists' roles in the era of expanding scopes of practice, Research in Social and Administrative Pharmacy 13(1) 148-161	Mixed Methods study exploring perceptions of pharmacists and other groups to their expanding scope fo practice in Alberta Canada.statistical analysis tools for survey. Thematic analysis for interviews and focus group
Sluss D, van Dick R, Thompson B, Role Theory in organisations: A Relational Perspective, To appear in S. Zedeck (*Ed*.), Handbook of I/O-Psychology. Washington: APA	Valuable chapter for contrasting definition of role identity as compared to Burke and Stets

Smith M & Hemingway S 2005, 'Developing as a nurse prescriber in mental health care: a case study', Nurse Prescribing, vol. 3, no. 3, pp. 125–130,	Change in role specifically addition of prescribing responsibilities often impacts on rescource usage in organisation; changes to role and action of prescriber will potentially lead to greater time spent on prescribing duties leaving not sufficient time to engage with other areas of previous practice
Thomas, N. (2018). Coming Full Circle: How Medical Student Craft Their Preferences in Search of an Authentic Doctor Role. (Electronic Thesis or Dissertation). Retrieved from https://etd.ohiolink.edu/	Study exhibiting impact that practice based experiences can have on students and how this links with students previous held beliefs as to personal and professional ideals, impacting on subsequent career pathways and how students define themselves

2.3.2 Typology of sources

The full-text articles included following the review consisted of a full range of literature sources, as set out in Table 2-6 above. Of significance is the predominance of qualitative research, accounting for thirty out of the total of 55 studies included in the MMAT quality assessment. See table 2-7

2.3.3 Summary of Literature

Whilst literature was limited to material published in English, the range of studies was inclusive. The majority of studies emanated from the United Kingdom, thirty (30 including Northern Ireland(NI)) with fourteen (14) from United States of America (USA), four (4) from New Zealand (NZ), three (3) from Australia, three (3) from Netherlands and one (1) study classified as international as it included more than three country sites. In addition to the review of published literature, as mentioned above, policies produced by professional bodies in the United Kingdom were reviewed. Twenty sources (20), the majority of those reviewed focused on nursing revealing the length of time that the nursing profession have been engaged with non-medical prescribing. Three (3) sources were specifically focused on pharmacy; however it should be noted that pharmacists were included in four (4) of the sources that looks at combinations of healthcare professions. Allied health profession groups, specifically physiotherapists featured in nine (9) of the articles. The range of analytical approaches to material was heterogenic in nature, with the use of focus groups, individual interviews, surveys and novel use of diagrammatic cues as an alternative to text based or aural based questions. The inclusion of non-journal article sources – particularly chapters,

is in response to the seminal nature of the work of the respective authors in the field of identity development. The theories surrounding identity development will be set out in the succeeding chapter.

Table 2-7 Typology of source articles

Source	Number
Mixed methods study article	4
Qualitative study article	30
Quantitative study article	4
Chapter	4
Systematic review	10
Professional Policy Documents	8
Other	3
Total	63

2.3.4. Summarising the literature

The literature sources share commonalities, indicating the importance of good quality and continued access to supervision (Abuzour et al 2018a), alongside regular contact with other non-medical prescribers (Abuzour et al 2018b), which links with arguments made earlier by Ashforth (2007) who suggested the importance of key relationships underpinning successful development within a new role. The changes within healthcare from the early days of implementation of non-medical prescribing to more recently is characterized in views held by nurses regarding the likely impact of non-medical prescribing (Avery et al 2007a, Bradley et al 2005, 2008), which need to be set against views reported by Smith and Hemmingway (2005), who argue in contrast for expected changes and demands on activity. A viewpoint that has more recently been supported (Rasmussen et al 2021)

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The impact of increased occupational stress among non-medical prescribers as a group compared to their non-prescribing colleagues highlights the increased demands being placed on healthcare professionals (Daynes & Horgan 2016) is set alongside potential barriers to the implementation of prescribing skills when poor support is experienced in the workplace or encountered due to legal restrictions (Graham-Clarke et al 2018).

The potential for increased stress on time constraints , risk of adverse events, and lack of remuneration among others, could potentially be reasons behind the reported views of some physiotherapists who appear antagonistic towards prescribing being part of the profession (Holden et al 2018, Noblet et al (2019)

2.3.3 Professionals and Role Change

A systematic review on the topic of identity and work Caza et al (2108) reviewed four foundational modes of identity: cognitive, discursive, physical, and behavioural. Cognitive examples include situations where individuals will create arguments and realities, that allow them to carry out a role, and a sense of their identity by readdressing the tasks and the meaning of those tasks, they are called upon to undertake. Examples of this include taking on board only ideas that might enhance autonomy of self-identity, or recategorizing the meaning of an event if that event contains aspects that conflict with deeply held beliefs. Discursive examples include use of language to portray a sense of identity, something often encountered during political leadership contests and elections, and otherwise, in the profession specific jargon used that demarcates insiders and outsiders via the creation of an alternate language. Physical exemplars include the use of tattoos in modern football players which have been argued as examples of group membership (Kluger and Samimi 2019) or by style of dress such as the use of suits by professional workers, for example, politicians, military uniforms, and body size/musculature among athletes. Finally, behavioural approaches were noted with individuals acting out roles to strengthen their sense of identity or to highlight positives in their performance. Of particular note was the importance of close teams in the development of a sense of identity at work calling for more comparative research in this area (Ashforth 2012, Caza et al 2018). Role identity itself is defined as the construction by the individual of their understanding of what they do (Sluss et al 2010). This is in contrast to

Burke and Stets (2009) who argue that role identity is an amalgam of the individual and the social structure within which they work. As such, identity therefore can be understood to be in a constant state of flux with Oliver having this to say about identity, " identity is not seen as a fixed construct needing to be 'changed' but as one that is continuously moulded and shaped as discourses about practice develop" (Oliver 2007 p1) The inherent complexity suggested in the literature offers support for the emotional impact of role changes alluded to in work by Diehn (2013) who revealed the negative emotional affect experienced by managers promoted within an organisation with individuals citing examples of isolation from former peers and finding this difficult to reconcile.

Most studies within the area of the health professions have been carried out in nursing, with a substantial number highlighting the complexity of role change and the capacity for individuals to suffer negative affect. For example, concerns were raised within the profession (Harmer 2010) regarding a lack of clarity surrounding the concept of nursing professional identity, and it was questioned whether adding extra roles outside of the core skills was adversely affecting the profession by adding an apparent sense of confusion to the role.

Machin et al (2012) speak of how a weak awareness of professional identity can adversely impact individuals leaving them potentially vulnerable. Machin et al argue that due to the diverse backgrounds in health visiting, one nursing, and one teaching indicating the presence of multiple identity states. This

echoes the argument made about the identities within physiotherapy noted earlier in this chapter (Hammond 2016) where the presence of the treater/educator and psychosocial empower identities were highlighted. The holding of multiple identities within the workplace is noted by Miscenko and Day (2016) as supporting findings of Stets and Burke (2000) Miscenko and Day point to the interaction between occupational (professional) identity and organisational identity which tend to sit in conflict with each other. How individuals cope with multiple identities that sit in conflict has been the subject of significant work (Gunz & Gunz (2007) where examples in law were noted, in which there was an increased risk of lawyers conducting unethical behaviour when their occupational identity was minimised against loyalty to the organisational identity.

Latterly, literature has suggested a more fluid aspect to the professional identity for nurses (Rasmussen et al (2021), in which the construction of professional identity was detailed over many years of practice, with a deepening of an understanding of professional practice associated with a stronger sense of identity. Participants in this mixed method study reported that most nurses felt that identity developed with increases and/or changes in scope of practice, whilst a minority felt that identity remained static despite changes in type of activity. Van der Cingel and Brouwen (2021) offered a further critique on the identity of nurses, calling for a move away from nurses being viewed as “do-ers” and granting them the autonomy of thought and decision making, essential to a strong sense of identity. The authors reflected how nursing has suffered since it’s professional inception due in part to being

a female dominated profession and thus impacted by the male dominated profession of medicine and wider patriarchy in social models. Like nursing, physiotherapy is predominantly a female dominated profession and has thus been susceptible to historic influences similar to nursing.

The consequences of environment on identity were illustrated by Thompson et al (2018) who studied the impact of working within a nursing home setting and the effect that this had on the strength of identity of nurses. This was seen to have a negative impact due to working in isolation from healthcare colleagues, leading individuals to adapt work practices in order to attempt to strengthen their identity, which is in line with social identity theory of Burke and Stets (2009). Further effects of environmental impacts on a sense of identity are offered in work by McNiven et al (2021)who detailed the complexities faced by some healthcare professionals involved in boundary-spanning roles, particularly those inhabiting clinical research posts. A particular finding which highlights the potential negative impact of environmental effects associated with lack of clarity regarding identity was from a physiotherapist who reported that for over two years into her post she was still having to wear a nurse's uniform and was being paid at a lower band. In the participants own words, "So, I'm in an environment where there's not a lot of people like me and I'm dressed in something that is me masquerading as something else" (p9/13).

Role strain has been argued to last up to 3 years after significant change in a role (Fox 2017) in a qualitative study of 14 nurses who had made a change from the clinical environment to academia. Role strain in this cohort of participants was described as negative emotional health, lack of confidence and lack of belonging. These findings replicate and confirm that of work carried out in 2009 and 2016 by Andrew et al (2009), and separately, Arrowsmith (2016) in which researchers looked at individuals entering the nursing profession, and uncovered findings of one in four students reporting feelings of anxiety perceived as being due to uncertainty regarding their sense of role in approaching their first clinical placement (Andrew et al 2009). Nursing students who had previous experience of being employed as a health care assistant reported that they needed to unlearn knowledge to progress in assimilation of the new role identity of a nurse (Arrowsmith 2016) . Intraprofessional role strain was also highlighted in evidence of friction between nurses and Advanced Nurse Practitioners (ANPs) with two forms of adverse behaviour (Anderson et al 2019). They reported "vertical discounting" and "lateral othering". Vertical discounting was seen where members of either group discredited the viewpoints of the other whilst lateral othering was seen when ANPs questioned findings of ANP colleagues in front of patients or other members of staff. Both of these behaviours had the impact of destabilising the concept of advanced practice, with the cause of lateral othering promoted by the authors as being due to a lack of a distinct identity for advanced practice. Non-medical prescribing is part of advanced practice, and thus may be at risk of similar behaviours. Identification and development

of a professional identity inclusive of non-medical prescribing could strengthen interprofessional working relationships and be beneficial for patient care. It is worth noting however, that the development and ownerships of multiple identities, evidenced by Burke and Stets (2003, 2009) runs the risk of leading to increased individual stress for the identity holder, especially if experiences of the role do not align with the internal identity standard set by the individual in post.

Difficulties in determining identity were also alluded to by McCarthy and Jones (2019) who raised concerns regarding the loss of identity in nursing due to the use of a medical model of care in advanced roles. Whilst this may be contextual with the authors' base within the USA, the views are potentially relevant here in the United Kingdom with the expansion of professions able to prescribe and within physiotherapy with the recent development of the First Contact Practitioner post. Other areas of difficulty include change encountered by Community Nurse Middle Managers in Scotland (Allan 2014) who described finding change within organisations often unwieldy with a lack of ability for them to maintain face to face clinical contact a significant stress which sometimes led to individuals leaving the role. This resulted in a call for greater support for the role. I have previously alluded to work by Ashforth and Caza who independently pointed to the importance of relationships. This is confirmed in an investigation into the professional identity among primary care nurses in both New Zealand and the United Kingdom (Mackay 2007) where nurses reported frustration in their role due

in part to a lack of confidence in their relationships with other healthcare professionals. Machin (2009) on her work on the turbulent environment of health visiting also highlights the importance of relationship, however here, identity is repeatedly legitimised by an ongoing negotiation not only with others but with the self as well. Here, Machin suggests that unresolved issues relating to change can lead to a sense of identity crisis and adversely affect the mental health of those professionals experiencing role shift or change. Difficulties encountered in addressing change are found in other professions as well, with pharmacists finding that not all attempts at creating advanced practitioner roles have met with success. Some, depending on context, will not succeed or will face much greater struggle to succeed. Significant factors associated with outcomes include enhanced workforce planning, provision of fit for purpose training, relevancy to role, and ongoing motivation. These sit alongside envisioning the role, (Officer 2018) with the need to communicate across professional boundaries closely allied to the potential for cross working inter-professionally. Illustrating using skill sets beneficially, accepting an identity in a state of flux and constantly changing and adapting to the needs of the presenting scenario as put forward by Schindel et al (2017).

The pain experienced in change in role identity and sense of self in nursing and pharmacy can be compared to doctors who show a resilience of their sense of self-image to change, even in the face of enforced role change from market forces (Hendrikx 2018). This resilience of sense of self and identity in medicine appears to stem from the professions undergraduate teaching

models with evidence that the sense of identity formed at that stage is key to subsequent decisions surrounding specialisation. This suggests that the identity formed in undergraduate medical training is robust and has longevity into the career domain (Thomas 2018).

Moyle (2021) in her thesis describes Emergency Nurse Practitioners (ENP) as inhabiting a hybrid role between that of nurse and doctor. Moyle describes being comfortable within a role as drawing on principles of the French philosopher Pierre Bourdieu (1977), whose concept of habitus , bears similarities to the ideas of identity in the field of symbolic interaction which will be fully set out in the succeeding chapter . The discomfort that Moyle illustrates in her work was reflected clearly in the leadership element of the four pillars of advanced practice, where there was a clear lack of harmonisation between the beliefs of those inhabiting the ENP role and from senior managers (p180), where ENPs reported that their role as leaders was often inhibited by pressure of time, whilst managers shared their perception of ENPs as clinical experts rather than advanced practitioners providing professional leadership. This sense of confusion regarding role clarity echoes later findings by Mullan (2021) for example who discusses experiences reported by physiotherapists working in advanced practice roles and the ongoing attempts in envisioning their role. The key findings from Mullan's work were frustrations around limitations of access to controlled drugs for physiotherapists, alongside the need to clearly set out the requirement for prescribing to be part of the First Contact Practitioner (FCP) role in primary care.

With further reference to physiotherapy, work was conducted to review the expansion of physiotherapy consultations (Glasgow 2019) to include elements beyond the purely biomechanical assessment. This emanated in part from frustrations with the biomedical model of assessment, inherent frustrations that led to development of new ways of practice among Australian private practice physiotherapists, and a reported tension between personal and professional sense of role. Looking beyond one's own professional boundaries can promote better awareness of one's own sense of professional identity when faced with perceived ignorance of colleagues. This was noted when students were offered an opportunity to engage with a range of healthcare professions (Dunleavy et al 2017). As a consequence of this, students were found to develop an enhanced sense of their own professional identity, which was triggered in part due to a lack of knowledge from other professional groups. This enabled them to not only address concerns with regards to the beliefs that other professions held about the role played by them in healthcare, but also, the process of presenting to other professions enabled each set of healthcare profession students to grasp a better sense of their own professional identity.

2.4 Professional Roles and prescribing

Discussions surrounding the concept of role in non-medical prescribing have been held since the Medicines Act (1968) was amended to extend prescribing rights. It is interesting to note that Bradley et al (2005) in an early debate on the subject reported that most nurses at the time did not feel that the inclusion

of non-medical prescribing would change their role significantly as they reported that it would not change their practice. This is a concept at odds with that offered earlier in this chapter (Oliver 2007, Sluss et al 2010) where it was argued that a concept of role is strongly related to activity and is a concept that should be considered to be in a constant state of change.

Meanwhile, Stenner et al (2010) investigated how nurse prescribers were incorporating prescribing within their role. Participants pointed to maintenance of a level of nursing care that they felt enabled a delineation to be made from their medical colleagues. It should be noted that these findings are from the early years of non-medical prescribing. The subsequent expansion of prescribing to include other professions in addition to the development of the advanced clinical practitioner role adds further complexity. There is a clear need to develop greater understanding of the impact of the extension to prescriber status within an increasing range of professions and roles.

Bradley et al (2008) also offer the early sense of conflict within the nursing profession, especially within Mental Health Nursing regarding the uptake of non-medical prescribing. This included ideas that prescribing might contribute to a loss of the holistic nursing role due to more medicalised thinking. There was a keen sense among Mental Health Nurses of the benefits of working in teams and that at that time NMP courses were not suited to their specialism. Discussion regarding the value of what the role of a nurse

prescriber would entail was also found to be important to other areas of nursing. Concerns were raised by participants regarding a lack of agreement of what it meant to be an advanced practitioner (Fairley 2005) within the critical care environment. In particular the authors report that the skills required to develop that particular role were poorly understood. This view was echoed later by Bray et al (2009) who raised concerns regarding the lack of availability of junior doctors fuelling the pressure to grow the number of non-medical prescribers. The authors further argued for clarity as to how the role of advanced practitioners in critical care could support a non-medical prescribing role.

In a research report for the Professional Standards Authority; Christmas and Cribb (2017) describe professional identity as a complex construction with no clear causal relationship between professional identity and individual practice. The authors reflect on the influence of professional backgrounds on perspectives held by individuals concerning restrictions on behaviour conferred by identity. They reported greater influence within the field of mental health, where greater focus is made on development of a relationship with the patient than necessarily within pharmacy.

Further discussion within the field of mental health (Smith and Hemingway 2005) raised concerns that prescribing would affect what the nurse did with their time, changing the allocation of resources with more time spent on prescribing responsibilities leaving potentially insufficient time to engage

with other areas of previous practice. In further contrast to the findings of Bradley et al (2005) where it was felt that prescribing would not impact on role, Avery et al (2007a) identified that spending more time on prescribing duties contributes to changes in the role of non-medical prescribers. Of significant interest was the argument proffered in further work by the same team (Avery et al 2007b) that doctors would be likely to hold sway in the relationship between themselves as doctors, and nurse prescribers for the long-term success of non-medical prescribing. This view has been challenged by subsequent work (Pritchard 2027), in which an investigation of changes in roles between doctors and non-medical prescribers suggested that these developments in professional roles, both within the professions and echoed by wider societal change in perception, are challenging norms of hierarchy within organisations. This is not only limited to doctors and nurses, the impact of change also will drive forward the development of relationships between AHPs (Allied Health Professionals), other healthcare professions and patients.

Role conflict was highlighted in the field of primary care (Daughtrey and Hayter 2010) where GP (General Practitioner) receptionists were reported as holding the belief that nurse prescribers were, “mini doctors”, and of doctors offloading work onto newly qualified nurse prescribers causing anxiety among nurse prescribers with regards to their professional limitations incurred by the scope of prescribing practice.

Experiences of conflict due to changes in role were echoed in the concept of control that doctors in primary care appeared to exert on nurses who applied

for non-medical prescriber programmes. This was highlighted in a qualitative study undertaken by Cooper et al (2012) who performed multiple case studies which incorporated semi structured interviews as their method of choice, six (6) pharmacists, four (4) nurses, a doctor, and a patient were interviewed at each of the ten (10) sites, across both primary and secondary care. It was found that in primary care there was a greater sense of doctors controlling who they put forward for training and of simplifying the scope of those involved. Thus, reducing the impact of non-medical prescribing on their self-perceived role as lead clinician. This ongoing sense of difference was brought to the fore elsewhere (Kroezen et al 2014) where it was reported that despite similarities legally between nurse and pharmacist independent prescribers and medical practitioners, there was an ongoing separation in their respective authority. This difference in authority is centred on the concept of scope of practice which might also be viewed as closely related to clarity of role. Maddox et al (2016) who met with nurses and pharmacists in focus groups and interviews argued that the role of a non-medical prescriber is additional to that of a medical prescriber and not intended as a replacement. They found that clarity of role in association with a defined scope of practice was felt by non-medical prescribers to be a key factor in promoting patient safety and successful working. It is the focus on the importance of the concept of role that has led researchers to the conclusion that professional boundaries are fluid (Lim et al 2017).

A key outcome of the development of prescribing within nursing has been the growth of an interdependent relationship between nursing and medical colleagues, rather than one where the nurse is in a relationship of deference to medical colleagues. It is worth contrasting the extent of change in attitudes within the period of just 10 years (Avery et al 2007a, Lim et al 2017). The centrality of the concept of scope of practice in non-medical prescribing was illustrated in an area of clinical application where non-medical prescribers had a tightly defined scope. The authors highlight in a qualitative study where the complexity of the role of a non-medical prescriber as a defined entity role was debated (Brodie et al 2014). This close relationship between role and scope is echoed in work by McCann et al (2012) in their qualitative assessment of pharmacy prescribing , where independent prescribers reported increased satisfaction within a defined scope of practice and found that working across professional boundaries was beneficial to patient outcomes. The importance of working within a clearly defined role is further exhibited in work seeking to understand the interprofessional landscape in primary care, where the inclusion of a pharmacist prescriber within GP practices in New Zealand was studied (Bhawan et al 2017). The authors found that success of the project depended on a range of factors including high quality staff, provision of an appropriate space to carry out the role and importantly, a clearly defined role.

In conclusion to the development of non-medical prescribing within nursing and pharmacy, Abuzour et al (2018a) in their review of expertise development

within nursing and pharmacy commented that becoming a prescriber reflected a complex transition in role involving multiple influences, including emotional and knowledge-based influences. Their study utilised a think aloud technique originally developed by Ericsonn and Simon (1984) to assess cognition, immediately followed by semi-structured interviews with eleven (11) nurse prescriber students and ten (10) pharmacist prescriber students. The outcomes suggested that the development of a strong professional identity in prescribing would benefit interprofessional practice. With the addition subsequently of AHPs, this adds to the variety in the foundational development of a professional identity construct underpinning a professional identity for prescribers. Abuzour et al (2018b) in their review of factors influencing clinical reasoning, note that whilst role blurring is being encouraged centrally, the different professions projected alternative methods of thinking which underpinned their approach to patient care; with the presence of differences in the knowledge base between professions that are specific to clinical scenarios. The authors noted that mixing of professions would be aided, not only by the use of interprofessional education, which is common among prescribing programmes, but by the use of collaborative mental modelling (Jeffery et al 2005).

It is only in the relative recent past, since 2013 that physiotherapists have been able to train as independent prescribers, having previously been able only to train as supplementary prescribers from 2006. The more recent changes in physiotherapy and the subsequent reduction in time to adapt to role change in the profession has led to reports of increased stress among physiotherapists

related to scope expansion (Daynes and Horgan 2016). The authors postulated that the increased reported stress was due to the then recent change in legislation allowing physiotherapists to embrace independent prescribing which requires a greater sense of responsibility in diagnosis as well as therapeutics. This sense of anxiety within elements of the profession was reflected in outcomes from Holden et al (2018) in their mixed methods study of physiotherapists' approach to the use of analgesia in the management of osteoarthritis of the hip. They reported that advice varied among physiotherapists, and significantly, that there were some physiotherapists interviewed who felt that prescribing should not be in the remit of physiotherapy for issues stated as increased responsibility, increased risk of being sued, not being paid enough, and that prescribing had no part in physiotherapy. In contrast where physiotherapists have embraced non-medical prescribing, they have shown to be active and effective in their role. Of particular note is an example of a physiotherapist who reported on the impact of a physiotherapist independent prescriber within a physiotherapy led balance clinic (Burrows et al 2017), where referrals to consultants were reduced and prescribing constituted up to 48% of interventions, with patients' satisfaction positive.

The findings of Daynes and Horgan (2016) and Holden et al (2018) are confirmed by Jarmain (2022) who presented work based on thematic analysis from interviews with nurses, physiotherapists and pharmacists. It highlighted the discomfort experienced by newly qualified prescribers as they sought to embed their sense of a new and developing identity, and the use of role models

from a variety of professions in the construction of the new prescriber identity. Anxiety in the form of imposter syndrome was reported across the professions suggesting a non-gender specific impact of imposter syndrome when professionals take on a new identity and seek to blend it with their pre-existing professional identity. Non-medical prescribing is part of advanced practice, and this may be at risk from similar experiences. Identification and development of a professional identity inclusive of non-medical prescribing could strengthen interprofessional working relationships and be beneficial for patient care. Jarmain's work is supported by findings by Mullan (2021) who commented on the lack of role models among physiotherapist first contact practitioners and linked this to feelings of anxiety among physiotherapists undertaking this new role, with a greater impact from prescribing on their sense of identity than other expansions of scope of practice. Feelings of anxiety in those new to a role are articulated by a range of authors who have debated development of new roles with role strain suggested to be long lasting in nature (Fox 2017).

2.5 Professional Policy Context

Profession specific documents from all non-medical prescribing professions within the United Kingdom were reviewed from the Chartered Society of Physiotherapy (2018), College of Podiatry (2018), Society and College of Radiography (2016), College of Paramedics (2018), British Dietetics Association (2016), Nursing and Midwifery Council (no date) and General Pharmaceutical Council (2019). There is a common thread among

the policies and guidance documents with joint reference to the Competency Framework for Prescribers (2016, 2021) and differences among the policies focus on the requirements for extra indemnity arrangements, with the HCPC professions including indemnity cover for members of the respective professional bodies. Nurses and pharmacists, however, are required to obtain separate additional indemnity cover. There is a common focus on the need of the individual to prescribe within their areas of expertise. Of particular note is the caveat within the Information Paper Medicines use in Physiotherapy Practice (2021) which cites "Physiotherapists cannot prescribe medicines for cosmetic purposes. Whilst medicines legislation permits registered physiotherapist prescribers to prescribe any licensed medicine, both regulatory and professional obligations require that physiotherapists only prescribe within the scope of their profession and their personal competence. Physiotherapist prescribing is pegged to registration as a 'physiotherapist.' There is currently no legal mechanism for registered physiotherapists working in roles that contain elements of work that are outside the scope of the profession to similarly prescribe for these activities." (p8)

This remains an area of conflict within the profession with an increasing number of physiotherapists becoming involved in the field of aesthetics (personal communication unreferenced)

2.6 Conclusion

The preceding discussion provides a sense of the complexity encountered by healthcare professionals who embark on a journey of non-medical prescribing. In combining the significant emotional impact of role change (Ashforth 2012), the development and engagement with new identities Ibarra (1999,2005,2010) and the ideas around brokerage (Kluijtmans et al (2017) there is a potential for clinicians to struggle to accommodate a new sense of role and identity on becoming novice prescribers. This struggle can negatively impact on them finding their place within their own profession and amongst prescribing colleagues. Burke and Stet (2009) present an image of self-esteem as a reservoir of resource that enables individuals to embrace challenges such as the development of a new role or identity. They suggest that if the reservoir is relatively full, reflecting a high self-esteem, then the chances of successful assimilation of the new role or identity will be greater than if the self-esteem reservoir is diminished. This suggests the importance and value of ongoing mentoring and support (Graham-Clarke et al 2018). Engagement with a mentor and the application of non-judgemental reflexivity will have the effect of maintaining reservoir levels of self-esteem. However, working in isolation or facing a lack of support in the workplace when engaging in a new role, will drain the reservoir and potentially lead to reduced chances of success in absorbing the new role identity. With the relative lack of literature relating to physiotherapy, and the comment referred to above by the Chartered Society of Physiotherapy (2021) regarding limiting prescribing to rehabilitation perspectives of physiotherapy, the time is ripe for an

examination of the impact that non-medical prescribing has on the role identity of physiotherapists.

Due to the lack of a clear sense of identity within physiotherapy in particular regarding the effects of changes impacted by additional education in order to become a non-medical prescriber, it is appropriate to incorporate qualitative methods to better understand the viewpoints and experiences of a range of stakeholders involved in physiotherapy and non-medical prescribing. In order to provide added credibility to the findings, and to reflect the pragmatic ontological framework shared by both the researcher and the physiotherapy profession, the addition of quantitative methods, thus creating a mixed methods research approach, influenced the construction of the thesis, in which the overall research study consists of three phases, where phase 1 is qualitative, phase 2 is the development of a questionnaire and phase 3 is the dissemination of the finalised questionnaire to a representative sample of the wider physiotherapy profession within the United Kingdom. Full details regarding the content and structure of each phase are presented in the succeeding chapter.

Chapter 3 Introducing a conceptual framework

3.1 Role identity

To understand the impacts on the role identity of physiotherapists, it is important to review the evidence for role identity itself.

Identity theory has its origins in the work by George Herbert Mead (1934) who laid down the foundation for the subsequent development of the concept of symbolic interactionism that Blumer (1969) postulated. Blumer argued that identity was a construction by individuals who acted as active agents in their interactions with others.

A key factor regarding how individuals interact consists of understanding the power of perceptions, and how they relate to identity. This is principally highlighted in the work by Bobby Duffy (2018) who introduces the perspective that changing perceptions is unlikely through the use of factual information alone, instead what is needed is the addressing of issues that are key to the sense of identity. It is interesting here to note the implied significance of the role of identity, as attributed by Duffy, in driving our perceptions, and the power of that in creating potential misperceptions. Duffy links identity to the interaction between an emotional and a factual viewpoint, with the emotional viewpoint acting as a primary factor. This impact of an emotional factor in perceptions is echoed later in this chapter in the review of challenges associated with changes of professional identity.

An individual's perception of who they are comprises their sense of identity. One underpinning theory reveals a dynamic interplay between the individual and the social structure they relate to (Burke and Stets 2003,2009). Figure 3.1 below illustrates the control loop feedback system at the centre of Burke and Stets theory of role identity. In the model, behaviour is defined as actions carried out by an individual in response to two key features. Firstly, the input – which represents an enforced change – for example undertaking a prescribing programme, and the identity standard, for example, in this case the internal image that the individual has of themselves as a healthcare professional. If the internal identity standard held by the individual is at odds with what they are experiencing, then this will drive a change in behaviour.

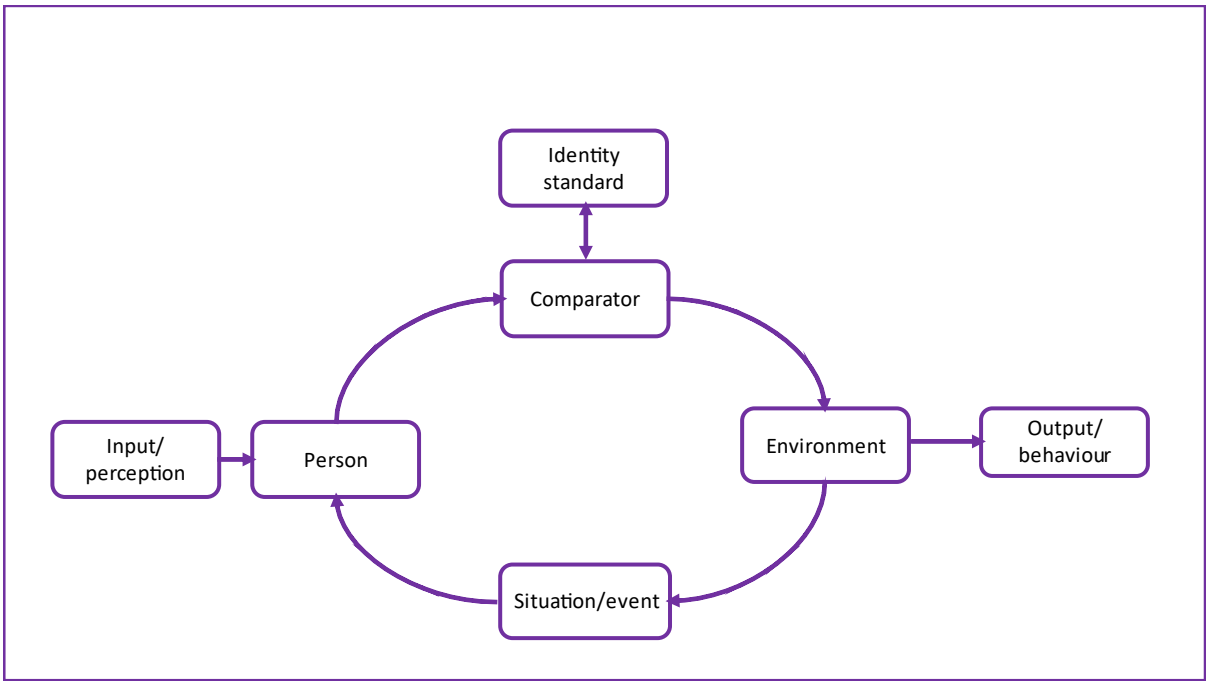

Figure 3-1 Identity Verification control loop

Individual actions can drive and develop changes within the overarching social structure whilst the social structure in which the individual acts, has an active role in the development of the identity of the individual. Identity theories have been evolved by the development of structural symbolic interaction where Stryker (2002) took initial work by Mead (1934) and Blumer (1969) on symbolic interactionism and applied it to structures, thus developing the theory of structural symbolic interactionism. The main difference between structural symbolic interaction and traditional symbolic interaction is that structural symbolic interaction reflects the emphasis placed on the role of external environmental influences on the development of role identity. Stryker argues that individuals can hold multiple roles and agencies which comprise the self, whilst awareness of the self is shared simultaneously with others we engage with. This develops the complexity seen between the individual and the social structure. Here Stryker's work is seen at focussing on the impact of the environment on identity, whilst Burke and Stets focus is primary on the individual's sense of identity and how this impacts the environment within which the individual functions. This is not to suggest that Burke and Stets ignore the impact of structures as they make clear (2005) that identity control theory is a complex amalgam of interactions, which looks beyond the perceptual control theory of behaviour which seeks to predict behaviour from an individual's evaluation of input, to take into account the multiple salient identities held by an individual at any point in time, with salience being influenced by both environmental and contextual factors

It is in the combination of these two approaches that identity theory is developed. In combining identity control theory and symbolic interactionism to inform identity theory, Burke and Stryker (2000), enable an understanding of the difference between individual identity theory and role identity theory. Role identity is different to individual identity since the role is not indicative of the individual, rather it is a set of actions that the individual undertakes that support and underpin the role. Consequently, individuals can hold multiple roles that can interact with each other. It is the interaction between the physiotherapist and prescriber roles that this study seeks to observe and understand better.

In Ashforth's work on role identity (2012), two divergent models of role are discussed. A fixed structural understanding of the role of an employee that is determined by the organisational constraints and the set of behaviours expected from the individual (Ebaugh 1988), are set against the more dynamic model of role identity as outlined by Blumer (1969) in his work on symbolic interactionism. In Blumer's thinking, the role identity of an employee is something that is constructed by the employee in association with close colleagues through observation and negotiation. It is something that is open to change and development in contrast to a fixed given place in which the employee needs to situate him/herself. This model that is representative of symbolic interactionism is supported by Ashforth (2012), who probes the questions of why we see ourselves the way that we do, and what it is that drives humans to create roles and subsequent role identities. In an earlier

piece of work, Ashforth et al (2007) discuss new starters to organisations and consider their socialisation within the organisation, especially the strategies that individuals use in developing their place within the organisation. Of particular note was the importance of the first few days or weeks, when the early experiences of the individual can preface the success or otherwise of their attempts at socialisation.

The authors (Ashorth et al 2007) note the emphasis of the use of ethnographic studies focusing on lived experiences and richly layered descriptions from individuals as opposed to conceptual frameworks for people new to occupations. This reveals that activity on the part of the new starter is pro-active rather than reactive in the development of their role within the team/organisation/profession. It is also suggestive of a gap in the evidence for theories of role identity change. It is notable that the learning of a new skill in an individual, for example, non-medical prescribing, would place the individual in a setting not dissimilar to that of a new starter in an organisation needing to renegotiate their place. Significant to the process of evolution of identities is the taking on of new roles, such as activities, where the new starter takes on actions that reflect aspects of the role. In addition to developing relationships with colleagues (Ibarra 1999, 2005, Ibarra and Barbulsecu 2010, Ibarra et al 2010) one of the relevant areas of thought relate to the transition from one identity to another. A process that Ibarra refers to as the liminality of selves, where potential identities are experimented with. The outcomes of which are not predetermined. They are dependent on their being

subject to positive reinforcement if the individual received positive feedback and feelings of confidence, and negative reinforcement when the individual faces challenging feedback that sits increasingly disparate to their salient identity states. This is associated with the processes of disengagement from one identity followed by the subsequent engagement with another (Ibarra 2005). This is an area of study that shares much in common with the processes associated with taking on the role of a prescriber within physiotherapy. This process of liminality of role, was built on earlier thinking where Ibarra (1999) considered the trialling of potential roles within a professional identity that are in effect "tried out" before the development and maturation of the professional identity. This approach is echoed elsewhere where identity is shown to be both unstable and changeable as a construct (Butler et al 2014). Butler et al (2014) decided to use novel approaches to data collection as the felt constrained by the common use of interviews and or surveys. In their study they used cartoon-based images with participants who were asked for their impressions on what they felt the images meant to them in respect of their work role. This was a proposition for an innovative method of data collection. It should be noted that Butler et al (20140 approach identity from a strongly constructivist angle, not aiming to show causal relationships but instead seeking to develop a new insight into what is meant by identity. This complexity of identity echoes that of Donahue et al (1993) who discussed the original work by Mead (1934) and highlighted the multiplicity of roles that people can adopt.

3.2 Role identity, and physiotherapists

The concept of role identity is underpinned by the work of Blumer who introduced the concept of symbolic interaction in his seminal work in 1969, which presents perception of reality as in a constant state of flux. How people interact with each other as humans (in the case of physiotherapy; we might view a relationship between patients with professionals, and professional with professional) forms professional or personal conduct. With symbolic interaction, social structures such as professions are deemed real but are imbued with meaning by people; hence, they are constructed in a dynamic manner. Burke and Stets (2003) developing on work by Mead (1934), Blumer's predecessor and tutor, discuss how professionals create an internal sense of self by their activities. This includes decision making and following evidence-based practice relevant to their profession, that is readily identifiable to an observer. A profession, therefore, is not a static structure, but is a process driven grouping of people determined by the actions of those people within it. It is constructed or created from within via the interaction between the relevant principals – clinicians, managers, and educators. Sachs (2005) defines professional identity as being underpinned by how we act, how we behave and how we understand our roles in society.

Despite the inclusion of physiotherapists among those practitioners who are eligible to train in non-medical prescribing (DoH 2013), there has been a lack of published literature on the impact of doing so on the role identity of physiotherapists. The importance of studying role identity through periods of change is supported in work that brought to light the emotional impact of

change on the individual (Diehn 2013). This sense of change, experienced by the individual can last up to three years (Fox 2017). In applying this to physiotherapy, the conclusions of Diehn (2013) and Fox (2017) suggest that the considerable change encountered by physiotherapists in learning and absorbing new skills such as prescribing can have profound and lasting impacts.

One could therefore argue that the introduction of prescribing rights for physiotherapists has brought about a change to role identity within the profession. However, there is a lack of published evidence looking at the concept of role identity within the profession. Professional role identity has been discussed within other professions for example nursing, podiatry and speech and language therapy. Stokes and McCormick's (2015) collection of narratives from speech and language therapists and teachers present examples of the complex nature of professional identity. Features such as education, professional associations or groupings, and attitudes amongst others are seen as essential features of professional identity which is best seen as in a state of flux, a construct that is never fixed. A key component of professional identity is the creation and maintenance of role boundaries (King et al 2018), this article notes the importance of names and the symbolic meaning of titles and points out that for podiatry this has been exemplified by the separation from the term chiropodist and the development of a barrier around care for the diabetic foot, biomechanics, and surgery. This sense of boundary includes

locations set between the healthcare professions. The interprofessional boundaries and the point between the profession and the service user or

patient is however viewed as flexible in nature and constantly under strain. Dahl-Michelsen et al (2021) reviewed boundary issues in physiotherapy, considering the historic tensions that have existed between physiotherapy and other healthcare professions. They particularly reviewed the long history of perceived conflict between the Mesendieck school of exercise therapy and physiotherapy, calling attention to how the two schools of thought have sought a collaboration as opposed to continued conflict, offering a new perspective on the professional arena.

Within occupational therapy (OT), a review of the professional identity of occupational therapists in Australia, showed that uncertainty regarding the professional identity was linked to issues such as effective boundarying of the profession and rates of burnout (Walder et al 2022). This finding confirmed that of Edwards and Dirette (2010) who investigated the relationship between professional identity and burnout in OTs in the USA. They conducted a survey of registered OTs in Michigan using a sample of 300 individuals from the total number of registered OTs (4463). A total of 126 responses were received which were subsequently analysed by assessing the scores for one survey (Medical Burnout Inventory - MBI) against a second (Professional Identity Questionnaire - PIQ). The results suggested that an inverse relationship existed between the rates of potential burnout and strength of professional identity, with the lower sense of professional identity seen in OT associated with higher levels of burnout within the profession. In Walder et al's review

(2022) there were additional findings. These included the suggestion that whereas senior staff have traditionally been a resource among junior

colleagues in the development of their sense of identity, this was increasingly lacking. This lack of contact was highlighted elsewhere as being a potential issue for consolidation of professional identity (Fitzgerald 2014). Walder et al (2022 p193) conclude by stating the need for occupational therapy to strengthen its sense of identity to enable what they term "professional resilience". Professional resilience is a concept that underpins a sense of identity that has clear meaning and boundaries, whilst being open to challenge from diverse environments in which the professional is engaged.

This familiar picture is echoed within the relatively new development of advanced clinical practitioners (ACPs). The ACP role is a recent development with Health Education England introducing a national professional framework as recently as 2017. The framework was created due to a lack of congruity to what the term "Advanced Practice" meant. Considering the relative brief history of the role, it is not surprising to find that professionals working as ACPs reveal a lack of clarity from external agencies regarding their role (Lawler et al 2022).

Within physiotherapy, the majority of the work has focused on identity development for physiotherapists during pre-registration education and as they embark on their professional career. Of particular note is the work by Lindquist et al (2006) and Nygren-Bonnier et al (2022). Lindquist et al (2006)

held interviews with 18 pre-registration students (8 in the UK, 10 in Sweden) in 2006, subsequently identifying 3 dissimilar types of identity among student

physiotherapists. The authors recommend that educators encourage students to embrace areas they feel less comfortable with in order to develop a greater ability in critical thinking to enable development of more congruency within their sense of developing professional identity. Nygren-Bonnier et al (2022) conducted a qualitative study among Swedish physiotherapy students investigating development in identity between the first semester and the last semester. Students were asked to complete an essay discussing their perceptions on identity with the essays subsequently reviewed by a team of researchers. In the first semester, 45 students participated (age range 19-48 years, mean 27.5, gender ratio 68% female) with 51 students participating in the final semester (age range 22-54 years, means 27.0, gender ratio 68% female). The authors noted significant changes in attitudes to ideas concerning future physiotherapy practice between the first and last semester. The findings suggested a development in the sense of identity with student thinking embracing a wider, more global, perspective of role and relationship within healthcare in their last semester. The students in their final semester were looking outwards compared to the perspective of students in the first semester, reflecting an awareness of self in the new role as physiotherapist. This awareness of self is a key component of identity development within social identity theory (Burke and Stets 2009)

3.3 Students and role identity

As detailed above, investigation of the role identity of physiotherapists has been focused primarily on the development of students with the creation of a professional identity. Subsequent to work developed by the Department of Health and Social Care (DHSC) in the NHS Plan (DoH 2000) and the National Service Framework for Older People (DoH 2001), Lindquist et al (2006) as referred to above, reported on the emergence of three categories they interpreted as being important in being a physiotherapist: empowerer, educator and treater. The discrete nature of the categories suggested that there is a diversity in the way that students envision their role in their future profession. The authors also recommended that attitudes to identity development be incorporated within pre-registration courses to enable better matching of students with potential career pathways. In addition, the article also notes that the work by the Department of Health and Social Care had suggested a future focus for the profession on rehabilitation. This focus continues to be the case despite the acquisition of prescribing rights.

Meanwhile a study of final year physiotherapy students in the UK revealed that identities were constructed via a range of means (Chambers 2012), including preconceived ideas of an ideal professional identity, labelling, battle ground images and dealing with conflict. Identities of final year physiotherapy students were not constructed following a straightforward process but rather often entailed significant amounts of struggle. The conclusion focused on the need for educators to support students as they grapple with changes of finding their way in a healthcare system that is

increasingly complex. With the changes that have taken place since 2012 when this work was conducted, there is an argument that this need is even more apparent. Of

note, one of the findings from this study was the ability of student physiotherapists to be active agents in the development of their own identity within the planned professional identity informed by what Chambers calls "the dominant professional discourse" (2012, p156). This suggests that far from being a static fixed point, professional identity in fact is likely to be remarkably heterogenic and responsive to changes. These findings were echoed by Clarkson and Thompson (2017) who showed a heterogenic range of identities obtained by final year osteopathic students from an identity being constructed through a time of liminality to that of a constructed identity. They theorised that those students who had obtained a well-constructed professional identity would fare better when transitioning to qualified status.

3.4 Qualified staff and role identity

Subsequent to the Francis Report (Francis 2013) which led to an increase in research aiming to better understand behaviour within the health services. The construction of identity among physiotherapists has been investigated using a qualitative approach called collective memory work. In Hammond et al (2016), eight (8) physiotherapists participated in this approach and the results indicated that physiotherapy was facing in two disparate directions, one more aligned to a traditional medical model of treatment and use of technology, and the other, a psychosocial model focused on rehabilitation. This echoes the

findings of Lindquist et al (2006) with their identities of empowerer, educator and treater. Hammond et al (2016) argue that professional identity is a fluid construct that is strengthened by individuals being actively encouraged to take part in discussions regarding the ethical and moral dilemmas experienced in carrying out their role. The authors argue that this practice, carried out in the workplace, will strengthen physiotherapists' awareness of what they believe, value, and know and thus enable a greater awareness of a sense of self identity as a physiotherapist. A limitation of Hammond et al's approach is the small number of participants alongside a lack of testing against a wider sample population of physiotherapists, something that the researcher will be including as part of the three phase model demonstrated in this thesis.

Whilst investigation into the concept of role identity among physiotherapists is sparse in the literature, Kluijtmans et al (2017) offer insights into the development of role identity in physiotherapy in their investigation into the clinician scientist role. A cohort of nurses and physiotherapists was studied. They discussed a particular set of behaviours that involved the ability of the professional to cross role boundaries. For example, both professions involve a caring and an investigative identity, each requiring different skill sets. This ability to bridge identities was termed as being a broker. This brokerage approach was used to provide insight into the presence of multiple identities felt within a role, where individuals will have both carer/clinician and scientist with significant tension felt at the role boundary. Lindgren and Wahlin (2001) also discussed this boundary crossing identity state. They argued that identity construction should not be seen as a fixed entity but

should be seen as in a flux, with those working across boundaries often seen creating and recreating identity. During the process of examining the impact of non-medical prescribing on the role identity of physiotherapists, it is

therefore possible that rather than a single identity being encountered, there is a likelihood of multiple identities with ongoing sense of change.

3.5 Summary

The conceptual framework of identity control theory has been set out as the framework which will be used to aid in understanding and interpreting changes experienced by physiotherapists when undertaking further education to become a non-medical prescriber. Identity theory based on symbolic interactionism shared an ontological perspective of pragmatism with the researcher which will be further developed in the following chapter, showing how the application of mixed methods utilising constructivist grounded theory within the overall model of a exploratory sequential QUAL-QUAN study, fits both the researchers worldview and the profession's stance within the field of developing the professions evidence base. Previous literature highlighting attempts to describe identity among physiotherapists and related allied health professionals has been presented. Links to symbolic interactionism and identity theory have been presented, alongside alternate approaches, specifically the memory narrative approach utilised by Hammond et al (2016). This sets the scene for the methodology and methods which are applied in this thesis, in particular the use of mixed methods as a means of adding usability and credibility to the substantive theory of role change developed within the qualitative phase of the thesis.

Chapter 4 Methodology and Methods

4.1 Introduction

This chapter presents the development of the thesis, with reference to the ontological framework underpinning the work. The initial discussion in section 4.2 provides background to the philosophical basis for the thesis, in particular the use of pragmatism as the ontological foundation. The use of mixed methods is demonstrated, with presentation of constructivist grounded theory being used as both methodology and method for the qualitative section of the thesis. Following a detailed discussion setting out the methodology alongside a discussion of research ethics, the methods applied within the three phase study will be set out. Methods used for phase 1, the qualitative phase, phase 2 the questionnaire development phase and phase 3 the quantitative phase will be illustrated and discussed. Importantly for the application of mixed methods (Cresswell and Plano Clarke 2018), the methods underlying how the outcomes of phases inform the subsequent phase will be presented Validation approaches for phase 2 will be presented along with statistical methods planned to assess the results for phase 3 to verify the conceptual framework and test hypotheses regarding viewpoints held by physiotherapists.

4.2 Epistemology and Ontological approach

Thomas Kuhn (1996), in his seminal work, "The structure of Scientific Revolutions" introduces the term paradigm to underpin a set of assumptions and accepted norms within a group of people. In research terms, the paradigms of research consist of the worldviews as described below, a term that Creswell (2014) uses in place of paradigms and as an alternative to ontology. These worldviews encompass the following four perspectives: post-positivism, constructivism, transformativism and pragmatism. Creswell provides useful background on all four areas (p290); however, I will summarise here the key aspects of each, focussing on my chosen worldview which is pragmatism.

4.2.1 Post Positivism

Post-positivism tends to be more equated with quantitative research and the verification of theory. However, post positivism is a worldview that rejects the foundationalist origins of positivism and portrays an approach to scientific methods that incorporates an awareness of issues such as unconscious biases held by researchers. Phillips and Burbules (2000) reject both extremes of absolute positivistic and constructivist thought and argue for a more middle ground approach to research (p26). I have not used the post-positivism framework in this thesis as my work initially requires the generation of theory for which post-positivism is not well suited.

4.2.2 Constructivism

Constructivism is a worldview which accepts the co-construction of a social reality between individuals (Cresswell 2014 p8), producing outcomes that are both contextually rich and contextually related. In the constructivist world view, there is no single reality to be verified, rather humans create their own sense of the world around them as a consequence of their interaction with others.

4.2.3 Transformativism

The transformative worldview is a recent development in terms of research history developing from post-positivism in the 1980s (p8). Often utilised by marginalised groups the key aspect of the transformative worldview is that for research to be meaningful within the field of social sciences, it needs to be linked to a political argument in order to foster beneficial change.

4.2.4. Pragmatism

Finally, he pragmatist worldview, which I show below fits with both my ontological perspective and the research topic under investigation. Key to a pragmatist view of the world is that what we view as reality will change, hence no one person can claim to have absolute knowledge or be an absolute authority on a subject. Studying the development of professional growth thus suits the use of a pragmatist framework. The development of pragmatism owes much to the work of John Dewey, an American sociologist of the late 19th and early 20th centuries. Biesta (2010) promotes the argument that rather than being a worldview, pragmatism offers a set of ideas aimed to highlight the positives and negatives of using mixed methods in research. Biesta argues that pragmatism offers a third way of knowing separate to objective and

subjective modes of epistemic thought. As regards the concept of "knowing", Biesta calls upon Dewey's argument (1922) that knowing is intimately related to interactions with the environment and subsequent experiences gained as a result of that interaction. Alternatively, arguments have been made for pragmatism to be viewed as a third paradigm/worldview alongside qualitative and quantitative research (Johnson et al 2007). These viewpoints suggest that whilst the mixed methods approach is a heterogenous family of approaches, the discipline of working towards a "workable definition" of pragmatism would be worthwhile, given the caveat that a definition is never set in stone. The apparent lack of consensus, rather than suggesting confusion, points towards continued discussion and evaluation of thinking. This is an attitude supported by the early pragmatic philosophers of whom Johnson et al state that they upheld a view "that the present is always a new starting point" (p112)

Historically, Campbell and Fiske (1959) have been considered to be the first to publicise the use of triangulation in order to further reliability of study findings. This concept of triangulation was taken further by Denzin (1978) who made the argument that social scientists should consider use of multiple methodologies in order to avoid unconscious bias from use of a single methodology. This argument was echoed elsewhere when working across paradigms and was shown to have benefits when carried out within a study as the authors, Cook and Reichardt (1979), felt that limiting a viewpoint to the perspective of a singular paradigm had the potential to be exclusive. Johnson et al (2007) also quote work by Schwandt (2000,2006) as well as Guba and

Lincoln (2005) citing arguments from both publications arguing for a more flexible approach to research across the perceived qualitative and quantitative divide. Schwandt in particular offers a way out of the perceived oppositional stances of the extremes of both quantitative and qualitative research worldviews, and makes the following recommendation "to endorse a conception of inquiry that is at once 'scientific *and* critical, rigorous *and* heterodox, structured *and* patchwork' thereby avoiding the extremes of a unified normal social science on the one hand, and the endorsement of just-about-anything-goes pluralism on the other" (p809)

4.3 Mixed methods in physiotherapy

Mixed methods have pedigree within the field of physiotherapy with examples being noted as benefitting physiotherapy practice and the development of robust evidence underpinning a profession that is viewed as balancing multiple practice concerns simultaneously (Shaw et al 2010). Of relevance to this thesis, is work by Lindquist et al (2006) who put forward three practice identities for physiotherapists, treater, educator and empower when they studied newly graduated physiotherapists in both the United Kingdom and Sweden. They suggested the caveat that physiotherapists needed to learn the ability to operate across the three identities in order to be maximally successful in their interactions with their patients. The multiplicity in approaches to clinical practice are suggested by Shaw et al (2010) to be best served by utilising a number of research paradigms underpinning the professional evidence base. They recommend mixed methods underpinned by a pragmatic paradigm. They argued this due to the

early biomedical approaches that have been associated with physiotherapy aligned to post-positivist models of research, and the more recent use of qualitative models of research echoing the adoption of a biopsychosocial model of care. Shaw et al's argument is that with multiple approaches appearing to best serve the needs of the profession, mixed methods research is ideally suited to meet the needs of a profession which has been identified as multi-paradigmatic and that as such, physiotherapists are best advised to adopt an inclusive approach to working with research paradigms. This was a stance earlier advocated by Parry (1997) when she discussed paradigmatic shifts within physiotherapy and the need to move beyond the reliance on quantitative models of knowledge alone, advocating the conjoint use of multiple methods of investigation in order to gain both measurable and experiential knowledge. Since Shaw et al's article (2010) there has continued to be an ongoing use of mixed methods approaches to research within the field of physiotherapy. An advanced Google Scholar search for the search terms "physiotherapy" and "mixed methods" within the title produced a total of forty-eight (48) results, suggesting a developing use of mixed methods within physiotherapy research. Of those forty-eight (48) articles, seventeen (17) were carried out within the field of physiotherapy education, there was no evidence of any published literature within physiotherapy using mixed methods to assess changes in role identity as a result of becoming a prescriber.

4.4 Methodology of this thesis

4.4.1 Methodological development during thesis

Initially, the thesis was designed to be purely qualitative in nature and as such the initial submission to the University Ethics Committee was made in April 2018 with approval subsequently being obtained (Appendix 1). This was further developed during the process of performing a literature review alongside the iterative development of a research design that aimed to enhance the trustworthiness of inferences from the research outcomes into a mixed methods design including quantitative measures. Both constructivist grounded theory and mixed methods share an ontological framework in pragmatism (Johnson et al 2007, Creswell & Plano-Clarke 2018, Tashakkori et al 2021) As discussed in section 4.3, mixing methods has been shown to be an appropriate methodology to enhance inferences from results. This is applicable to situations when results are confirmatory from different methods as well as highlighting greater complexity within a problem if divergent results are uncovered (Tashakkori et al p52-53) where blending of data from questionnaires with that of qualitative data was seen to add value to the study.

The developments within the overarching design (made prior to data collection) led to a further submission to the University Ethics Committee for further approval as it was considered by the committee that amendments to the study were of a sufficient nature that a new ethical review was required. (Appendix 2)

4.4.2 Research Design

The overarching design of the study is a sequential exploratory mixed methods design (Creswell & Plano Clarke 2018) incorporating a QUAL-QUAN approach consisting of three phases. (Figure 2). Phase 1 is qualitative using semi structured interviews as the method of choice to collect data illustrating viewpoints, seeking to understanding of what happens to the identity of physiotherapists when they become prescribers. The results of Phase 1 – a substantive theory of role change in physiotherapy (see chapter 5) are used to inform development of a questionnaire (Phase 2). Validation of the questionnaire consists of both qualitative and quantitative approaches, and once completed is shared with a representative sample of physiotherapists and student physiotherapists within the United Kingdom (Phase 3), The outcomes of the verified questionnaire are then analysed to assess the credibility of the developed substantive theory, and associated between group differences within physiotherapy to a range of hypotheses developed from the categories underpinning the substantive theory.

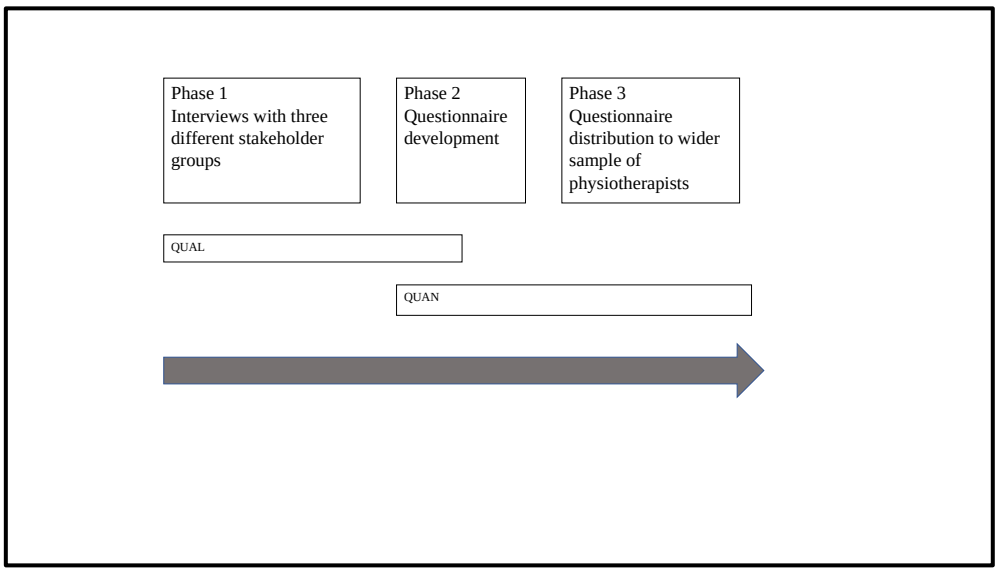

Figure 4-1 Diagrammatic representation of research project

4.5 Phase 1: Qualitative phase – Methodology

Research that seeks to explore or understand requires listening to people in order to learn about what they think and how they act. This fits with the qualitative tradition of research (Creswell 2009). However, in making the decision to apply a qualitative approach in the initial stages of my thesis, it is important to justify the approach that is most applicable to both the research question and my ontological stance, which is best reflected within the field of pragmatic approaches to research.

My rationale for choosing Grounded Theory (GT) as my chosen methodology for the qualitative phase of my thesis is supported by the lack of published research in the area that I am studying. As such, what is required is a methodology that enables the generation of theory and is suited to the research of social groups. GT is well suited to this requirement. I aim to show that the most suitable type of GT is the evolved version of GT known as Constructivist Grounded Theory (CGT) (Charmaz 2006, 2014)

The aim of this thesis is to examine the impact of prescribing on the role identity of physiotherapists in the context of non-medical prescribing. This constitutes therefore the development of a theory, which is a better fit with GT than the other qualitative approaches. The other factors that need to be considered is which form of GT I would be applying in my thesis. CGT was used based on work by Kathy Charmaz (2014) as the approach best fits with the researcher's worldview. Charmaz discussed the variances in GT in her

chapter Shifting the Grounds, Grounded Theory in the 21st Century (Charmaz 2009) in which she identifies that GT has a foundation within the pragmatic school of thought with CGT utilising both inductive thought which source is in a constructivist world view as well as abductive reasoning from the pragmatic worldview. To understand this, it is necessary to review the ideas surrounding the foundation of GT, namely that of symbolic interaction. The ideas behind symbolic interaction began with work by George Herbert Mead considered to be the founding father of sociology. Of note is the fact that Mead started a programme on social interaction at the University of Chicago which later was headed by Herbert Blumer who became the advisor to Anselm Strauss. Blumer is credited with developing the ideas of Mead to formulate thinking surrounding what is now understood as symbolic interactionism a key underpinning thought process of Straussian Grounded Theory.

According to the theory of symbolic interaction (Blumer 1969) our perception of reality is in a constant to state of flux. Blumer argued that how we interact as humans in all areas of our life helps form our professional and personal conduct. For example, with reference to this thesis , how I interact with my supervisors will impact on and change the way our relationship develops. In the clinical environment, how a healthcare professional interacts with a patient can powerfully inform outcomes such as concordance and adherence to a treatment programme. Therefore, the decisions and actions that are taken regarding professional development may well influence a role identity as a physiotherapist.

The use of symbolic interactionism, therefore, has the potential to facilitate an understanding of how professions change and grow. This reflects Blumer's view of social constructs as dynamic entities comprised of individuals who play an active part in its construction rather than being viewed as static structures. Whilst Kuhn (1996) offered a view of professional development in the form of a creation of a paradigm, a set of beliefs and or behaviours to which advocates agreed . He further put forward the idea of revolutions of ideas as a means of providing insight to the development of knowledge within the scientific domain. Blumer's understanding of symbolic interactionism brings into sharp focus Kuhn's model of scientific revolutions which presented periods of time when professions remain static. Blumer instead posits a picture of constant flux and adaptation. Blumer's view therefore offers a unique perspective, one where a profession such as physiotherapy assimilates new skills and responsibilities and continues to adapt within an ever-changing politico-economic climate. Blumer's view needs to be viewed alongside that of Stryker (2002), whose version of symbolic interaction offers significant differences to that proposed by Blumer. Stryker's view of structural symbolic interaction, views overarching structures as stable and slow changing. Essentially the bigger the social structure, the more stable it becomes. In this regard, Stryker's structural symbolic interactionism is closer to that portrayed by Kuhn who presents professions as remaining static until the point of revolution. In conclusion, the impact of the individual and the structure, in this case, physiotherapy, creates a complex system where both individual traditional symbolic interaction forces and structural symbolic interaction forces are present. Stryker's view of structural symbolic

interactionism highlights the role of boundaries within which the individual acts, however, the individual is limited in that they don't have access to interactions outside of the boundaries (Stryker & Vryan 2006). However, this view that individuals are restricted within boundaries set by professions is challenged by the nature of prescribing programmes which is commonly interprofessional in nature. The development of ad hoc identities as noted by Burford et al (2020) adds further complexity to the situation with interprofessional team identities being valued by individuals. How these ad hoc identities impact an individual's sense of professional identity has not been addressed to date.

One of the major criticisms made by Blumer (1969) was the apparent reliance on hypotheses or concepts and accepted research methods. He believed that this led to research being carried out within a methodological bubble. One that separated the researcher from what Blumer referred to as "the empirical world." This world he defined as the messy complex real world inhabited by individuals in their daily lives. CGT (Charmaz 2006,2009,1024) provides a suitable methodology with its focus on reflective practice and iterative analysis of an empirical world problem. It fosters development of theory of an empirical world problem and is open to evaluation within the empirical world. A key point to make about symbolic interactionism is that it postulates a bottom-up approach to the development of social interactions, in opposition to the top-down picture often presented by arguments emanating from a positivist perspective (Carter & Fuller 2016)

With reference to the concept of role identity in physiotherapy, if it is accepted that it is not a fixed reality, rather, the outcome of a set of complex interactions by physiotherapists, it is reasonable to consider that that non-medical prescribing could impact the role identity. Outcomes of this would be to offer insights into how this constructed identity responds to change. More importantly, the profession will be better placed to respond to developments that can lead to enhanced patient care.

Thus, the use of CGT (Charmaz 2014) embodying the symbolic interactionist perspective, provides an opportune approach to explore the impact of non-medical prescribing on physiotherapy, with the aim of developing a substantive theory of what is happening at a profession, managerial, educator and clinician level in this process of evaluation.

What we perceive as sudden changes within a professional identity from the perspective of symbolic interactionism is the outcome of situational or behavioural change. With particular regard to this thesis, this relates to the adoption of non-medical prescribing as a means of healthcare symptom management by a number of physiotherapists.

Of course, there are other forms of GT, and the history of the development of GT has been the subject of much academic debate. One potential rationale underpinning the disputes is possibly the differing world views set out by the various authors. Merry-Jo Levers (2013) offers an interesting insight into this when she puts forward differing paradigms for the various threads of GT. She

argues that classical GT as originally put forward by Glaser and Strauss (1967) was strongly influenced by Glaser's quantitative background and therefore sat within a post positivistic framework, as opposed to changes in approach by Strauss in his later collaboration with Jane Corbin (2008) which reflected a more interpretivist slant. Levers then suggests that Kathy Charmaz's (2006,2014) further evolution of CGT develops from a constructivist worldview. Levers argues that Charmaz' CGT derives from a mechanistic paradigm within a critical realist ontology and a relativist epistemology, whilst Weed (2009) produces a critique of the way that GT is used within sport and exercise physiology, (p508) suggests positioning Charmaz within constructivism ontologically and interpretivism epistemologically. Charmaz herself defines her use of the term constructivist as being underpinned by knowledge and learning stemming from interactions emerging from social groups (2014) In addition to this, as mentioned earlier, Charmaz clearly links CGT with the symbolic interaction mode of thought that stems from the pragmatic school of thought**.** I disagree with Levers placement of CGT. Levers positions CGT as belonging to a mechanistic paradigm stemming from De Haan (2005) who sought to generalise the concept of emergence. She states that Charmaz considers the observed, however De Haan talks of mechanistic models as relating to observation of encompassed systems such as financial markets. Charmaz' focus on the importance of social interaction suggests a derivation from a reflective paradigm which De Haan associates with social systems. De Haan mentions political parties as an example, however my focus being a professional group would be analogous to this. Elsewhere, Levers comments that Charmaz

considers the object under investigation to exist outside the observers mind in her placement of CGT, belonging to a mechanistic paradigm. However, whilst the concept of a role identity for physiotherapists may exist, the interpretation of it is likely to be different across the profession. Professional role Identity is therefore not an enclosed system as envisaged by De Haan (2006) in his article on emergence, rather I perceive it is a constructed identity developed by active participants within a social system.

4.5.1 Grounded Theory – A historical timeline of development and debate

Glaser and Strauss (1967) in their seminal book "The Discovery of Grounded Theory" introduced GT to the world of social science research, to provide in their view some needed structure to qualitative research that would provide outcomes with greater rigour and meaning. A key difference between the approaches that they offered was in provision of a structured approach to the method of research, which lent itself to the development of theory that is grounded within the data rather than verification of a previously suggested theory. Right at the outset, both Glaser and Strauss stressed that their work on the discovery of GT was a "beginning venture". This very wording suggests an awareness of future development, adaptation, and evolution. The authors state that GT will also take many forms, but that the process of generating theory is key. Development of the project i.e., the paths taken towards to the outcome, would depend on the context of the research.

Since theory developed using GT approaches is embedded in the data, the authors argued that the theoretical outcome would be more durable and would

avoid assumptions that are not supported by observed behaviour. An example of this of course would be the development in the early part of the 20th Century of thinking surrounding eugenics, an idea promoted by a researcher who ignored data from his own experiments that argued against his theory which disastrous effects as exemplified in the subsequent atrocities in World War Two (Galton 1904).

The primary aim of GT is therefore the development of theory that could be standardised as either substantive or formal. The principal method of theory generation is that of comparative analysis (Glaser & Strauss 1967). Examples of substantive theory would be in the field of professional education and race relations, both areas that are critical to the concept of role identity that is the focus of my thesis. Physiotherapy becomes then the substantive area under study and in which comparative analysis of data will be carried out. For GT, data analysis is carried out alongside data collection, which is the driving force behind the comparative analysis method leading to theory generation. Within all the major forms of GT as set out by Glaser and Strauss in their original discovery opus, Strauss and Corbin in the iterations of their understanding and onwards to that of Kathy Charmaz with her constructivist version it remains important that concepts emerge from the data to suggest theory rather than the researcher having or choosing a formal theory in mind and then fitting the data into this pre-ordained theory. Making concepts that have emerged from the data to fit assumptions rather than being open to theory development is argued as having a negative impact on the development of theory by relying too heavily on predetermined ideas. However, it should

be noted that this does not preclude the researcher from becoming aware of their areas of study prior to data (Glaser & Strauss 1967 p 32). Rather, the initial assumption promoted by Barney Glaser and Anselm Strauss was that the researcher would read around their area of study and would therefore have an awareness of developments within the area. The important caveat is for the researcher to avoid construction of a pre-eminent theory prior to data collection, which would risk the researcher, falling into the trap of a hypothetico-logico-deductive approach to the project thus creating a study of theory verification rather than theory generation.

There was a very public falling out between Glaser and Strauss, with Glaser commenting that the form of GT put forward by Straus and Corbin (1990) was not really GT, rather that it was a form of description (Glaser 1999). One difference appears to lay in the variation in the amount of stress that Glaser and Strauss applied to the notion of previous knowledge and awareness, with Glaser arguing that the latter had gone too far in allowing for knowledge and awareness of a subject under study thus putting at risk the emergence of novel ideas and theoretical constructs. The significant concept that led to the falling out was a disagreement over whether data was being forced into predetermined tools or whether it was being allowed to emerge without chattels, an argument presented by Glaser in response to Strauss (1992). Glaser repeated this criticism in 1999, in a keynote address when he intimated that whilst there were many forms of GT in use, there was only one pure orthodox GT method. This primarily came down to the debate on emergence of concepts and theory from the data as opposed to concepts being forced into

predetermined constructs that in Glaser's view were represented by the emphasis on coding structures.

However, in their second edition Basics of Qualitative Research, Strauss, and Corbin (1998) make it clear that they do not want researchers to follow the steps blindly but rather, they are seeking for researchers to understand the process allowing for creativity, whilst at the same time providing structure to the method. For classical Grounded Theorists however, the increasing focus by Strauss on verification as opposed to discovery was problematic for many (Charmaz 2009).

What is clear is that over the last 50 years GT has evolved like any other form of scientific method. Charmaz (2006) who was a student of both Glaser and Strauss published her thinking on GT embracing awareness raised in post modernism of the impact of the researcher on the findings and consequently rising to the challenge that was being posited towards GT that as an approach it relied too much on modernistic thinking. GT therefore is likely to continue to grow and evolve in ways that will no doubt surprise and challenge the academic and research community. What is important is that as researchers we keep our minds open to further development. It is imperative that GT should not be allowed to fossilise and become irrelevant, but like any other human construction to continue to develop and provide insight into the thinking and behaviour of humans living in social environments.

4.5.2 Grounded Theory – Critique

Despite the increased popularity of GT as a research method especially within healthcare, the use within the field of social science research has been subject to criticism (Goldthorpe 2000), specifically in the method's apparent embrace of apparently divergent philosophical frameworks. However, this is countered by Mjöset (2005) who claims that Goldthorpe (2000) argues from a standpoint of positivism and thus is interpreting the word theory from a world view that understands theory to be a set of observations that stand the test of experimentation. Goldthorpe is at odds with the practice of redevelopment of theory which subsequently becomes the output of a study. This places Goldthorpe's worldview of research to be within the viewpoint of verification of theory, essentially the approach itself critiqued by Glaser and Strauss in their seminal work "Discovery" (Glaser and Strauss 1967). As mentioned earlier there has been substantial academic debate within the field of GT, with Charmaz herself, criticising Grounded Theory as being positivist, in her introduction to a constructivist form of Grounded Theory (2006). The robust debate over the years highlights how Grounded Theory has developed since it was originally proposed by Glaser and Strauss in 1967 and how as an approach to problems within a societal framework, it has mirrored and, in some cases, potentially driven adaptations to research methodology as research paradigms have diversified into the current multifaceted approach we see today.

The continuing iteration of GT certainly causes problems; however, this can be addressed by maintaining an awareness of the differences between the

forms of GT, highlighting the derivation of GT being applied to any given study. Thus, in my study, I will be using CGT for the qualitative aspect as outlined by Charmaz in her revision of the book CGT (2014) which is underpinned by a pragmatic ontology and informed by symbolic interactionism.

4.5.3 Grounded Theory – Questions of Quality

Grounded Theory in all its forms is a relatively common method for researchers both within and without healthcare. However, there are increasing voices suggesting the poor use of Grounded Theory. There is criticism of the apparent lack of awareness amongst researchers of the multiple approaches to GT (Wagner et al 2010) and a seeming reliance on the original work of Glaser and Strauss (1967) without any reference to subsequent evolutions of the method. The critique is also applied to the lack of development of theory in many studies. This is highlighted in nursing, where several studies claim to make use of GT but in reality, have used parts of GT, as a method tool but not as a means of generating new theory. An example of this is the work by Larsson et al (2007) who claimed to use GT in their study of what is meant by the term "patient participation" in nursing care from the patient's perspective. Whilst the authors used focus groups to obtain data, there was no evidence that theoretical sampling had been undertaken, with all the sampling undertaken by nursing staff in a manner that suggested convenience sampling. The resultant outcome being a lack of generation of theory underpinned by an awareness of a core category of what is important to the patient. This sits in contrast to the work by Williams (1998) who reported on nurses'

perceptions of care in an acute hospital and developed a substantive theory underpinning the provision of high-quality care and the facets that promote and potentially detract from care provision. There is evidence to suggest that GT has been closely related to nursing since its inception in the late 1960s. However, in their review of the use of GT within nursing (Macrae & Purssell 2016) the authors discovered that only half of the studies they reviewed contained theoretical sampling – a key concept of GT. Several studies cited both classical and interpretive models of GT whilst not providing clarity on which model was being followed, and of those studies that did state they used theoretical sampling, several on closer examination did not. An example of this was when in one study, sampling was initially purposive and then superseded by theoretical sampling and yet it was not clear in the section on data collection, how theoretical sampling was used in the sampling of later interviews (Denier et al 2010). In a different study on patients with heart failure, the authors claimed the use of a constant comparison approach adapted from GT (Riley et al 2013) and yet in their analysis of the results it seems clear that all the interviews were approached with the same topic guide that was not adapted subject to initial data analysis. A thematic analysis of the data was derived from a set of interviews, suggesting the use of thematic analysis as a methodology rather than GT. In these studies, GT is claimed as an overarching method or a tool to be applied, however on closer examination, only aspects of GT are being used, or being in some cases misapplied. McCrae and Purssell (2016) argue that they detected similar approaches in the literature suggesting that the same errors were being made in studies carried out by students and/or clinicians seeking to investigate phenomena in the

healthcare environment, with a lack of clear distinction between purposive and theoretical sampling noted. McCrae and Purssell go on to state that there is a suspicion that theoretical sampling is used by some researchers as a tool to determine when to stop sampling rather than a primary aim to generate theory. Given the critique above, it is notable to consider the argument by Charmaz herself that GT is as much method as it is methodology, and for some researchers the position that is taken reflects this. As an example of this, Steffy (2019) carried out a qualitative study using interviews with nursing students to better understand decisions made to move into community nursing roles. Whilst she utilised constant comparison in her analysis, there was no aim at theory development. Whilst this may not be perceived as some to represent Grounded Theory it provided valuable insight into a local research problem via the use of Grounded Theory methods.

Within physiotherapy, Grounded Theory has been used as a popular method in recent years, however a systematic review (Ali et al 2018) showed that of the sixty-eight (68) studies reviewed, only 35/68 (51%) could be reported as of moderate to good quality. The main area of deficiency was the absence of theoretical sampling leading to outcomes that were described activity rather than developed substantial theory as to what is happening. Examples of studies particularly looking at changes in role identity include work by Milligan (2003) who used a pragmatic approach to GT in his exploration of orthopaedic registrars' views of extended scope physiotherapists in clinic. A major limitation of Milligan's article was the lack of evaluation of views held by orthopaedic registrars, and this reflected the lack of theory development in

the study. An example of where GT has been used to develop a substantive theory is in the exploration of novel roles of physiotherapy within primary care organisations in Canada (Dufour et al 2014). Here it was used to develop a theoretical explanation of how physiotherapists used multiple roles to embed themselves within a new organisation, highlighting that roles are more than titles. In Milligan's article, some of the medical practitioners seemed confused by the terminology of extended scope physiotherapy and felt it was just political spin, whereas in Dufour's study roles were unpacked and highlighted as behaviours such as manager, educator, collaborator etc applying meaning to a role rather than simply a title.

4.5.4 Summary

GT presents a reasonable approach to develop theory, as to what happens when physiotherapists undertake training to become prescribers. A conceptual framework has been developed for the evolution of clinical reasoning skills in non-medical prescribers using GT methods (Abuzour et al 2018b). However, as set out in the previous chapter, there has been little if any work looking at the creation of a theory of role development within physiotherapy. This is not the case elsewhere. An example from nursing reveals a model of role change and development in becoming an emergency department nurse. This model consisted of five phases with the phase that best explained the process of change being of acceptance within a team (Winters 2016). Similarly, a theory of identity development in nursing used GT to identify the key categories involved in the modelling by nurse academics of behaviour and identity for undergraduate nurses to emulate. The model developed from

analysis of multiple data sources including classroom observations, interviews and focus groups suggested that mirroring the identity of teaching staff was a key component in the development of a nascent professional identity for undergraduate nurses (Baldwin et al 2017).

4.6 Research question Phase 1 - Methods

This question seeks to elicit the viewpoints of a range of stakeholder groups, providing a triangulation approach obtaining the views of thought leaders, physiotherapists, and members of the public

How do thought leaders, physiotherapists, and members of the public perceive the role of physiotherapy, and how do they anticipate it will evolve with the introduction of prescribing rights for physiotherapists?

4.6.1 Sampling Strategy

Purposive sampling in relation to role was used for Phase 1 of the thesis in order to obtain perspectives on physiotherapy from a range of viewpoints. Three key stakeholder groups were identified to provide triangulation of views, adding usefulness of the outcomes. For the set of interviews with thought leaders, potential participants were identified as individuals in leadership roles in the field of professional practice and/or prescribing education. Members of the public were approached for a lay perspective on the role of physiotherapists and subsequent role change when undertaking

prescribing. Members of the public were identified as those who had either experienced physiotherapy directly or who had experience of a contact who had experienced physiotherapy. Physiotherapists included those individuals who had an active HCPC registration for at least 6 months. Prescribers and non-prescribers were sought in order to obtain contrasting viewpoints.

4.6.2 Participant recruitment

Thought Leaders: Phase 1(a)

Personal knowledge of the profession of physiotherapy by the researcher was utilised in order to reach out to potential participants for those in the thought leaders' group. This included the chair of the Chartered Society of Physiotherapy, the chief allied health professions officer, researchers in the field of non-medical prescribing and programme leads in higher education. An initial list of those at the forefront of prescribing both within physiotherapy and across the healthcare sector was made (Appendix 3). Potential participants were emailed with a background to the research. Those who replied showing interest in participating were sent a further email containing an invite letter, a consent form and a participant information sheet for thought leaders (See Appendices, 4,5,6). Follow-up emails were sent approximately 10 days after the initial email. This invited them to take part in a semi-structured telephone call/video interview. If there was no response after another 10 days, no further action was taken so as to avoid the potential for coercion of participants

Members of the public: Phase 1(b)

A poster advertising the research project was disseminated on social media forums including LinkedIn and Facebook seeking participants for the study, In addition, local physiotherapy practices were invited to display posters in their waiting room (Appendix 7).

Respondents were sent an email invite letter, a consent form and a participant information sheet for members of the public (See Appendices, 8,9,10) inviting them to take part in a semi-structured telephone/video interview. Follow-up emails were sent approximately 10 days after the initial email. If there was no response after the second email, it was assumed that the participant had not given consent and thus no further contact was made.

Physiotherapists: Phase 1(c)

Physiotherapists were identified as those who had an active HCPC registration for at least six (6) months. Physiotherapists could be employed in either the NHS, in the private sector, or they could be self-employed. They could be any of the following, physiotherapist independent/supplementary prescribers, physiotherapists who were currently on a training programme to become an independent/supplementary prescriber, or they could be physiotherapists who had not undertaken a prescribing qualification. These potential participants were approached via dissemination of a poster on professional fora and social media (Appendix 11). Those who responded positively were sent a covering letter, participant information sheet, a consent form (Appendices 12,13,14) inviting them to take part in a semi-structured telephone call/video interview including the option of taking part in Phase 2 of the research study – the development of a questionnaire. Follow-up emails

were sent 10 days after the original email in the presence of lack of confirmation from the potential participant. If there was no response after a another 10 days, no further action was undertaken so as to avoid the potential for coercion of participants

4.6.3 Number of interviews required

Guidance on the number of interviews recommended in qualitative research is varied (Baker & Edwards 2012), with no clear indication of a required number, with researchers utilising constructivist methods including GT focusing on the linkage between the project and the underlying epistemology alongside the requirement of achieving saturation. Other scholars have provided alternative assessments on what is viewed as appropriate. Mason (2010) provides useful data, quoting both John Creswell and Jane Morse as suggesting 20-30 and 30-50 interviews respectively when using Grounded Theory. In his own review of PhD studies, Mason provides a mean number of thirty-two (32) and median of thirty (30) interviews in GT. This correlates positively with the total number interviews for Phase 1 carried out in this thesis where forty-nine (49) participants were interviewed.

John Creswell (2014) in his seminal work on qualitative research and research design (p189) indicates the value of purposive sampling in qualitative research in assisting the researcher to utilise sources of information that provide the highest chance of allowing the researcher to meet the aims of the project. An example of purposive sampling is the strategy of maximum variation sampling (Creswell 2009) which aims to elicit viewpoints

from a range of perspectives on the phenomenon under investigation in order to enable the researcher to enhance the understanding of the phenomenon and thus develop a more robust model. This was shown in gaining the perspective of multiple sets of stakeholders (thought leaders, members of the public and physiotherapists). Whilst most qualitative studies tend to use a lower number of participants, with Grounded Theory, higher numbers are often suggested as mentioned above in Mason (2010). Elsewhere other authors conversely do not make any recommendation as to sample size (Rudestam & Newton 2007) but suggest that the number can be variable depending on the researcher and the aims and approach utilised for the project. Meanwhile Guest et al (2006) recommend a minimum of twelve (12) interviews as sufficient to determine stable themes subsequent to saturation. This figure appears to be dependent on the aims of the project and the variability in participant groups. Guest et al's work was carried out due to a lack of good quality evidence identifying how many participants are required to achieve saturation in a project using purposive sampling. Prior to Guest et al's study, sample sizes for purposive sampling were tied to the attainment of saturation of themes in the sample, with no clear definition on what theoretical saturation is. This is alluded to by Morse (1995) when she speaks of theoretical saturation as being an elastic concept. In fact, she goes on to say in the same editorial that "there are no specific guidelines for the a priori estimation of the amount of data required in each category or theme" (p147). Progress on the subject of sample size in qualitative research was reviewed in subsequent work by Hennink et al (2017), with the provision of new insights in reviewing two aspects of saturation that may inform sample sizes in purposive sampling. The two aspects of saturation

consist of code saturation and meaning saturation, with the number of interviews required to attain code saturation being smaller than meaning saturation, leading to an overall number of sixteen – twenty-four (16-24) interviews. Taking these views into account, the aim for the qualitative phase of this thesis was to aim for a total sample size of approx. 40 participants across the three groupings of thought leaders, members of the public and physiotherapists. See figure 3 for a detailed plan of the thesis.

In line with GT, analysis of interviews was carried out contemporaneously throughout the data collection process with analysis informing coding and subsequent topic guides for participants (see section 4.7)

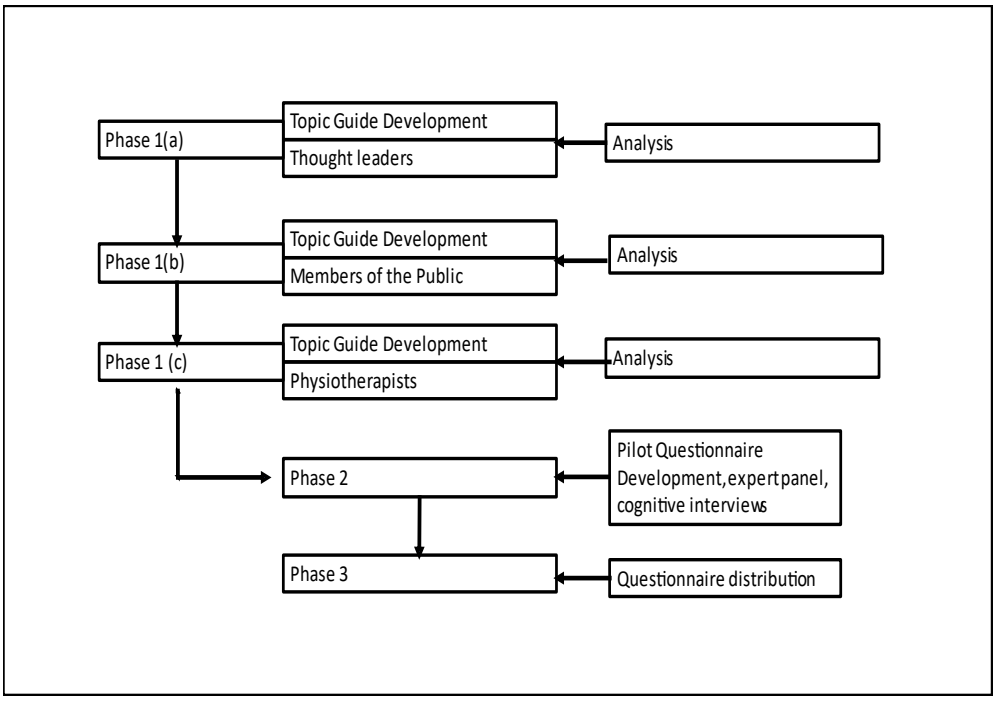

Figure 4-2 Plan of research

4.6.4 Data Collection Methods

The use of interviews as the data collection tool for phase 1 was chosen. Interviews are a common type of data collection tool in qualitative research and whilst they have been the subject of some scrutiny, they remain the mainstay and proved to be most appropriate choice for Phase 1 of this study as they reflect the approach to healthcare research noted in the literature

The use of interviews in qualitative research is upheld in the literature, Green and Thorogood (2018 p116) highlight the common use of semi-structured interviews in health research studies. Semi-structured interviews are similarly introduced as a means of gathering in depth information whilst allowing for a framework to build the interview on (Dicicco-Bloom & Crabtree 2006). The value of semi structured interviews is underlined by the ability for further elaboration to take place within the interview beyond the topic guide thus allowing for rich data to be explored. This space for further elaboration allows for the use of more intensive interviewing techniques where emerging constructs can be queried (Charmaz 2014 p85). What is important above all for good interview technique is making it “real”. Connecting with the participant and being fully in the moment of interviewing can allow both parties to enter a relationship that breaks through the artificial barriers that are so often constructed as part of our social identity.

Semi structured interviews were conducted in Phase 1 of the thesis with topic guides for interviews being developed throughout the period. This approach to interview construction is supported in the literature (Charmaz 2014,

Diocicco-Bloom & Crabtree 2006), where it is argued that the topic guide used within semi-structured interviews allows for development that is sensitive to data collected from previous interviews. As such the topic guides used during the interviews demonstrated iterative development (see Appendices 15,16,17). It should be noted that the topic guide interviews for thought leaders was developed using themes identified in the literature review and were based in the research questions. The topic guides for interviews in subsequent elements of Phase 1, interviews with member of the public and physiotherapists reflected iteration as a consequence of the constant comparative analysis that was undertaken.

The impact of the worldwide Covid pandemic led to national lockdowns and significant alteration in the manner of conducting interviews. The original plan was to conduct face to face interviews or telephone where appropriate, however with the move to online meetings and the use of platforms such as Zoom and MS Teams, the majority of interviews carried out were video based interviews using internet platforms with the ability to record and transcribe verbatim. Where requested by participants, telephone interviews were arranged. All interviews were recorded to allow for accurate verbatim transcription.

During two interviews poor connectivity was experienced and subsequently the participants were contacted and offered the opportunity to review the interview transcript to increase accuracy of the transcription. This was important to uphold the principles of credibility, transferability, dependability

and confirmability as originally set out in Lincoln and Guba's seminal work Naturalistic Inquiry (1985).

4.7 Analysis

Analysis of interviews followed the model in accordance with the approach of constructivist grounded theory (Charmaz 2014).

Interviews were transcribed verbatim with analysis being undertaken concurrent to interview activity, which allowed for the constant comparison of viewpoints and ideas which were used to develop topic guides as discussed above. Participants were given pseudonyms in order to promote anonymity of viewpoints and to maintain the confidentiality of participants. Each interview recording was transcribed verbatim and reviewed iteratively in order to check for content quality. Once the accuracy of the transcription was verified, where necessary by checking with the participant, the process moved on to the following stage where initial coding was carried out (Saldana 2016). Codebooks were created using Nvivo© at each stage of the thesis on completion of interviews with thought leaders, members of the public and finally with physiotherapists to create an overarching codebook containing a complete list of initial codes (see Appendices 18,19,20). In consideration of the generation of names for codes, gerunds were used for code titles where possible. This allowed for the demonstration of an active principle of thinking. This active principle has been shown to be crucial in aiding analysis and development of the theoretical awareness of data (Saldana 2016). The use of memos to support and develop the move from coding to the development of

theory was used throughout the analytic process in Charmaz work on Constructing GT (2014 p 169-171) and echoed by Saldana (2016 p44). Memos were written so as to make sure that the development of codes was not unduly influenced by ideas and beliefs held by the researcher. This process involved reflexive consideration of the code by the author, including interrogation of the code or category, interrogating the reasoning behind the name given to the code, and how the code fitted with emerging theory as recommended by Saldana (p171). Whilst some initial codes were not reflected across the participants and were outlying viewpoints, they still formed part of the constant comparative process of analysis that the data was subjected to as part of using Grounded Theory (Glaser & Strauss 1967), these data points were compared with other viewpoints which were shared across the range of participants. The use of iterative cycles of coding and comparison led to the creation of sets of codes. Once initial coding was completed, initial codes were subjected to theoretical analysis (Charmaz 2014). In the development of focused codes, initial codes were compared to the original data and to other initial codes, inductive analysis was utilised in determining possible pattern recognition amongst the initial codes, highlighting movement away from description of data to the creation of a theoretical construct. Focused codes were subjected to the further discipline of memoing, where code construction was subjected to critical reflection. Following Saldana's work above on memoing, (2016 p44) each focused code was subjected to critique including the following questions.

How did I personally relate to the phenomena?

Why did I choose the naming of the code, what does the name mean?

What does this say about role and ritual within physiotherapy?

What makes this a valid coding statement?

What other codes does this relate to?

How is this relating to emerging theory?

Questions such as these aimed to enhance analysis of codes, by increasing the discipline of encouraging interrogation of codes by the researcher. This incorporated a process of reflexivity by the researcher on potential unconscious bias – why did I choose the naming of the code? – and importantly required the researcher to consider how the codes related to each other and how they related to developing theory.

Memoing thus allowed the researcher to make sense of developed codes, applying reflexivity in the analysis, an approach recommended by Kathy Charmaz (2014) where she argues, "Writing memos prompts you to elaborate processes, assumptions and actions covered by your codes or categories" p171. It was at this point that advise was sought from discussion with members of a social media group, administrated by GT researchers, regarding the use of memos (25.10.21 unreferenced). Discussion was initiated in order to take advantage of experienced Grounded Theorists being able to reflect on their experiences in undertaking CGT studies and how and whether to use memos within the final thesis. The feedback from the group was that there

were no specific rules for this. The subsequent naming of 2 categories enabled the development of a consequent substantive theory. In order to test the usefulness of the substantive theory, a questionnaire was developed and distributed to the wider profession. This comprised Phases 2 and 3 of the thesis.

4.7.1 Theoretical sampling

Key to the use of constructivist grounded theory is the application of theoretical sampling which is highlighted in this thesis at the stage of questionnaire development. The use of focused codes as principal sources of data from interviews reflects the move away from analysis of descriptive sources towards the evaluation of potential categories and core concepts underpinning the substantive theory. In order to carry out theoretical sampling, all the interviews from the three groups of stakeholders were re read with decisions for coding reviewed and checked against the developing categories and concepts. (Charmaz 2014). These developing categories where then checked against the professional standards and statements with regards to prescribing, particularly in relation to physiotherapy but also taking into account the other allied health professions. This action enabled the researcher to have greater confidence in the credibility of the data collected in interviews. Once the iterative actions of interview, coding, analysis, interview review, documentation review and coding were completed, the finalised substantive theory was then used as the source material for the development of a questionnaire in Phase 2 and 3 whose role was to assess the substantive theory against a wider sample of physiotherapists to assess credibility.

In conclusion, the substantive theory was developed using constructivist Grounded Theory paying attention to concepts of credibility, originality, and usefulness.

These three terms were further expounded by Charmaz &Thornberg (2021) who sought to show how researchers should aim for quality in qualitative research. Credibility is highlighted as including the use of reflexivity by the researcher. The aim being to develop awareness of unconscious bias, particularly in the creation of codes, (as demonstrated in the memoing used in this study). In addition to this, the collection of sufficient data to allow for the development of an analysis of appropriate depth is required (p315). The depth of data is demonstrated in the multiple viewpoints generated with the interviews from a range of stakeholders. Originality as a concept is confirmed by a review of the extant literature on development of a conceptual framework, highlighted particularly within the literature review. This study therefore presents a novel approach to understand the challenges faced by physiotherapists in undertaking prescribing education. Finally, usefulness is dependent on a comprehensive understanding of the background of the research participants. In this case the focus was the profession of physiotherapists, thus the concept of being useful relates to the potential for future changes in policy at local and national level within the profession

4.8 Ethical principles

The four main pillars of bio-medical ethics are identified by Beauchamp and Childress (2019) as follows: respect for autonomy, non-maleficence,

beneficence, and justice. These are addressed in greater detail in the following sections

4.8.1 Respect for autonomy

The increased importance given to issues of informed consent is a relatively recent development within the last 100 years, that had its origins in the Nuremburg Trials of 1946 (NIH 2016). Indeed, the first use of the term informed consent did not occur until a full ten years subsequent to this (Beachamp & Childress p118) and was not subjected to peer reviewed discussion within the field of medicine until the 1970s. Current thinking of the term "respect for autonomy" as outlined by Beauchamp and Childress consider this principle by first defining autonomy. The authors state that there are two concepts underpinning the term autonomy liberty and agency. Liberty is explained as freedom from external control, whilst agency is the ability to make independent thought and action (p100). The authors argue that individual autonomy is set on a spectrum that is impacted continuously by factors such as age, cognitive decline, level of consciousness and emotional stability. They discuss cultural impacts on respect for autonomy, arguing that full understanding reflects varying levels of skill in understanding divergent forms of information. This type of autonomy they term "substantial autonomy", considering particulars of a situation, as opposed to attainment of full autonomy, which the authors claim to be unattainable. The key aspect surrounding substantial autonomy is that whilst it is argued that it can be attained and is valuable within the field of medical research, it is a level of autonomy that needs to be assessed contextually.

Respect for autonomy in the context of this study involves attending to requirements that enable the process of informed consent. This involved giving participants in the qualitative phase access to the information leaflet and consent form, adequate time prior to their involvement, and confirming consent additionally at the time of their interview. This approach echoes arguments by Bowman et al who stated that consent involves a temporal factor, namely the provision by the participant of ongoing permission (Bowman et al 2011 p76-88). However, it is important to note that the work by Bowman et al relates specifically to clinical treatment rather than clinical research. In addition, it is important to consider the capacity to understand the information provided and importantly, for there to be a lack of coercion. To coerce an individual would violate the capacity of an individual to be self-determinate (p119).

Self-determination has its origins in the seminal thinking on human agency and morality by Immanuel Kant (Campbell 2017). Although Kant's arguments appear based on pre-modern thinking, the concept of self-determination, and hence autonomy, remains relevant to research ethics. This use and application of the Kantian approach to philosophy, underpins the approach to ethics at set out by Beauchamp and Childress (2019) where the moral status of an individual is discussed (p75), however they also point out limitations of Kantian morality. This would be where patients who lack capacity would be deemed as not having moral agency, however they require protection and treatment within an ethical framework. One only has to

remember the Tuskegee trial which only closed in 1972 (Miyasaka 2005 p384), in which black males were included in trials where their syphilis was untreated, to be reminded of the importance of proper informed consent, allied to an absence of coercion in the running of research programmes with participants. Whilst the practice of informed consent may provide reassurance that participants have not been either deceived or coerced, it is important to consider the argument made by Beauchamp and Childress (2019) that respect for autonomy requires more than just measures of avoidance. It also places on the researcher an obligation to ensure adequate understanding, and to actively promote voluntary participation whilst simultaneously actively avoiding forms of manipulation (p119).

A key element in reflecting on potential impacts on participants in research projects is the power status held by the researcher in interactions with research participants. Karnieli-Miller et al (2009) provide useful insights into the issue of how power shifts during the various phases of a research project, with both researcher and participant holding significant power during recruitment, the participant during the data collection phase where they can choose what information to share with the researcher, with power then shifting to the researcher in the analysis phase. In the qualitative phase of this thesis, given the GT nature of constant comparative analysis, it was important to be aware of the constant iterative nature of power shifts between interview and analysis. To respect the ethical principle of participant autonomy, participants were offered the choice of time and type of remote communication used for the interviews i.e., telephone or internet platforms (Zoom, MS Teams). On

occasions where the interview transcript had areas where wording used by the participant was unclear on the recording, participants were offered the opportunity to review the interview transcript and make comments to enhance validity of the transcript. This is an approach advocated by Birt et al (2016) in their review of the literature regarding the practice of member checking within the field of qualitative research. Of particular note was the authors' argument that member checking can be claimed as enhancing the accuracy of the transcription but should not be indicative of enhanced validity of interpretation (p1805).

To avoid perception of harassment by participants, a limit of two reminder emails was set in contacting potential participants who had indicated an interest in participation. Participants were provided with an information sheet (Appendices 6,10,14) so that they could read through what was being asked of them, and fully consider whether they wanted to participate or not. It was made clear in the information leaflet that there was no requirement for the participant to take part if they chose not to, and they did not have to provide a reason. In addition, prior to commencing the interview, the researcher confirmed with participants that they had reviewed the information leaflet and had completed a consent form, and finally that the participant was still happy to proceed. The processes of consent followed the principles outlined in research ethics guidance from the United Kingdom Research and Innovation (no date) which echoes viewpoints made by Manti and Licari (2018) and Biros (2018) who set out approaches to research that supported the principle of autonomy including when participants were potentially vulnerable. Given

that participants in the current study self-selected following purposive sampling, the researcher concluded that the risks of capacity were reduced. However, despite this, each participant was given sufficient time and information to make an informed choice as to whether to proceed or not.

4.8.2 Non-maleficence

William Frankena (1973) proposed 4 elements of beneficence in a hierarchical order of actions in a single principle combining beneficence with non-maleficence

1 One ought not to inflict evil or harm.

2 One ought not to prevent evil or harm.

3 One ought to remove evil or harm.

4 One ought to do or promote good. (p47)

Beauchamp and Childress (2019 p157) divide these elements into the principles of non-maleficence and beneficence, where non-maleficence is characterised by element 1 and beneficence by elements 2-4. They argue for an avoidance of a sense of hierarchy envisaged in Frankena's model, by stating that each element should be viewed as an example of ethical behaviour as a stand-alone concept. The division into non-maleficence and beneficence is argued by Beauchamp and Childress to reflect the key differences between being a passive and active actor in each of the elements. The obligation of not inflicting evil or harm does not require an active agency on the part of the actor, whilst elements 2-4 all require the actor to be active in the performance of an action that prevents or removes evil or harm or promotes good. As such the passive element is equated with the principle of non-maleficence, whilst

active agency is seen as being equated with the principle of beneficence. Frankena (1987) defends his approach to viewing non-maleficence as being part of beneficence as he argues that not doing harm is inherently part of wanting to do good for the other (p5).

Underpinning non-maleficence is the duty of care of a researcher towards a participant, a duty of care echoing that associated with provision of clinical care where the provider of care is required to act in such a way that they uphold the professional standards specific to the researcher's profession. The Chartered Society of Physiotherapy (CSP) does not have a specific document for research ethics; however, the Code of Members' Professional values and behaviour (CSP 2019) highlight the importance of physiotherapists adhering "to all legal, ethical and organisational requirements relevant to their physiotherapy activity (including … research)" (2.1 p 4). As such, the CSP upholds the principles set out in the Declaration of Helsinki (World Medical Association 2013) and the Duty of Care 3rd edition information paper (in addition to the HCPC standards of conduct, performance and ethics (HCPC 2016).

Beauchamp and Childress (2019) raise the inherent challenges of equating individual obligations to specific situations arguing for clarity in consideration of ethical arrangements for both patients and research participants. An example of the way that the principle of non-maleficence was met occurred when during interviews with the public, an instance provoked consideration in greater depth of the concept of non-maleficence. Consequently, following discussion with the supervisory team, a management team was created to support participants who may have voiced concerns

regarding a past incident when discussing issues surrounding trust within a therapeutic relationship. A protocol was drawn up in order to develop pathways for both disclosure and distress clearly setting out the responsibilities of the researcher and supervisory team in carrying out the duty of care for prevention of harm to participants. (Appendix 21)

4.8.3 Beneficence

Beauchamp and Childress (2019) view beneficence as being made up of elements 2-4 of Frankena's 4 element model detailed above. The clear differentiation from acts of non-maleficence is the principle that acts of beneficence are active proponents and actions that lead to some type of benefit for the recipient. Gillon (1985) in a short piece on philosophy and medical ethics discussed the inherent need that is felt to do good within medical fields juxtaposing this with other professions. The author makes a point of showing how beneficence is constrained by the three other pillars of ethics, namely justice, respect for autonomy and non-maleficence.

Beneficence can be seen as positive acts that are carried out to improve the experience of the other. Beauchamp and Childress (2019 p219) state that beneficence is organised into specific and general areas. Specific acts are associated with others who are important to the agent, for example, partners, friends, children, parents. General beneficence is seen as a moral obligation to people that we do not know. Beauchamp and Childress go on to suggest that engagement with one activity can lead to an inability to fully enact with another, meaning that an act of benefit in one field of agency can limit the ability to act in other areas. Singer (1972 p241) attempted to delineate

between the actions of prevention of harm and active promotion of good by linking action to likely deficit to self. Singer's article of measure for deficit to self, highlights whether the sacrifice entailed in doing good for the other includes elements that are of comparable importance. If therefore, an aim to act beneficently to that other would cost the agent more than that which the other would gain; (the benefit = the sacrifice) then Singer argues that there is no moral obligation to act in a way that actively promotes good for the other. Beauchamp and Childress (2019 p221) argue that this is too much of a burden as it can lead to a level of sacrifice that is too high for most people to find acceptable and reflects a level of beneficence that is beyond that which is morally obligatory. Singer later qualified his stance on beneficence by attempting to quantify the amount of resource that an agent may be expected to give up (Singer 1999 p198). This suggestion of a 10% figure was welcomed by Beauchamp and Childress as an indication of the reduced burden on the part of the agent but was still criticised by them as being potentially too burdensome and likely to be unattainable for many people. The use of a 10% quantification has parallels with ancient practices noted in the book of Deuteronomy (The Holy Bible Deuteronomy 14:22-29) which would appear to recommend an act that promotes communal beneficence.

Ord (2014) however, argues an alternate perspective in that in his view the level of sacrifice that Singer envisaged was minor compared to the beneficial impact on the recipient. Ord utilised the example provided by Singer himself regarding the act of saving a child from a shallow pool. The loss to the agent of wet clothing in his argument would be minimal in comparison to the loss of a child's life. Both Ord and Singer have as their focus on the agency of

beneficence a response to charitable financial support of poverty and aim their argument towards the richer western democracies.

A moral obligation of beneficence, although difficult to apply in general settings, can be applied when there are role related obligations (Beauchamp & Childress 2019) as in a research project. Researchers have a duty of care to participants which is made more patent in qualitative research where participants are involved in sharing viewpoints in interviews that entail a greater degree of openness than completion of an online survey/questionnaire. Ezzy speaks of the importance of emotional connection in one-on-one interviews, "framed by emotional communion and intersubjectivity" (Ezzy 2010 p165)

Whilst it is unlikely that there would is individual benefit to participants taking part in the study, there is the prospect that better understanding and awareness of the consequences of role identity change on behaviour in physiotherapy will provide profession wide benefits in respect of enhanced professional self-awareness. This could include enhanced knowledge of the processes associated with role change, and the structural requirements such as support and mentorship that enable successful role adaptation (Burke & Stets 2009), and subsequent improvements in patient care.

4.8.4 Justice

The principle of justice, of equality, and fairness for all is heterogenic and complex in that no single approach has shown sufficient traction within societies. Beauchamp and Childress (2019 p271) discuss competing theories

of utilitarianism, egalitarianism, communal and libertarian approaches to the principle of justice, though the focus of their discussion is the impact on political decision making and provision of benefits or healthcare within societies. Within the field of research, the principle of justice owes much to the developments of codes of practice following World War II (NIH 2016), and is reflected in the developments of practices involving informed consent, and provision of appropriate information to potential participants, highlighting the risks and benefits of taking part in the project. Justice related principles also assert the rights of individuals not to be disadvantaged by a decision not to take part in a research project, as well as the right to withhold, and/or, withdraw consent to take part at any point in the process, decisions that are required to be respected by the researcher. Assertions such as this are deemed to promote autonomy for participants and build trust between researcher and participant (Miracle 2016 p226). In applying the principle of justice to this thesis, consideration of accessibility to the research is set out in the inclusion and exclusion criteria for the study. The criteria set out clear boundaries for inclusion and exclusion of participants, and in the literature review of published literature. In doing so, participants had the ability to determine a) if they were able to take part in the study and b) if after full consideration they wished to.

4.9 Phases 2 and 3 Development and application of a questionnaire

Key to the application of an exploratory sequential mixed methods study is for the quantitative phase to develop generalisable outcomes to a much wider population than that used in the initial qualitative phase (Creswell & Plano-

Clarke 2018). Importantly the participants in the quantitative phase need to be different than those in the qualitative phase. The decisions made to action this are detailed in this chapter, where specific methods will be discussed. The use of quantitative data to add verification to qualitative results is supported by Regnault et al (2018) in their commentary on the use of mixed methods when they state that by utilising methods from both the qualitative and quantitative branches of research one can allow each approach to complement each other. Elsewhere, mixed methods designs have been merited with offering pragmatic outcomes to complex research questions, whilst at the same time have limitations of time constraints (McClusker et al 2015).

The use of questionnaires or surveys to provide quantitative data and test findings from interviews is exemplified in a study using a questionnaire after interviews to provide verification for the interview findings (Cabrera 2011). Whilst this article was external to healthcare, it did show the application and suitability of the use of interviews and questionnaires within an exploratory sequential mixed methods study. This is mirrored by Salmani et al (2019), who used mixed methods in order to add rigour to their conceptual model of the challenges of managing volunteers within disaster management in healthcare. Within physiotherapy an example of an exploratory sequential design is shown in a study investigating quality of life for patients living with a long-term condition. In this instance the sequential design included use of a survey instrument first, supplemented by interviews (Dresner & Lindahl 2022).

A valuable example of the use of questionnaires within the field of non-medical prescribing is their application to obtain an overview of the use of non-medical prescribing across a range on professions within one strategic health authority (East of England). Courtnay et al (2012) obtained a 55% response rate meeting their required number showing key diagnostic areas where prescribing was used, suggesting that the use of questionnaires is acceptable for a data collection strategy within the field of non-medical prescribing.

4.9.1 Research questions

In mixed methods studies it is important for qualitative and quantitative data to be integrated, this is done using material from phase 1 being used in the development of the questionnaire (phases 2 and 3), with the questionnaire and data allowing for the development of the final research question reflecting a blending of both qualitative and quantitative approaches.

1 How do physiotherapists perceive and experience the transformation of their professional role identity while undertaking further education to become non-medical prescribers?

2. Does the questionnaire instrument shared among the physiotherapy profession support the conceptual framework of role identity development in physiotherapy?

3. What are the significant differences in the perceptions of role identity between prescribing and non-prescribing physiotherapists?

4.10 Phase 2 Development of questionnaire

4.10.1 Questionnaire Rationale

The use of a questionnaire to verify the conceptual framework allows for development and use of questions that lead to a quantitative output, thus, enabling submission of data to appropriate statistical assessment. The scientific method requires that testable questions or hypotheses are developed prior to the use of a questionnaire tool (Creswell & Plano-Clarke 2018). Questionnaires have been used as a tool to test theory and are recommended as accepted tools in research to obtain quantitative data (Lavrakas 2008). The argument Clough and Nutbrown (2002) present suggests that questionnaires are designed to provide data that is broad and potentially lacking in depth, however this is appropriate for my study where the questionnaire is being used in a confirmatory role. In order to increase methodological rigour, those physiotherapists involved in interviews and in development of the questionnaire would not be included in the final questionnaire. This was recommended as good practice in mixed methods studies by Cresswell and Plano-Clark (2018). This was addressed by the use of an exception question at the start of the questionnaire, where if a participant stated they had been part of the research previously the questionnaire ended with a thank you message. The use of Likert scales in questionnaire use in mixed methods studies is supported by Ness et al (2021) who used Likert scales subsequent to telephone interviews in their sequential mixed methods study investigating the appropriateness of antimicrobial prescribing by nurses. The authors showed the potential for using the sequential model. This included validation of a questionnaire using their

version of an expert panel and feedback on a pilot questionnaire version. In addition, the questionnaire that was applied was used to verify a conceptual framework designed to explain behaviour of healthcare professionals. This supports the research design presented here in this thesis

4.10.2 Source Material for Questionnaire

To develop the questionnaire, the interviews undertaken in phase 1 of the thesis were revisited alongside the developed substantive theory of role identity change. This included both reviewing the focused codes from phase 1 with analysis of the focused codes and associated key statements made by participants. These statements that underpinned the focused codes were used as source material for the questionnaire in order to develop sets of questions and statements. For example, given the focused code of Imaging Identity developed from phase 1 the following set of statements as set out in table 4-1 overleaf illustrate how source material was utilised to develop questions and statements on which participants were asked to show their levels of agreement.

Table 4-1 Example of Likert scale question

	Strongly agree (1)	agree (2)	Neither agree nor disagree (3)	disagree (4)	Strongly disagree (5)
A physiotherapist is "A specialist who understands the human body in relation to function, particularly in relation to bone structure". (1)					
A physiotherapist is someone who uses "Exercises, rehab, and movement" (2)					
A physiotherapist is "somebody who can not only assess the patient, but look at the patient in the world that they live in" (3)					
Physiotherapy is "for me it's about listening, empathizing", understanding the patient. (4)					
Physiotherapy is "like treating patients with physical measures. Without any prescription without any surgery, just massage, manipulation, mobilization stretches, exercises" (5)					

As is visible from the example, the questionnaire was developed with Likert scales providing a vehicle for allowing responses to be quantified.

This process was repeated for all the categories of the substantive theory developed in Phase 1. In order to meet the needs of a wider sample of the profession, the questionnaire was developed such that four identifications of physiotherapist status were utilised. These were "physiotherapist prescriber", "physiotherapist student prescriber", "physiotherapist non prescriber" and "student physiotherapist".

4.10.3 Validation of questionnaire

In this study, an expert panel was created to review the questionnaire in the initial stages which consisted of colleagues within the postgraduate department of Medway School of Pharmacy, an external mental health pharmacist, a sociologist and two leading non-medical prescribing researchers. The process included initial development of a draft questionnaire which was shared with the panel for their opinions and input. Following a process of iterative development, which culminated in agreement across the panel that the questionnaire was suitable for use, the resultant questionnaire was shared with a random sample of physiotherapists created from the participants involved in the earlier interviews. At this point a mutually convenient time was agreed to meet with the participant, when the questionnaire was completed. Cognitive interviewing involves working through the questionnaire one question at a time, noting the participants responses, both verbal and non-verbal. The importance of noting non-verbal responses provides insight into potential difficulty in understanding or lack of

clarity in the question. The use of cognitive interviews to verify questionnaire content has been supported by Peterson et al (2017). In their article they shared their approach to the use of cognitive interviewing which included aspects that were used in this study, specifically the think aloud approach, where participants were encouraged to think aloud their responses as they deliberated their response to questionnaire items. Participants were also asked to clarify how they felt when approaching each stage of the questionnaire. To aid accuracy, all cognitive interviews were recorded for accurate review of the video recordings by the researcher, with key recommendations from participants being logged on a spreadsheet (Appendix 22).

Once the cognitive interviews were completed, the comments and notes for each question were taken on board leading to final development of the questionnaire.

Internal reliability of the questions was verified using a triangulation approach, with questions being directly inferred from qualitative data, allowing the participants voice to be clearly heard (Creswell 2009 p252) as well as the use of cognitive interviews confirming sensemaking within the question. Finally, the entire questionnaire was assessed using Cronbach α to add a further measure of internal reliability.

4.10.4 Sampling of participants

Participants for phase 2 were randomly chosen from the set of physiotherapists who had taken part in phase 1 of the thesis. Participants were selected via the use of a random number generator available with Microsoft Excel. (Microsoft 2018). All of the physiotherapist participants had previously agreed to potentially be contacted for this phase. To use the random number generator, each physiotherapist participant from Phase 1 was attributed a number between 1 and 18. The researcher determined that a number of eight (8) potential participants would be acceptable for the purposes of cognitive interviewing of the questionnaire. The outcome of the function =RANDBETWEEN(1,18) was linked to the original Phase 1 physiotherapy participant, who was then emailed to determine if they remained interested in assisting with Phase 2. Each of those who replied positively were booked to undertake a cognitive interview recorded on MSTeams.

4.11 Phase 3 Testing the conceptual framework

4.11.1 Sampling

In the use of quantitative research in mixed methods studies, it is considered good practice to use a different sample of participants than those used in the earlier qualitative phase(s) (Creswell & Plano-Clarke 2018 p252), thus minimising threats to validity of the outcomes. Consequently, those physiotherapists who had taken part in Phases 1 and 2 of the research were excluded from taking part in Phase 3 by means of an exclusion question being

embedded in the questionnaire. The sample group for Phase 3 consisted of physiotherapists who were registered with the HCPC, or student physiotherapists, based in the United Kingdom.

4.11.2 Power calculation

Power calculations were calculated using G*Power v3.1 (Faul et al 2007) a free to use statistical software package that is shown to be valid for the use of a range of statistical tests including χ^2 tests. Version 3.1 was used using the following statistical values.

Effect size	0.3
a (error probability)	0.05
Power (1-b error probability)	0.95
Df (number of groups -1)	3

The calculated sample size indicated 191 participants were required to obtain a 95% probability of obtaining a meaningful outcome from the sample size whilst accepting a potential error rate of 5%. The degree of freedom measure relates to the four groupings associated with the questionnaire – prescribing physiotherapist, physiotherapist student prescriber, physiotherapist non-prescriber and student physiotherapist.

4.11.3 Hypotheses underpinning research questions

Research questions 2 and 3, are repeated here for ease of reference:

2. What are the key differences in role identity perceptions between prescribing and non-prescribing physiotherapists? QUAN

3. Are the identified themes and conceptual framework about role identity shifts in physiotherapists undergoing prescribing training applicable to the wider physiotherapy community? MM

Hypotheses questions were written in the style of directional hypotheses following the argument made by Creswell and Plano-Clark (2018) who state that "they are more definitive about the anticipated results than a null hypothesis" (p164).

The quantitative research questions for the questionnaire were developed from the emergent themes generated from Phase 1, in particular opinions about what physiotherapy is perceived to be, and viewpoints surrounding prescribing by physiotherapists. Other areas covered included barriers and enablers to the use of prescribing skills. In addition, viewpoints concerning pre-registration education of physiotherapists plus the length of time post qualification before physiotherapists can undertake post graduate education in prescribing skills were explored for potential differences between groups. To illustrate this, the hypotheses are replicated below aligned with the key emergent themes.

Physiotherapy Identity

1 There will be a between group statistical difference in the perceptions of physiotherapy by physiotherapists.

2 There will be a between group statistical difference between the four groups in perceptions of the content of physiotherapy.

Pre-registration Education: Evolving Identity

3 There will be a between group statistical difference regarding reducing the time post qualification to one year prior to undertaking prescriber training.

4 There will be a between group statistical difference regarding physiotherapists leaving pre reg as prescriber.

5 There will be a between group statistical difference regarding the inclusion of pharmacology within pre-registration.

6 There will be a between group statistical difference that lengthening the programme to include pharmacology would benefit the profession.

Frustrations: Prescriber identity

7 There will be a between group statistical difference regarding the potential harm that current restrictions on access to controlled drugs will cause patients.

8 There will be a between group statistical difference in beliefs that appropriate levels of support from the line manager will be present during training as a prescriber.

9 There will be a between group statistical difference in beliefs that appropriate levels of support from the line manager will be present after training as a prescriber

4.11.4 Questionnaire distribution

Posters for physiotherapists and student physiotherapists (Appendix 23,24) were used to distribute the final version of the questionnaire (Appendix 25) on the social media fora. To aid ease of access a QR code was embedded in the poster. The media fora included, but was not exclusive to, the online iCSP an online professional forum hosted on the CSP website for physiotherapists, LinkedIn, X (formerly known as Twitter), Facebook, and Instagram. Reminders were published every two weeks whilst monitoring response, in addition to this the research was shared at conferences and presentations in order to maximise participant response as far as possible. The questionnaire was first made available on 29 March 2022. The questionnaire remained open until the number of responses met the required sample number as indicated by the power calculations.

A further consideration relates to the increased use of bots that has been noticed recently in completion of online surveys. Griffin et al (2021) noted significant interference with their study with the initial data collection round and subsequently made some recommendations aimed at reducing the risk of data interference from bots. Having reviewed this article alongside their recommendations, the following adaptations were made regarding questionnaire distribution. The first 143 responses were obtained from sharing the questionnaire on social media fora, which potentially increased the risk of bot interference. To address this, each response was analysed for evidence of bot infiltration, in particular for congruency between answers, specifically to age and years since qualification. In addition, IP addresses

were scrutinised as well as email addresses with the red flags suggestive of bot origin, in particular the linguistic construction of the email address and the number of digits at the end of the email address (p2845). Email addresses were reviewed manually with specific attention being paid to those appearing as random letters and/or ending in more than four digits. Following review of email addresses and to simultaneously improve participant response rate and reduce bot infiltration risk, physiotherapists were identified by profession on LinkedIn (chosen due to its role as a professional forum) and invites to connect were sent. Once a connection invite was accepted, a message was sent to the physiotherapist inviting them to participate in the research study with a link to the questionnaire inserted in the message. The researcher chose not to send individual reminders to physiotherapists in order to avoid the potential for perceived coercion to take part by the participant. Finally, although a £50 voucher was available, this was to be determined via a raffle, a further recommendation made by Griffin et al (p2849) to reduce the likelihood of bot infiltration of responses. In addition, responses completed at a level of less than 60% were disregarded as this was shown to be a critical value for avoidance of bot led responses to online surveys (p2845). Finally, the questionnaire included a designated open question attached to a set of options that was predetermined not be included in analysis. The reasoning for this was that surveys with qualitative data collection that were a requirement to be completed has been shown to be a valuable approach in addressing the risk of "bot infection" as it has been shown that bots were unable to bypass qualitative based question points (Yarrish et al 2019 p237). Finally, the answers to the qualitative question points were reviewed to particularly look

for identical answers which could indicate potential bot interference. On meeting, and indeed supplanting the required sample size, the questionnaire was formally closed to further participation on 31 August 2022. The argument to supplant the sample size was taken to account for potential exclusions in the data cleaning process.

4.11.5 Questionnaire analysis procedures

In determining the type of analytical statistics used to interpret the data, it is important to highlight that the questionnaire was developed to add credibility and trustworthiness to the conceptual framework.

The questionnaire was developed using Likert scales, using quotes as the sources for individual items. Individual items were combined in groups that reflected the core categories of physiotherapy identity, evolving identity and prescriber identity. This was to create quantitative data in order to measure the within relationships within and between codes. The aimed outcome of this was to show credibility and trustworthiness of the conceptual framework.

4.11.6. Assessment of reliability

In section 4.10.3, there was a discussion concerning the actions taken to ensure validity of the questionnaire. Internal reliability is an additional factor that required consideration. A common approach to measurement of internal reliability is the use of Cronbach's α (Taber 2018). However, there are shortcomings with the Cronbach α assessment as it has been shown that the value of Cronbach α can be elevated by increasing the number of statements assessed since α is calculated using averages of variances. This can lead to

situations where items that have a low α, when used alongside items with a high α, can lead to an overall higher α calculation (Agbo 2010). The principal reason here is that Cronbach's α measurement is known to underestimate reliability in scales of less than 10 items. This is relevant to this thesis as the questionnaire is designed of several unrelated themes with each theme consisting of less than or equal to 10 items. Following a discussion with a member of the University's statistical analysis department, it was agreed that supportive methods of analysis would be qualitative in nature. The methods applied in this thesis were the use of an expert panel comprising leading authors in non-medical prescribing literature, along with the use of cognitive interviews with a random sample of physiotherapists used in Phase 1 as explained in section 4.10.3 p149.

Finally, factor analysis in the form of principal component analysis was used in the final version of the questionnaire in order to create an empirical summary of the data set (Pallant 2020). The decision to use principal component analysis was informed by the presence of multiple variables and the need to reduce these to a smaller set of components in order to inform subsequent correlational analysis (Field 2018 p 779) It was decided to utilise oblique rotation with principal component analysis as Field (2018 p794) argues that oblique rotation can produce a more realistic representation of the studied reality. In order to add reliability to the findings of the principal component analysis, parallel analysis was utilised (Pallant 2020). The prime reason being that reliance on a scree test alone can lead to an overestimate of

components identified (p191). This aimed to show confirmation of the conceptual model developed at the end of phase 1.

4.11.7 Discussion of impact of data type on statistics

Initial analysis consisted of the use of descriptive statistics for each sample group (Physiotherapist Prescriber, Physiotherapist Student Prescriber, Physiotherapist non prescriber and Student Physiotherapist). As the data elicited was ordinal, it was inappropriate to calculate the mean (Rowntree 2018) so alternate descriptive statistics were calculated. These were the mode and median for each set of Likert scale variables. The principal argument made is that ordinal data consists of data points that are not equidistant from each other and are therefore not parametric data points. There are issues with the use of parametric tests in studies using Likert scales in that it cannot be assumed that the difference between the scale points (strongly agree, agree, neither agree nor disagree, strongly disagree) are equal (Rowntree 2019). Indeed, Kaptein et al (2010) make the case that strongly agree - agree and disagree -strongly disagree scale points often exhibited different levels of response when compared to the three middle scales; agree -neither agree nor disagree – disagree. Which suggests an inequality in the likelihood for a participant to complete the middle options on the scale when compared to the outer options (p2392). Kaptein et al therefore proposed the use of non-parametric tests, showing that the use of non-parametric tests is consistent and invariant to data transformation, providing outcomes that remain consistent when reflecting the likelihood of asymmetrical differences in scaling between items on the Likert scale.

Jacqueline Murray (2013) presents an argument that despite Kaptein et al's position, there is no significant difference in outcome between the use of parametric and non-parametric tests on Likert scales especially comparing Pearson's correlation and Spearman tests. Sullivan and Artino (2013) agree with the stance put forward by Murray and go further in suggesting that parametric approaches can be applied to Likert scales, and perhaps should be applied as parametric approaches provide results "closer to the truth" (p542) despite ordinal data not being interval or scale. Despite this finding, they also accept that the mean is often not a helpful statistic when using ordinal data. These findings were supported more recently in work that confirms the replicability of using either parametric or non-parametric tests on Likert scales (Baran 2021 p423). However, all of the preceding authors also assert that it is best practice for the researcher to determine prior to analysis, whether they aim to use parametric or non-parametric tests, given that the approaches have been found to be equitable in the presence of data that follows a normal distribution.

Given that prior to data collection there was uncertainty as to whether the outcomes would follow a normal distribution, the researcher determined that as the data collected from the questionnaire was ordinal data rather than nominal data, the use of non-parametric tests is recommended

4.11.8 Non-parametric analysis procedures

Rowntree (2018) recommends the use of the $\chi 2$ (pronounced Chi squared) test in the analysis of proportions between categorical data. Evidence of the use of the $\chi 2$ test is available in work that investigates the ideas of role and identity (Adam et al 2021) in which the authors also advocated use of the

Kruskal-Wallis rank sum test, as this is a non-parametric test that can be used on groups of 3 or more. This made the Kruskal-Wallis test suitable for this thesis given the number of groups of physiotherapists being more than 3 and there being a number of focused codes greater than 2. Given that Adam et al (2021) were addressing behaviour among backpackers, there is perhaps greater value in the use of the Kruskal-Wallis test in Porter and Wilton's (2019) study. Their investigation of the professional identity of allied health staff, in a study that used a questionnaire with 5 Likert scale points, has elements that equate well to this thesis. Porter and Wilson use of the Kruskal-Wallis test was based on a non-normal distribution of data (p 16). Considering the likelihood of a non-normal data distribution in this thesis it was decided that the data from the questionnaire would be subjected to analysis with the Kruskal-Wallis rank sum test. In SPSS 28 (IBM Corp 2022) adding the pairwise calculation simulates performing a Dunn non-parametric test subsequent to the Kruskal Wallis. This avoids the risk of inflation of family-wise errors as set out by (Field 2018 p308). The Pairwise calculation subsequent to the Kruskal-Wallis rank sum test is recommended by Dinno (2015) as equivalent to the Mann-Whitney U test and has the benefit of maintaining the pooled data used within the Kruskal-Wallis rank sum, thus avoiding the potential of assessing different calculations. The Kruskal-Wallis rank sum test was therefore used to assess for the potential of significant differences between the groups of physiotherapists (prescribing physiotherapist, physiotherapist student prescriber, physiotherapist non prescriber and student physiotherapist) concerning a range of viewpoints.

Conclusion 4.12

This chapter has set out the methodology underpinning this thesis, the methods applied for Phase 1, indicating how qualitative information will be collected and analysed using constructivist grounded theory. Discussions surrounding the use of grounded theory in healthcare research was presented alongside an ontological argument for the use of constructivist grounded theory as the method of choice for Phase 1. The principles underpinning ethical practice in research were set out, detailing origins of ethical debate and the inherent rights of research participants. This is followed by the use of the emergent themes in the development of a questionnaire (Phase 2), which underwent peer review within an expert panel, the application of cognitive interviews, plus the use of Cronbach's α as a quantitative measure of internal reliability. Methods for distribution and analysis of the final version questionnaire used in Phase 3, were set out alongside the particular statistical approaches to be undertaken.

Chapter 5 Results

This chapter will present the results of the thesis from phases 1-3. It will illustrate the emergent categories in Phase 1 (a) through to (c) with the use of quotes from participants. The results from Phases 2 and 3 will be presented with descriptive and inferential statistics using SPSS v28.

5.1 Qualitative – Phase 1

5.1.1 Qualitative Results-Phase 1(a) Thought leaders

Following email invitation, a recently retired member of NHS England was interviewed, in addition to a range of NMP (Non-Medical Prescribing) leads, and course leads. A total of 9 participants were interviewed with two participants interviewed twice, to further explore ideas and developing themes pertinent to physiotherapy, in accordance with recommendations for the use of interviewing in grounded theory (Glaser & Strauss 1967). For an illustration of the demographics of participants in the thought leaders group refer to Table 5.1.

Table 5-1 Demographic characteristics of thought leaders' group

Participant No.	Gender	Occupation	Ethnicity	Pseudonym
1	F	Researcher	White British	Christine
2	F	NMP lead	White British	Anne
3	F	Lecturer	White British	Jenny
4	F	Retired NHS England	White British	Carol
5	F	Course lead NMP	White British	Lorraine

6	F	Course lead NMP	White British	Denise
7	F	Course lead NMP	White British	Helen
8	F	Consultant physiotherapist	White British	Thelma
9	M	Programme lead physiotherapy	White British	John

The topic guide (Appendix 15) used in the interviews with thought leaders in Phase 1(a) asked questions relating to the development of physiotherapy, how prescribing medication was impacting this development, how the initial vision for prescribing had developed, how medicines management and prescribing had changed physiotherapist's identity, barriers to uptake amongst physiotherapists, and inclusion of pharmacology in pre-registration education programmes.

Initial coding revealed key areas to be major themes in the perception of thought leaders, specifically the following: evaluating developments in roles and new ways of working – termed "physiotherapy and prescribing: horizon scanning", concerns regarding the linkage of identity as a prescriber to Advanced Practice and what this advanced practice should look like – termed "advanced practice and identity". Advanced Practice included themes of specialist and generalist. There were views expressed by one of the thought leaders and influencers, a consultant physiotherapist, regarding the frustrations experienced by physiotherapists – termed "barriers and enablers", whilst consideration of potential challenges to the pre-registration

programmes for physiotherapists were also raised – termed "challenges to pre-registration education".

5.1.2 Physiotherapy and prescribing: horizon scanning

Initially, participants were asked for their opinions regarding the likely progression of physiotherapy, and the impact of prescribing medications, over the subsequent ten-year period. This question was set to allow participants to share their thoughts on how the profession would develop and respond to challenges in healthcare provision.

Christine, a researcher, viewed physiotherapists as part of the front line of healthcare provision as opposed to being an ancillary service and being offered opportunities for development and diversification in role.

> *"It's not isolated to just physiotherapy is it, this applies to all professions with respect to supporting a new and developing workforce, given the specific challenges – outside of the virus – meeting the demands and working in different ways, so physiotherapy is part of a larger group of professions who have the opportunity to work differently, I see that prescribing supports that ability to do that." - Christine*

Several participants saw scope for role development within physiotherapy as a consequence of involvement with prescribing. Lorraine considered the impact of service needs driving recruitment availability, with subsequent opportunities available to physiotherapists in areas of evolving practice.

> *"People…. moving into different areas that they didn't before, and that will mean people doing different things than they had done before, and I would say that would lead for a lot of them to some sort of extended role pathway."* - *Lorraine*

Meanwhile, Carol, who was recently working on the Chief Professions Officer Medicines Management Programme, saw both opportunities and challenges for physiotherapists as the landscape of healthcare provision developed. The main challenge being the ongoing limitations concerning independent prescribing of controlled drugs (CDs). Whilst there appear to be ongoing political drivers for the delays, for physiotherapists and patients, there remains ongoing frustration.

> *"That work is still ongoing; we have been held up because of Brexit and other things and then currently the Corona Virus pandemic. For physiotherapists we are looking at expanding the controlled drugs list. erm, to add to the controlled drugs list in order to expand what*

> *physiotherapists do. Is it expanding or is it catching up with the work that they do? Interesting question, I think. Because the work has taken so long, I think we run the risk of catching up rather than leading the way with that work now currently. So I think if that is completed, or if it is not completed they will be looking for something further." - Carol*

Whilst participants identified a clear linkage between prescribing and the First Contact Practitioner role, they remained aware of the low take up of physiotherapists on prescribing programmes. First Contact Practitioners (FCP) are advanced practitioners from a range of allied health professions, with physiotherapists mostly representing advanced practice in musculoskeletal assessment and diagnosis. They are practitioners that patients can access directly via their primary care service without prior appointment with their doctor. FCPs are posts that have been developed in primary care that support advanced practice roles within the allied health professions. The development of the FCP posts appears to be a stimulus for prescribing within physiotherapy as well as role expansion as explained by Thelma. Clinicians undertake skill development via a structured capability framework leading to recognition as a FCP by Health Education England (HEE), with First contact roles relating to working at master's level (level 7) (HEE 2018). First contact roles are embedded within the roadmap set by HEE

towards accreditation as an advanced practitioner by reference to the four pillars of advanced practice.

> *"...it would work quite nicely into these roles that are more expansive and to get you thinking not just MSK [musculoskeletal] but to get you thinking about the drugs that you are dealing with and opening out."* - *Thelma*

However, despite this, it was clear that there were still concerns that whilst prescribing seemed to fit within the FCP role, there remained a slow uptake of physiotherapists undertaking prescribing

> *"I imagine with First Contact Practitioner status we're going to get more physios needing to prescribe would be my initial thought, but the current situation looks like it's not taking off as some people would expect" -John*

This concern is echoed by another physiotherapist who shared their frustrations and fears related to the restrictions that physiotherapists face in prescribing controlled drugs, and the potential longer-term impact of this restriction if it is not addressed.

> *"I think prescribing will die a horrible death; I'm only talking from the perspective of musculoskeletal pain…. So, unless we sort out what we can legally prescribe, I think you will find out that MSK physiotherapists in 10 years' time won't be prescribing."* -Thelma

This sense of frustration due to limitations of prescribing and the impact that this may have on the future of physiotherapy prescribing was shared by Denise,

> *"I think a change, which I hope is coming, is a widening of their formulary that they can prescribe from, because it still seems to me and to the physiotherapists coming through the course that it is practice limiting at the moment."* - Denise

John envisioned the combination of social and medical models of healthcare as an important aim for physiotherapists going forwards. John who is a course lead on a physiotherapy pre-registration programme felt that physiotherapy as a profession highlights several career pathways, with advancement being increasingly aligned with academic advancement. He had specific concerns about this development, highlighting that he felt the identity itself of the profession is under pressure to change

> *"In some areas you have a generalist role, the specialist generalist, and the specialist role. Alongside that we are creating the BSc, the MSc and the PhD. We are making people jump through hoops to become more specialised, so I think that is going to change the identity of the profession."*
> *-John*

The topic of generalists versus specialists was also visited by Jenny, a NMP lecturer who saw the specialist role as part of advanced practice and argued that prescribing need not be limited to advanced practice for physiotherapists.

> *"I think that nurses have shown this to be the case, we have seen hundreds, if not thousands of nurses who are not specialists who are prescribers, and there is no evidence to show that they are not doing this safely." -Jenny*

and applying this to physiotherapy, Jenny followed this up with a point that seems to suggest that prescribing whilst being part of advanced practice, is not a skill that needs to be limited to advanced practice,

> *"I think there are plenty of physiotherapists who are not advanced practitioners who I think prescribing would be an important tool for patient care"." -Jenny*

This latter comment reflects in part, the development within non-medical prescribing since the initial Crown Report (DoH 1999) in which June Crown envisaged that prescribing by physiotherapists would be limited to a small range of medication including analgesics and non-steroidal agents by specialist physiotherapists (extended scope practitioners). Of note is the clear difference between the manner in which non-medical prescribing has been developed in nursing compared to physiotherapy.

5.1.3 Advanced Practice and Identity

Anne, a NMP lead when considering the development of the physiotherapy profession commented that

> *"10 years from now it will be the norm, I'm thinking that a large proportion of the workforce, perhaps all of them will be NMPs. That is quite contentious isn't it. The way that things are going it might be that way."-Anne*

Anne's viewpoint of the opening up of prescribers to a wider range of the workforce echoes that of Jenny, mentioned above, meanwhile it is in contradiction to that of Thelma who felt that musculoskeletal physiotherapists may not be prescribing at all within the next decade. It appears to hinge on the linkage of prescribing to advanced practice, and access to the full range of medicines in the BNF

The association of advanced practice with prescribing according to Carol was linked to the approval of the legislative change overseen by the Human Medicines Regulation (DoH 2013). Carol felt that if nurses were being considered for prescribing now, there would be a clear attachment to advanced practice for them too. Part of this is a move towards greater rigour in assessment of prescribing requirements within the healthcare professions by the Commission on Human Medicines (CHM) though interestingly Carol also felt that lack of awareness of AHPs among members of the Commission may be relevant as well.

> *"I think the CHM have less knowledge of the AHPs than they do of nurses and pharmacists, not least because some of the people are nurses and pharmacists and doctors" - Carol*

An interesting perspective on the concept of advanced practice was promoted by Lorraine, a NMP course lead who saw a role for advanced generalists who would be able to work across professional silos whilst prescribing within their scope of practice. Part of that, was her perception that the advanced roles were still to be fully understood or appreciated.

> *"I think we are still to find our way within an advanced clinical specialist role and an advanced clinical practitioner, I think that is not specific to physios. I am not*

sure how I see that working out in the next 10 years." – Lorraine

Lorraine went on to share her thoughts on how advanced practice in physiotherapy separating out two roles, that of an advanced generalist and that of an advanced specialist

"What I think would work best as a model would be where you have some physios who could go on and become advanced clinical practitioners and you would have some physios who would do this advanced generalist role and not be this ACP [advanced clinical practitioner]. They would be advanced in a specialist role but not necessarily in that same way."- Lorraine

Lorraine then went on to discuss how this view of advanced practice would also enable clinicians to cross the barrier of the silos of specialisms thus allowing a more joined up way of treating patients, providing a level of care that is of greater benefit to the patient.

"I think that what will change most for the face of physio would be the group of advanced generalists who are not ACPs, who really start to get into their own running clinics. I see that as an area, where you can bring some of those

> *silos together whilst looking after a patient more holistically. I think focusing on the IP [independent prescribing] element, working on the continuity of care for patients, either in a transition to primary care. I think that is the area of biggest change."- Lorraine*

Helen, another NMP course lead, saw the concept of advanced practice as a significant game changer for clinicians in relation to career progression. For many AHPs, the only means of career progression was via managerial roles. Helen intimates here a means whereby clinicians can stay clinical whilst gaining promotion to higher paid roles.

> *"people could develop their clinical skills and remain in contact providing care, working directly with patients…Physios and many other advanced clinical practitioners want to remain clinical and I think that is a big driver across the country." -Helen*

Whilst most views are positive, John, a physio course lead had some words of caution in his belief that

> *"there is an identity shift in it…ACP roles are more generic, ACP doesn't mean physio anymore, it means someone who*

triages, that is something I have seen in practice a lot..."-

John

This cautionary perspective may suggest a lack of clarity regarding self-identity in physiotherapy, leading to a sense of anxiety at this change, where physiotherapists are no longer acting as physiotherapists. Stets and Burke (2009) posit that awareness of social identity and role identity may help explain this apparent anxiety to change. The concepts of social identity providing a physiotherapist with a sense of their boundaries and links with others like them and differentiation from other professions, whereas role identity according to Stets and Burke is linked to activity, or what the professional does. As such, if activity includes actions that have more in common with the activity associated with other professions, then the "group-nongroup distinctions" (p127) become blurred with loss of clarity of boundaries leading to a sense of anxiety about identity.

One participant reported that the Specialist ACP role was viewed as using NMP within a specialist field most likely in secondary care whereas the generalist would more likely be found in primary care and would use NMP to prescribe within a defined scope but would be able to advise and refer on an umbrella of conditions. Suggesting ACP specialists are more likely to

occur in secondary care, whilst advanced practice generalists would be based in primary care settings.

5.1.4 Barriers and Enablers

Barriers and enablers for physiotherapy prescribing were alluded to in the areas of public perception and professional difficulties. Barriers to prescribing were noted by one participant as crossing both public and professional environments with potential resistance to the idea of prescribing voiced by both patients and from fellow professionals internal and external to the profession. What was striking was that resistance did not have to be overt, but rather the result of lack of awareness of what physiotherapists do in their role.

> *"I suppose like a lot of things in life, once a patient has experience and understands, as well as being given information it won't be such a strange idea. It won't be physiotherapists just do this, but my goodness, physiotherapists do this as well"* - *Denise*

A key barrier from the perspective of physiotherapists was that of controlled drugs, and the current limitations that physiotherapist prescribers faced in their role using independent prescribing. For Thelma, this was a serious barrier to further development of prescribing within the profession and was in their opinion discouraging people from putting themselves forwards for prescribing education.

> *"So, I how do I envisage it –I think it will be very difficult to move it forward very quickly without having more*

medications that can be very useful to use commonly, such as codeine, tramadol. If they are not in our formulary that we can use legally then, that's a big limiting factor ..... I think we haven't got off the starting block with all the limitations, for many people thinking of starting the course it can be quite off-putting." - Thelma

Organisational barriers were highlighted by 2 participants with concerns about how the host organisation will enable prescribing by the prescriber and the lack of a strategic plan to push forward prescribing within AHP clinicians.

"what IP [independent prescribing] does is allow people to work differently, removes barriers, waiting for people to sign things off, to take greater responsibility for action, reduces waste in the system, reduced duplication of effort, however a number of caveats. How individuals use it is dependent on how organisations allow them to use it." - Christine

"Maybe there is a question in the head, is that about support behind the physiotherapists or are they overlooked a little bit. I don't know what the answer to that is, but thinking about driving forces generally, if a trust feels that we need this group of people in advanced roles , we'll push for them and we'll throw some money at them, but I don't know what is

happening with physiotherapists in those terms" - Denise

The importance of proactive decision making by NMP leads was echoed by a further participant in their thoughts about how to address the low take up of prescribing by physiotherapists.

> *"I think it needs to come from the NMP leads, ..we always talk of doctors and nurses, and no one every mentions physiotherapists, when they are talking about healthcare professions, probably pharmacists aren't mentioned that much either. I think the benefits need to be realised by the NMP leads, it is not just nurses, physiotherapists could be well used as prescribers and could save organisations a lot of money." - Jenny*

Interprofessional resistance was voiced by one participant regarding a physiotherapist who was experiencing negative feedback from local general practitioners in the area where they were attempting to set up a local service. This was in an area where the service was relatively new. This participant also reported that they were not convinced that members of the public would necessarily be aware of limitations to prescribing among healthcare professionals.

> *"I think a lot of the public think that a lot of HCPs [healthcare professionals] can prescribe anyway. They don't*

necessarily understand what people can and can't do. We have had some problems locally with lack of acceptance by doctors of physio prescribers. One physio in particular working in the community, and didn't know the doctors she was prescribing with, she had a lot of problems with them accepting prescribing decisions. I'm not sure how much a difference it would make for the public." -Anne

This particular issue associated with interprofessional barriers to prescribing appeared to be more pronounced in niche areas of practice where medical prescribing pathways were already embedded, compared with developed areas of practice for non-medical prescribing, for example, pain. In prescribing programmes, students are required to spend 90 hours with other prescribers as part of their learning to develop prescribing skills including consultation and decision making. This discipline is undertaken to support the use of prescribing after qualification, cementing the prescribing activity of the newly qualified healthcare professional in the area of need highlighted prior to the student attending the programme. One participant shared that they were aware of issues they had discovered whilst tutoring prescribing students with physiotherapist student prescribers accessing placement time with physiotherapy independent prescribers, there was a concern that intra-professional jealousy or fear of encroachment may act as barriers to sharing time and knowledge.

"Amongst the profession – erm, I have a suspicion, that would be a bit mixed, I think they may be some professional jealousy possibly, and having heard anecdotally that there may be some competition and difficulties for some physiotherapists accessing others to shadow – as they feel they may impact on their work and take work from them, there could be some sort of suspicions (especially for private physiotherapists), erm but I hope that for the more wider population of physiotherapists working in the public sector, or even the private hospitals I hope that they are proud of their colleagues who are prescribers, and have a thirst to do prescribing themselves." - Jenny

5.1.5 Challenges to pre-registration education

Participants were in general agreement regarding future challenges to pre-registration education for physiotherapists. Most of the participants reported that they had not received sufficient pharmacology training within their pre-registration education (except for pharmacists interviewed), and of the benefits that such training embedded within the pre-registration programme would achieve. This was matched by concerns as to how this could be achieved without adversely impacting the current learning within already busy pre-registration programmes.

"well, there needs to be some, when I trained as a nurse I didn't know of the word before I trained as a prescriber,

there needs to be some advertising, some signposting of what can be done in the future." - Jenny

"I think knowing what other professions do can only be a positive, take the example of pharmacology, physios having some awareness of pharmacology, so the seeds are set in order to develop an advanced role before prescribing or to undertake prescribing erm and understanding how they work and the considerations they take, those sort of things is (sic) positive" – Lorraine

However, this was set against a concern of overloading the undergraduate (pre-registration programmes) leading to difficulties in students taking on board key themes and relying on superficial learning strategies rather than embedding knowledge and skills in their development

"what I struggle with is all healthcare undergraduate degrees are already packed, there is so much in them and that we need to make sure we are not overloading the theory and frontloading everything in the undergraduate degree so that they can't reflect on it, learn from it, and develop their ideas, in particular for physio, in a similar way to nursing

making sure you have lots of patient contact in the undergraduate degree." - *Lorraine*

This concern for potential adverse impacts on a pre-reg programme was not shared by a physiotherapy course lead, however.

"I don't think it would impact and could only be a good thing to have it in there. Particularly if we are looking at non-medical prescribing, I think it needs to be there anyway regardless of whether we prescribe. We need to understand, if we are looking at holism again, we need to understand the impact that drugs have on people. What they are doing and why they are doing it. That is part of our role, to understand medicines, learn to look for them and what they do." – John

This participant went on to detail the areas of pharmacology to include within pre-registration physiotherapy programmes, whilst making it clear that this was not to enforce prescribing as a required skill within physiotherapy.

"I would like to see pharmacodynamics and kinetics in physio education. Not because I want us to be going out and everyone being prescribers, I don't think that is necessarily the case, I still think there should be choice open for physios

> *to do what they want to do or not do. …We have the responsibility to promote the use of medication as much as to deprescribe." - John*

This support for inclusion of some pharmacology in pre-registration programmes was supported by a leading NMP researcher who shared that the inclusion of pharmacology within AHP programmes had been a recommendation from one of their research programmes. The outcome of which reflected a clear need within the physiotherapy profession.

> *"I think it would make a massive impact. It was one of the recommendations from the evaluation we completed. It was one of the things that the CSP [Chartered Society of Physiotherapy] was supposed to be looking at, I can't comment on whether they have or not. The study we did, looked at Physio alongside Podiatry which showed a difference. The physios showed their pharmacology knowledge was weaker than podiatrists." - Christine*

One participant when considering the widening of prescribing to more junior clinicians felt very strongly that despite changes in the nursing and pharmacy professions it would be a *'horrible idea"* for this to be carried over to other professions, in fact they were unhappy with it being the case for nursing and pharmacy. They claimed that they hadn't met anybody who thought that it

was a good idea principally because of a lack of clinical experience among newly qualified healthcare professionals.

> *"I remember myself when I was one year qualified, and I am a good nurse, even though I have had bad times personally, I've always known I am a good nurse, erm, and I was a good nurse then for a 1-year qualified nurse, but I wasn't ready to think about prescribing. And I really think it is a horrible idea. You need not just classroom education, but you need experience."* - *Denise*

5.1.6 Conclusion – Thought leaders and influencers

In conclusion, the developing themes emergent from interviews with thought leaders and influencers consisted of "physiotherapy and prescribing: horizon scanning", "advanced practice and identity", "barriers and enablers", and "challenges to pre-registration education". See Figure 4 for a diagrammatic representation showing the developing emergent themes that were taken forward to inform the topic guide for interviews with members of the public (Appendix 15).

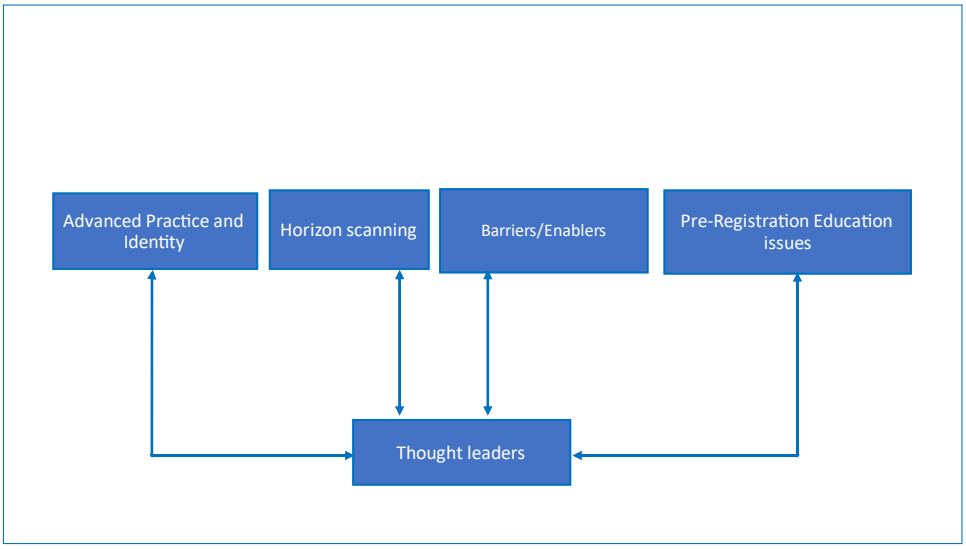

Figure 5-1 Emergent themes from Phase 1(a)

5.2 Qualitative Results -Phase 1(b)- Public

Twenty-two members of the public responded to invitations to take part in interviews. Details of demographic makeup of participants are found below in table 5.2.

Table 5-2 Demographics of members of the public

Participant no	Gender	Occupation	Ethnicity	Pseudonym
1	M	Health service management/nursing	West Indian	Michael
2	F	Youth Pastor	White British	Andrea
3	F	Medical Receptionist retired	White British	Bettina
4	F	Marketing	White British	Susan
5	F	Veterinary nurse	White British	Jennifer
6	M	Retired police officer/strategic adviser	White British	Nick

7	M	Postgrad student	White European	William
8	F	Admin manager - Physiotherapy business	White British	Henrietta
9	F	Graphic Design assistant	White British	Rachel
10	F	Post- graduate student	White European	Louisa
11	F	Retired teacher/counsellor	White British	Annette
12	F	Administrator	White British	Bridget
13	M	Retired education officer and active local preacher	White British	Robert
14	F	Team co-ordinator NHS	British Asian	Kalani
15	F	Volunteer services co-ordinator	White British	Fran
16	F	Post graduate student/freelance researcher	White British	Pam
17	F	Nurse/academic	White British	Gina
18	M	Advertising manager	White British	Alan
19	F	Administrator/receptionist	White British	Helena
20	M	Self-employed electrical fitter	White British	Roger
21	F	Advisory teacher	White British	Melanie
22	F	Teacher	White British	Penelope

Following the principles of constant comparative analysis, on completion of the set of interviews with thought leaders and influencers, key themes generated from the initial coding of interviews were used. This was to inform the topic guide for interviews with members of the public covering the themes of “physiotherapy identity”, “physiotherapists as prescribers”, and “future role transformation”. The themes used were informed from the 4 emergent

themes from the thought leaders and influencers interview set. The topic guide is presented in appendix (15).

An underpinning notion of trust was involved in all the emergent focused codes from interviews and will therefore be presented here within its own area.

5.2.1 Physiotherapy identity

From the perspective of members of the public, the image of physiotherapy was developed from several perceptions shared by members of the public coded as "imaging identity", "healer", "frustrations", "expectations", and "trust".

For the majority of participants, their first impressions of physiotherapy centred around expectations of what might happen within a physiotherapy assessment with a focus on close contact, touch, and exercise. Most of the participants stated that they would expect to be moved around by the physiotherapist. There was an expectation of being touched which might provoke pain

> *"Slightly uncomfortable at times when they have to press something or turn something or stretch something" - Rachel*

The image of sports physiotherapy was commonly reported even among those participants who did not engage in sporting activity. This image of physiotherapy as associated with musculoskeletal problems appears to impact the awareness that participants had of physiotherapy in other areas of healthcare. For most participants, expectations included the notion of being "fixed" or "healed", by someone whose speciality lay in how muscles and joints worked. There was a strong emphasis on physical management.

> *"That would be like stretching exercises, acupuncture, it's like strengthening and healing of injured muscles, correcting what has gone wrong with the muscle so it is working as it should, teaching it to work a different way."*
> *- Henrietta*

For one participant, the image that came to mind was that of white top and blue trousers, they went on to describe how they could remember the physios they had worked with and seen by name but despite they themselves being a nurse could not remember the majority of nurses with which she had worked.

> *"I remember very much the physiotherapists that we had during my training, Harriet (white tunic, navy blue trousers) she was fantastic, and I eventually became a*

patient…they must have been more of a primary care giver for me to remember their names more than the nurses I worked alongside or the nurses who treated me." – Gina

For Gina though there were also concerns around the issue of treating people with appropriate levels of privacy and dignity. Gina wondered why physiotherapy departments tend not to have separate rooms when patients are required to undergo clinical examination.

"It is one of the things that you are going to have to take your clothes off for, possibly more embarrassing than anything especially with the bending and stretching." – Gina

For one participant, their image of physiotherapy was marked by negativity due to poor experiences, impacted by limitations on the number of treatments allowed which led to the participant viewing physiotherapy as

"a bit of an inconvenience treatment wise" as "they kind of can't really do much because whenever I've been referred to them, I have kind of felt that I have been fobbed off." - Jennifer

5.2.2 Physiotherapists as prescribers

The majority of participants 21/22 stated that they were happy with the idea of healthcare professionals other than doctors and/or dentists prescribing medication. Only one participant stated that they were not in favour of non-medical prescribing.

Roger voiced concerns about the amount of information that a non-medical prescriber would have regarding the patient, and he believed that recommendations should be made to the patient's GP rather than a prescription being written.

> *"I don't think they should prescribe; I think they should recommend, back to your GP. I'm all for them saying this patient would benefit from…creams or painkillers.., but they should pass that back to your GP for full checking with your medical history." – Roger*

This viewpoint however was not shared among the other participants, with some like Henrietta being very positive .

> *"I'm not concerned, because I am aware that they are doing the full training in prescribing as a GP would do" – Henrietta*

This positive perception on physiotherapist prescribing was supported by a physiotherapy administrator who offered the perspective that patients were ringing up the physiotherapy service chasing emails originally sent to the GP by the physiotherapist requesting medication. This appears to reflect a service need of more physiotherapy prescribers required.

> *"I think it is good ..in physiotherapy we get people ring up chasing emails sent to GPs requesting medication. It can take longer to get through to the GP for them to do it that if the physio could do it" – Bridget*

One patient appears to voice a perception of more confidence in non-medical prescribing due to greater contextual understanding of their presenting problem

> *"I would be more confident in a physio prescribing me drugs than a GP prescribing me drugs because I think they know more about how the things I'm having and the things I complain about" - Susan*

Melanie offered the perspective that they saw prescribing as a natural progression due to the shortage of GPs and echoed the thoughts of Susan in that if they were seeing a physiotherapist within a specialist area of care, for example women's health or rheumatology, then the physiotherapist may well

be more specialised in their particular area of concern than the GP. However, she offered an interesting insight on the language of non-medical prescribing with a viewpoint that may warrant further investigation.

> *"I would also query the term "non-medical prescribing' as it implies that the physiotherapist is non-medical and thence the inference that the physiotherapist should not be prescribing. This could impact on my trust of the physiotherapist" - Melanie*

Fran, meanwhile, admitted to a sense of surprise if their physiotherapist would offer to prescribe. This was tied to public awareness of prescribing by both doctors and dentists that appears to be equated in the public psyche as normal practice. Fran also felt that it was important for physiotherapists among other healthcare practitioners to undergo comprehensive training in prescribing.

> *"I'd be quite surprised... for physiotherapy I would be quite surprised…. I would be happier for someone to have been in practice for at least 3 years and for them to have done a comprehensive study on it.." - Fran*

Rachel presented a mixed view on non-medical prescribing initially stating that she had not experienced non-medical prescribing at the time of the

interview but admitted to some concerns and anxieties, with her anxieties relating to the fact that for her prescribing by physiotherapists is something very new whereas for GPs it is considered as well known and part of the normal experience. However, this was set against a belief that they would have trust in someone who had completed an approved training programme.

> *"I must admit now you have put it to me, I might feel, is that right? Should they?" – Rachel*

> *"I would expect that anyone who has the capacity to do that has undergone the training to be able to successfully do that" – Rachel*

Annette offered a perspective that contained multiple threads. She was supportive of physiotherapy prescribing in that

> *"It would be like a little package wouldn't it. A package of presumably hands on help, advice, and medication alongside it". - Annette*

Meanwhile she offered caution with the view that there ought to be safeguards in place in particular regarding a central record of medication that has been prescribed.

> *"The fact that there's not one record of what I am taking, so a physiotherapist might prescribe something that might interact with the medication that I am taking…so, my main concern would be, should I tell the doctor this and would the doctor be angry?" - Annette*

The concept of trust as part of a relationship with the physiotherapist was key to many participants and impacted how people would feel about physiotherapists prescribing. For some, like, Nick, the trust in the individual clinician pre-determined their trust in them as a prescriber, and thus appeared to be based on trust in the relationship rather than trust in training.

> *"The physio I use at the moment, I would feel very confident if she was given the authority to prescribe certain things" - Nick*

In a later follow up to this comment, Nick was asked whether there were medications that he felt that physiotherapists should not prescribe given the comment about "certain things". They commented that they had in mind the more powerful pain drugs, although they then went on to say that experience at the local cardiology service where they had been prescribed medication by nurses undermined this thinking. They still felt though that because prescribing was relatively a new thing in their understanding for

physiotherapists that medication prescribing for physiotherapists should be limited to,

> *"pain control or simple stuff for massage or that type of thing". - Nick*

5.2.3 Trust

Trust was seen as an important aspect of physiotherapy, with the trust in physiotherapy being adversely impacted by previous experiences. Breach of trust in a different direction was also shared by Gina, who whilst she mostly had very positive attitudes to physiotherapy, shared a story from her youth where there had been an abuse of power by her treating physiotherapist and her subsequent reflection as to the importance of continuity of care and professionalism.

> *"I've seen a physiotherapist who actually asked me out at the end of my appointment! I never wanted to see him again, I actually stopped it there at that point" - Gina*

Gina reflected on that particular episode of breach of trust, that at the time they were all students, and she laughed it off with her friends, however it was significant enough to be held in her memory, and is a reminder of the potential for abuse of trust and the position of power that a physiotherapist has within the consultation and clinical assessment – especially if the patient is in a state of undress and is therefore vulnerable. The literature does not assist much

regarding abuse of power within physiotherapy. Williams and Harrison (1999) do discuss the power dynamics in physiotherapy consultations but when it comes to abuse of power within a sexual dynamic, they only discuss abuse of power by patients and not by physiotherapists. External to the sexual dynamic, the development of trust within the therapeutic relationship was a common report within the interviews with members of the public, ranging from trusting in the person through trust in qualification to trust in outcomes.

This range of perceptions is highlighted by the following quotes from participants.

Robert for example, highlighted trust in the person,

> *"I've got trust in her, I've experienced what she has done for me, if I go and see here and I can talk to her, explain what the problem is etc, so there is a trust between me and a physio and that's important." – Robert*

Helena, unlike Robert, wanted to see evidence before she would give her trust to someone

> *"I wouldn't trust every physiotherapist I saw; I think I'd like the reassurance that they were fully qualified to prescribe medication. I think I would need to see some sort of visual evidence" - Helena*

Alan's viewpoint was that results were the defining criteria for trust

> *"er, results, as far as I am concerned I'll trust you or anybody else until I'm given good reason not to…It's only about the outcomes" - Alan*

Trust was also dependent on whether the participant felt that the advice would be part of their treatment plan, hence scope dependent. In this way, the level of trust in the physiotherapist was impacted by expectations held by the patient of the likely content of treatment related to their current problem.

> *"if it was part of the patient's treatment plan they would probably trust the physio more as they would believe that they would know more what they are talking about" - Bridget*

5.2.3.1. Trust and Prescribing

The impact of prescribing on the sense of trust within the therapeutic relationship appeared to be dependent on previously held convictions among participants. For example, William, who had experienced previous problems with abuse of medication, felt that if physiotherapists prescribed medication in what he termed a "light handed manner", it would adversely impact his level of trust in that physiotherapist

"it would lose standing for me as physiotherapy has largely been a contrast to what I get at the doctor" – William

Pam linked enhanced trust with changes in status of how professionals are seen, sharing her own experiences of hospital care, where she suggested that therapy staff such as physiotherapists and occupational therapists were not seen in the same light as clinical staff. With reference to prescribing medication, Pam shared a frustration that physiotherapists are subject to a hierarchy in terms of respect within the health professions

"the physiotherapists are so experienced and knowledgeable in their field and as I said previously are not viewed in the same way as, for example, a general practitioner". - Pam

She felt that the addition of prescribing would be a sense of levelling of what she viewed as the hierarchy in the healthcare system.

"so, there would be something in my head about levelling, in terms of their hierarchies. I don't think that is a bad thing. It seems to me that GPs hold all of the power, and they don't necessarily hold all the knowledge" - Pam

For Melanie, prescribing for physiotherapists definitely enhanced the sense of trust between patient and physiotherapist, as it would encourage a simplified system of care provision.

> *"Yes, as the physiotherapist becomes the decision maker and does not need to refer back to other professionals which could imply lack of knowledge or expertise to the patient and thence their level of trust could diminish" - Melanie*

5.2.4 Future role transformation

Participants were asked how the perception of physiotherapy might change as a result of prescribing medication, and for their thoughts on the development of first contact roles in primary care, where the patient can see healthcare professionals from a range of backgrounds without first seeing a general practitioner. A common perception regarding the impact of prescribing on how people viewed physiotherapy was that they would see physiotherapy in an enhanced and more holistic role. Melanie, for example, spoke about

> *"Enhancing the patients view of the physiotherapist and their professional role" – Melanie*

This viewpoint found support from another participant who saw an increase in the holistic nature of physiotherapeutic involvement

> *"I think it would be good because you would think, I've been referred to a physio and it wouldn't just be exercise, they could give you a full assessment and prescribe, it would be good" - Kalani*

Bettina echoed this, stating that the patient's confidence in the physiotherapist would potentially be enhanced, due in part to the knowledge that the clinician had undergone a period of validated training, and had proven their ability to evaluate the need for complementing physical approaches of care with pharmacological approaches

> *"I suppose that they would feel more confident. So, I think you would understand that they had already had the qualification, gone through that training so that they are able to prescribe, so; the patient would feel more confident" - Bettina*

The development of physiotherapy including prescribing was deemed to be important in that it offered a more rounded service expanding the perception of the patient of physiotherapy beyond just exercise.

> *"I think it would be a little bit more holistic, I mean I have friends who go because they have got bad backs and it is like here are some exercises...my whole thing would be if*

they can prescribe me medicines then maybe I would be less annoyed that I had been re-referred [*]" - Susan

(* Susan was someone who had experienced physiotherapy on multiple occasions and was speaking about being referred back to physiotherapy).

The inclusion of prescribing had clear impacts on how patients viewed physiotherapy within healthcare with some participants feeling that it increased the standing of physiotherapy within the healthcare system. For some, it put physiotherapists on a par with doctors because they could prescribe. This was linked to the belief that prescribing was something that was inherently linked to the role of a doctor.

"I guess they'd possibly view the physiotherapist as more of a doctor in terms of, well, you can fix this. The expectations may be higher maybe" - Penelope

When Penelope was asked to elaborate, they shared the belief that if a medicine was required then in their worldview, it meant that the problem was serious, linking medication to the level of perceived seriousness. In her view, those who held the power to prescribe medication held a greater status for the patient.

5.2.5 Conclusion

The development of themes from the second cohort of interviews reflected both a confirmation of perceptions and a development. The theme of advanced practice and identity split with one arm feeding into that of physiotherapy identity and another feeding into a theme of future role transformation. The concept of physiotherapists as prescribers saw a range of opinions from members of the public, developed from their image of what physiotherapists do. What was key to members of the public was a sense of trust in their treating clinician, which for some was person based and for others was focused on evidence of qualification. The concept of use of medications and importantly the fusion of provision of medicines alongside physical measures of treatment was important in the viewpoint of some participants in enhancing the perceived status of the physiotherapist from a patient perspective. Figure 5 illustrates the developing conceptual model

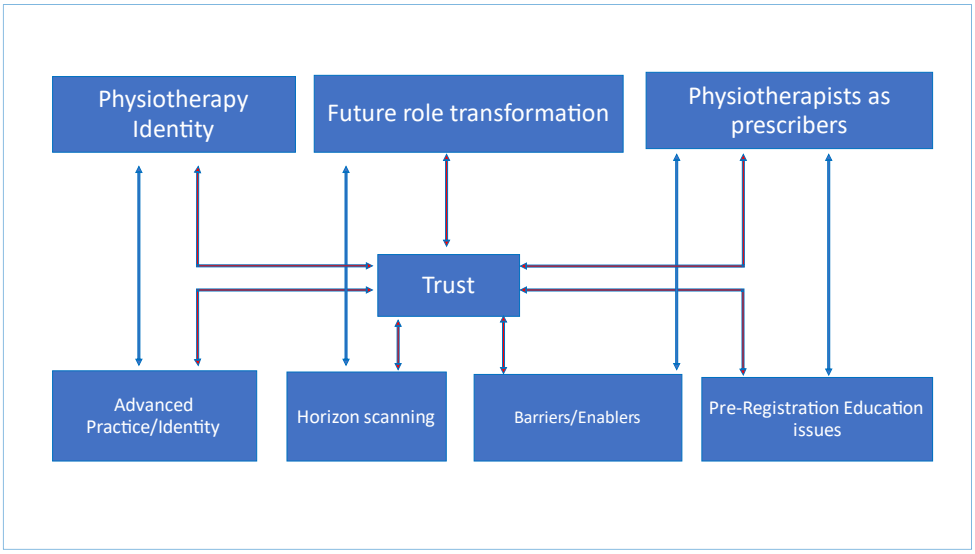

Figure 5-2 Emergent themes from Phase 1(b)

5.3 Qualitative Results – Phase 1(c) Interviews with physiotherapists

Eighteen (18) physiotherapists were interviewed in phase 1(c) to complete the qualitative data collection. Physiotherapists included those who were prescribers, those studying to become prescribers and those who do not prescribe medication as part of their role. Demographic details are as shown in table 5.3 below.

Table 5-3 Demographics of physiotherapists

Participant	Gender	Prescriber status	Ethnicity	Pseudonym
1	female	Prescriber	British	Colleen
2	male	Prescriber	British	Warwick
3	female	Non-prescriber	British	Jasmine
4	female	Non-prescriber	British	Louise
5	male	Prescriber	Pakistan	Maahi
6	female	Prescriber	British	Henrietta

7	male	Non-Prescriber	British	Brady
8	male	Non-Prescriber	British	Patrick
9	female	Non-Prescriber	British	Hayley
10	female	Prescriber	Asian Indian British	Payoja
11	female	Prescriber	British	Farah
12	male	Non-Prescriber	Mixed White/Caribbean	Andrew
13	female	Non-Prescriber	British	Carmen
14	male	Non-Prescriber	British	Brett
15	male	Prescriber	Indian British	Sanjeet
16	female	Non-Prescriber	British Indian	Indira
17	female	Non-Prescriber	Indian	Omisha
18	male	Non-Prescriber	Greek	Vilppu

The emergent themes from the interviews with physiotherapists covered the following:

Frustrations; Role Development; Responding to need; Internal role identity, External role identity and Trust.

5.3.1. Frustrations

Key frustrations raised by prescribing physiotherapists surrounded the ongoing issues with limitations surrounding the prescribing of controlled drugs. Payoja spoke of the difficulties caused by this especially in the fields of pain management and within musculoskeletal services.

"We have limitations to what we can prescribe, so that, I think puts a big block to what we can do in MSK services and in pain management" - Payoja

These frustrations echoed those raised by Thelma, a participant from the thought leaders' group who shared similar concerns surrounding the limitations experienced by prescribing physiotherapists due to the presence of a list of allowed controlled drugs and the impact of that on the ability to respond to the needs of patients in a timely manner. Of note is that the concerns about the limitations of prescribing experienced by physiotherapists in the field of musculoskeletal pain, were not echoed by those physiotherapists interviewed who are not prescribers.

5.3.2 Role Development

The role development theme comprises a number of subthemes including the benefits of prescribing, the risks of prescribing, opinions regarding prescribing by junior physiotherapists and perceptions of role identity change.

The benefits of prescribing were set out by a range of participants, both prescribers and non-prescribers. A view that was shared among participants was a development of a more complete package of care provided by the addition of prescribing to the skillset of physiotherapists. Prescribing was seen as offering physiotherapists a wider perspective on the needs of their patients as well as allowing them to offer a complete package of care.

> *"the more you can understand about all of the treatment options for your patient, I think the better you are at offering those that you specialize in" – Warwick*

The widening of a physiotherapist's perspective, also led to an increase in safety according to Henrietta.

> *"I think it's good in some ways because I think it broadened our scope and our thinking. I think it probably then made us safer. Because we're considering much more" – Henrietta*

Finally, there is the addition to a sense of autonomy allowing the physiotherapist to complete the entire package of care and therefore take on full responsibility for the patient.

> *"If I had to summarize in one word it has given independence, you know we are autonomous clinicians, but prescribing has given an independence to complete that full package of a care when it comes to looking after the patients." - Sanjeet*

In addition, prescribing was seen as widening the scope of consultation with other healthcare professionals. A prescribing physiotherapist shared how they had developed a much greater interaction with pharmacist colleagues than previously with developments in working relationships beneficial to patients.

> *"I've definitely been liaising more with pharmacists than I have perhaps done previously. That's being two ways, so obviously you know me seeking advice, but then also them. Now we have this sort of common ground area, they've actually started referring patients to physio." - Farah*

The potential for adverse impacts from prescribing were also raised. The awareness of an increased responsibility, and the potential for causing harm was a view shared by prescribers and non-prescribers, highlighting the greater potential to cause injury through treatment. In addition to this, there is the possibility of increased risk to the professional.

> *"up to now apart from Electro-therapy, when you could burn somebody, physiotherapy is not really a profession that can do much harm. Now with pharmacology you can harm people if you get it wrong. That's a big implication in my mind, so it's having that awareness that you can actually cause somebody harm through an error." – Colleen*

Carmen raised the view of an increased need for the physiotherapist to explain clearly to the patient what was happening in order to mitigate risks

> *" It gives you a lot more responsibility. There's a lot more... Yeah, risk or danger of harm if you get it wrong potentially. You need to be well trained and have a good understanding of what you're doing and why you're doing it and be able to explain that to the patient." – Carmen*

One participant shared a view that they were unhappy at the lack of financial progression and protection from risks associated with the addition of prescribing skills, which they felt should be present given the increased responsibility associated with the role.

> *"My concerns are that we're getting these responsibilities without getting the appropriate pay, and that's my big concern and the CSP is not the GMC when it comes to being supportive you know we haven't got the best of bodies providing as much support as the GPs themselves get" – Patrick*

One participant raised concerns about prescribing leading to a loss of experienced staff within physiotherapy departments, having a deleterious

impact on the development of more junior staff, thus potentially impacting the identity of the department.

> *"So I just think we dilute our skillset a little bit because we're losing some very experienced clinicians to be prescribers" – Brett*

Role development of early career (junior) physiotherapists was discussed in view of changes in both pharmacy and nursing which are leading to more junior staff either able to undertake prescribing training early in their career or, in the case of pharmacy, changes being made within the pre-reg programme to enable them to qualify with a prescribing registration. Views on this from physiotherapists were mixed, with some feeling that early access to, or knowledge of, medication, albeit limited, for early career physiotherapists would be valuable

> *"it does frustrate me when a junior physio is saying "Oh yeah ,well your pain is not controlled. You need to go and see your GP and ask them about your pain relief," and you think this person has waited four weeks to see the physio and they're being fobbed off to wait another three weeks to see their GP" - Warwick*

Others held concerns regarding physiotherapists encroaching on skills that traditionally have been held by pharmacists, and therefore, not developing thoroughly in their core skills sufficiently. For the majority of participants, prescribing was seen to be part of advanced practice within physiotherapy with a requirement to have spent at least two to three years in the area of speciality prior to taking on new learning and the role of a prescriber. For example, the following except from an interview speaks about the importance of getting confidence in the basics first

> *"I mean just looking at myself personally. I'd say I'm not ready. I'd say know your treatment plan and know your patients; know exactly what you're doing. Build up that confidence first before even considering that side" - Omisha*

As prescribing has been part of advanced practice for physiotherapy since its inception, role change is often intertwined with those experienced by the physiotherapist as they take on new areas of responsibility. One example of this was the attire worn by the physiotherapist and the impact this may have on the way that clinician is seen. There appeared to be a clear perception on the impact of the environment on identity. In particular, identity, when viewed from the patient's viewpoint.

> *"I wear a shirt and I worked in the clinic space next to the doctors. I mean it's very interesting and I've spoken to my*

manager about this when I was new. Could I come to work in my physio uniform and there was an absolute no, you're not doing that." – Warwick

For some there were concerns of physiotherapists losing their sense of who they are and becoming cheap doctors. The participant who shared this view, shared a number of concerns about the addition of prescribing which they saw as encroaching negatively on the physiotherapy identity, which for them involved spending time with the patient and addressing psychosocial concerns.

"I think we run the risk going back to my previous experiences of losing a very good skill set. We spend time with patients, we develop rapport; and I think we still are trying to fix problems with a cost effective solution as quickly as possible. Rather than where the physiotherapist should come, I think, come in and spend time" - Brett.

There were also concerns that when physiotherapists took on prescribing roles, especially in secondary care, they became advanced clinical practitioners (ACPs) and this was viewed as no longer being a physiotherapist

"a few of our physios, they did the prescribing course and now they work as the ACP physio so, they tend to work on

> *ICU and actually their role isn't as a physio anymore, so there will tend to just work alongside the ICU registrar's and the anaesthetists. They're not part of our team anymore, so the minute they do that course they are elsewhere to be involved. They don't work as how we would as part of our team anymore" - Omisha*

Perhaps the most telling comment was shared by a physiotherapist who is recently qualified and currently not a prescriber in that they felt that prescribing elevated the role of physiotherapy and was developing what they saw as a hybrid role, one that sat between medicine and physiotherapy.

> *"It's elevated the role, I would say. And made it more of a hybrid between medicine and physiotherapy. It's like it's made it, I feel more flexible. In terms of what physio is able to offer patients and it's easier from a management perspective. But what it's also done is it's placed a lot more responsibility on a physio's shoulders" - Indira*

When asked what they meant by the word hybrid they answered that they had always viewed physiotherapy as more medical anyway and that they saw prescribing as taking physiotherapy more towards what a medic would do as opposed to the use of exercise, electrotherapy and manual therapy that is the traditional remit of physiotherapy.

5.3.3 Responding to needs

Physiotherapists reported that prescribing met the needs of patients by offering a more effective service for them, however in the midst of this, there was a sense of concern that in responding to need, their identity might be threatened. Within that sense of concern, there was a hint of the danger of professional silos alluded to from interviews with thought leaders.

> *"Everybody wants to provide patients with timely care and rather than seeing many therapists they want to see a generic therapist, but I think we are all fighting to claim the profession that we were trained in" - Carmen*

Payoja argued that being able to prescribe enables compliance with treatment by offering a service to patients that they are already invested in, as against advising an exercise programme and then signposting them to a doctor for any associated need for medication.

> *"You're providing what they want, opening a door towards a better engagement" - Payoja*

Payoja felt that being a prescriber more effectively met the needs of the patient, and avoided the break in rapport where patients were referred on to another professional to complete a part of the treatment package. There was a feeling that this also strengthens a sense of trust in the physiotherapist.

There was a range of opinions surrounding the inclusion of pharmacology in the pre-registration physiotherapy programmes from the participants interviewed. One physiotherapist argued that it was not really possible, and that pharmacology should be included as part of the post graduate junior rotational posts for physiotherapy.

> *"I think if you really want to add more and more things in, then you have to extend the course and they will never do that, it is too costly….I feel they should get grounded in rotations"*
> *– Henrietta*

One of the physiotherapists, who had their initial training in India, shared the view that the inclusion of pharmacology in pre-registration programmes would enhance the identity of physiotherapists as a clinician role which was how they viewed themselves. This was tied to inter professional education within their programmes. Sanjeet shared that in India training programmes lasted longer than in the United Kingdom and for the first 3 years were similar to the programmes for medicine and for some of that time physiotherapy students studied alongside medical students

> *"If you ask for my thoughts, I would put pharmacology in the basic physio curriculum. That's what we had – this is what underlies my ethos of being a clinician" - Sanjeet*

Physiotherapists who had trained within the UK and who supported the inclusion of pharmacology within the pre-registration programme shared a range of thoughts.

> *"I think it should be, you know, certainly from the education about different aspects of pharmacology. It was always something I felt was missing in terms of something that I had to read up on after" - Patrick*

Farah, an experienced physiotherapist recommended a pragmatic approach. They suggested the inclusion of a basic level of knowledge within the pre-registration programme,

> *"I think a basic understanding, so we have an awareness of the typical medications that you would come across that patients are already taking, but I don't think it needs to go further than that" – Farah*

5.3.4 Internal Role Identity

Two overriding themes emerged from physiotherapists in embodying their perspective of how they saw physiotherapy. These underpinned two sub-themes of the image of the profession and the key skills that they felt members of the profession required. The key factor informing how physiotherapists

saw themselves, consisted of impacts concerning the use of uniform. There was variation between physiotherapists with some reporting that they saw uniform as meaning white polo tops and navy-blue trousers. Brett a recent graduate had just started wearing the classic uniform for physiotherapists within the NHS and had this to say about the use of a uniform.

> *"I don't know if that overly feeds into what I do. I think it's there to show the patient I'm a physio, like wearing a badge"*
> *- Brett*

Meanwhile a contrasting image was shared by another physiotherapist concerning the use of a uniform. When asked for the first image that came to mind when thinking of physiotherapy their response was sports related and informed by their interest in sport from an early age.

> *"First image that comes to mind is someone in a tracksuit and exercise" - Indira*

The distinction for this physiotherapist was that of the impact of this image on patients and other professionals. Whilst the image of a tracksuit and exercise conceptualising engagement with sport related to part of what they carried out, their concern was that this image could have an adverse effect. Indira shared that it may portray the wearer as being less academic, and therefore less qualified, than someone dressed in a uniform or smart casual

attire. The impression being that the image conveyed something that did not relate to their level of education.

The overwhelming skill that physiotherapists felt was key to physiotherapy was interestingly not a technical manual therapeutic skill but one that involves communication, including listening and empathising. The primacy of listening over manual skills was nicely clarified in the following excerpt.

> *"I don't know how good I am, but communication, listening, understanding, empathy, rather than problem solving. Although I think you can be a good technical physiotherapist, if you can't get that point across or you don't understand the patient, it doesn't matter how technically skilled you are" – Brett*

5.3.5 External Role Identity

The overriding perception from physiotherapists of how patients viewed physiotherapy was centred on a viewpoint of "fix me". There was a strong belief amongst physiotherapists that patients held the view that the role of physiotherapy is to put right something that had gone wrong mechanically. This would likely take the form of some intervention such as massage or exercise. Allied to this belief was a sense from physiotherapists that patients didn't necessarily see the role of facilitating self-recovery. This is highlighted in the following quotes:

"I feel like they view it as "we want someone to fix us". "I'd like massage or something manual done it's very much looked as a quick fix" – Indira

"many patients, I think, expect the therapist to make them better and the concept of being facilitated to help themselves get better is not always understood by them" - Jasmine

There were negative expectations shared by some physiotherapists who felt that patients didn't expect much from physiotherapy. That it was something that patients felt they had to do in order to complete the required steps as part of their treatment plan. This could raise questions as to levels of compliance with a physiotherapy programme. It is potentially concerning that this viewpoint exists within the profession, which may impact patient consultations.

"I think that in Musculoskeletal and Pelvic areas of practice, patients see us as a kind of a last-ditch attempt" - Omisha

5.3.6 Trust

Trust was seen to embed a number of areas and was seen as essential to successful interaction with patients to meet the goals of rehabilitation. Trust

was strongly associated with the themes of role development and identity. Key factors that enabled the growth and development of trust within the consultation included being honest with patients, alongside the application of active listening. The use of treatment techniques was suggested as a means of gaining the patient's trust in the following scenario.

> *"this is where manual therapy comes in – even though I explained that it was for a limited period because it is manual therapy it would enable the patient to realise what they can achieve, so I would use that to gain their trust as well as relax" – Patrick*

A sense of openness and honesty on the part of the physiotherapist was seen a crucial for the development of trust between physiotherapist and patient. Allowing the patient, the sense of being heard.

> *"Speaking to somebody as an equal, as opposed to somebody who is the person that knows best, engaging people in decisions, letting them know that you know that subject well. Although also being honest when you don't know" – Colleen*

5.3.7 Conclusion

Interviews with physiotherapists, both prescribers and non-prescribers, revealed further development of key themes moving towards a conceptual framework of role identity change in physiotherapy with the development of

the identity of a physiotherapy prescriber. Key to this are two arms of development as indicated in Figure 5-3 below with "physiotherapy prescriber role identity" developing from the two arms of "evolving identity" and "professional identity". The evolving identity concept is fed by pressures of responding to needs of the population, and frustrations felt by physiotherapists, particularly concerning the issues with prescribing of controlled drugs. There were clear perceptions shared by physiotherapists that their pre-registration education lacked at least basic pharmacology. Physiotherapists shared their perceptions on what they thought physiotherapy presented and how they felt users imaged physiotherapy with a common perception from physiotherapists, highlighting that they felt patients held a "fix me" image for physiotherapy. The physiotherapy professional identity then interacted with the evolving identity of physiotherapists as they take on new roles, with one of these activities as prescribers feeding into a new and distinct role identity of a physiotherapy prescriber.

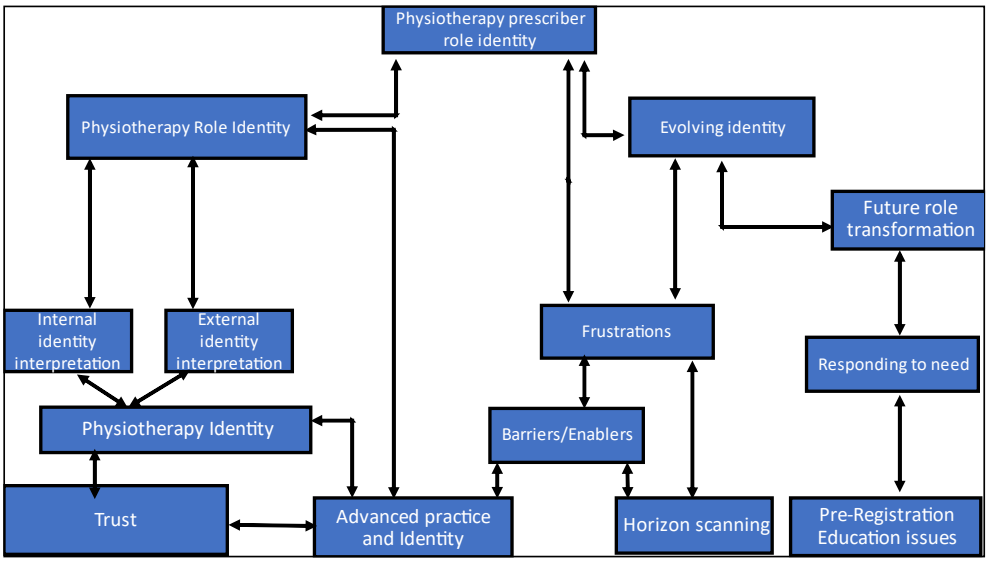

Figure 5-3 Development of Conceptual Framework using emergent themes from Phases 1(a-c)

5.4 Phase 2

Members of a convened expert panel shared comments regarding the pilot questionnaire for review, prior to use with a randomised selection of physiotherapists from Phase 1. Key areas of feedback included advice on clarity of language used in the questionnaire and the deletion of the majority of free text boxes in order to develop a more quantitative feel to the questionnaire.

Seven physiotherapists, randomly chosen from the Phase 1 physiotherapist participants, took part in the subsequent cognitive interviews to assess aspects of the updated pilot questionnaire such as a) overall length, b) clarity of language, and c) relevance of questions/themes. The outcomes showed overall positive support for the questionnaire with no adverse issues raised regarding a) overall length, b) clarity of language and c) relevance of questions/themes. Recommendations were made by 3 physiotherapists with regards to sense making of 3 questions and for clarity in the final question relating to length of qualification (appendix 21). All recommendations were taken on board with amendments made to the questionnaire.

In addition to the qualitative approaches to internal reliability, the questionnaire was also subjected to the use of a Cronbach α score for the entire questionnaire. This produced an outcome score of 0.883. See table 5-4 below. This suggests that the questionnaire as a whole demonstrates good internal reliability with the Cronbach $\alpha > 0.7$.

Table 5-4 Internal Reliability assessment using Cronbach alpha

Reliability Statistics	
Cronbach's Alpha	N of Items
0.883	30

5.5 Phase 3

5.5.1 Quantitative Results

This section will detail the results obtained from the questionnaire and contains both the descriptive and inferential statistical analyses.

5.5.2 Descriptive statistics

5.5.2.1 Participant numbers

A total of 361 responses were obtained from the questionnaire. Of these, 22 participants identified that they had taken part in Phases 1 or 2 and therefore excluded themselves from further activity in the questionnaire. A total of 51 responses were obtained from 17 IP addresses. These were cross checked against the data for comparison and verification. Of these 51 responses, 11 participants identified themselves has having been part of Phases 1 and/or 2 and, thus, were part of the 22 participants identified above. Five (5) participants among these shared IP addresses did not complete the questionnaire. All the other uses of shared IP addresses were checked for potential of spam or double entries. It was confirmed that those completed

questionnaires all belonged to individual physiotherapists who only engaged with the questionnaire on one occasion. This was done by checking frequency of email accounts used in the questionnaire.

All of the participants who elected not to continue with the questionnaire did so after Q10 or Q11 which equates to identification of their professional status. Of the total number of participants who engaged with the questionnaire (361) 42 responses were excluded from analysis due to not completing the questionnaire up to a level of 90% completion. Along with the 22 participants who identified as being part of Phases 1 or 2 this left a total of 297 responses which were available for analysis. Participants who had completed the questionnaire up to a value of 90% had on closer examination completed all the required questions and so could be included in the analysis. Those who did not complete up to the value of 90% left the programme early on, either being part of the cohort who identified as being part of Phase 1 and 2 or completing only the first set of questions regarding demographics prior to leaving the questionnaire. Excluding these results would have no impact on the outcome, as the participants had not answered any of the questions that fed into the quantitative results. This total of 297 responses used met the criteria of the required sample size of 191 as detailed in Chapter 3, providing added value to the outcomes of the questionnaire. This meant that exclusion of uncompleted questionnaires had limited impact on the likelihood of obtaining valuable results from the study. The study continued to meet the requirements as per the power calculations and did not include part answers.

5.5.2.2. Demographics

Descriptive analysis of the following variables was undertaken in the study. Age range, gender, ethnicity, and length of qualification, or year of pre-reg programme. Descriptive statistics are presented for each of the 4 professional status groups, physiotherapist prescribers, physiotherapist student prescribers, physiotherapist non prescribers and student physiotherapists.

Physiotherapist prescribers

The majority of participants (almost half) were in the 35-44 age group with the remainder in the younger and older age groups. The smallest age grouping consisted of the 55-64 yr. age range. See table 5-5.

Table 5-5 Age ranges physiotherapist prescribers

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-24	7	8.9	8.9	8.9
	25-34	14	17.7	17.7	26.6
	35-44	36	45.6	45.6	72.2
	45-54	15	19.0	19.0	91.1
	55-64	7	8.9	8.9	100.0
	Total	79	100.0	100.0	

Gender identification showed a majority of participants identifying as female with an approximate ratio of 3:2 in favour of female versus male. There were no non-binary genders reported. See table 5-6.

Table 5-6 Gender identification physiotherapist prescribers

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	31	39.2	39.2	39.2
	Female	48	60.8	60.8	100.0
	Total	79	100.0	100.0	

Whilst ethnicity values revealed a majority of white British (55.7%) it was encouraging to see a range of ethnicities reported and represented amidst the independent prescribing group. See table 5.7.

Table 5-7 Ethnicity - physiotherapist prescribers

Ethnicity					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	White British (English, Scottish, Welsh, Northern Irish)	44	55.7	55.7	55.7
	White European (EU)	12	15.2	15.2	70.9

	Romani or Irish Traveller	3	3.8	3.8	74.7
	White and Black Caribbean	4	5.1	5.1	79.7
	Indian	7	8.9	8.9	88.6
	Pakistani	4	5.1	5.1	93.7
	African	2	2.5	2.5	96.2
	Other	3	3.8	3.8	100.0
	Total	79	100.0	100.0	

The range of length of qualification revealed the lowest percentage among the period post qualification of 6-10 years. A small majority of physiotherapists were qualified for longer than 20 years. See table 5-8.

Table 5-8 Number of years qualified - physiotherapist prescribers

Please indicate the number of years that you have been qualified as a physiotherapist - Number of years qualified					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-5 years	19	24.1	24.1	24.1
	6-10 years	7	8.9	8.9	32.9

	11-15 years	13	16.5	16.5	49.4
	16-20 years	18	22.8	22.8	72.2
	>20 years	22	27.8	27.8	100.0
	Total	79	100.0	100.0	

Physiotherapist student prescribers

Similar to independent prescribers, the age range with the greatest number were in the 35-44 age range, with the remaining participants shared almost equally among the age ranges. See table 5-9.

Table 5-9 Age ranges physiotherapist student prescribers

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-24	2	16.7	16.7	16.7
	25-34	1	8.3	8.3	25.0
	35-44	7	58.3	58.3	83.3
	55-64	2	16.7	16.7	100.0
	Total	12	100.0	100.0	

Gender identification showed a 2:1 female to male ratio again similar to independent prescribers. No non-binary identification was present. See table 5-10.

Table 5-10 Gender identification physiotherapist student prescribers

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	4	33.3	33.3	33.3
	Female	8	66.7	66.7	100.0
	Total	12	100.0	100.0	

Ethnic spread revealed outcomes similar to independent prescribers with a majority reporting white British and a good spread of ethnicities noted in table 5-11.

Table 5-11 Ethnicity identification - physiotherapist student prescribers

Ethnicity					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	White British (English, Scottish, Welsh, Northern Irish)	4	33.3	33.3	33.3
	White European (EU)	2	16.7	16.7	50.0
	White and Black Caribbean	1	8.3	8.3	58.3
	Indian	1	8.3	8.3	66.7

	Bangladeshi	1	8.3	8.3	75.0
	Other	3	25.0	25.0	100.0
	Total	12	100.0	100.0	

Length of qualification showed a slight difference in range percentages compared to independent prescribers, with most belonging to early post qualification ranges 0-5 and 6-10 and over 20 years. The smallest belonging to the 16-20 years post qualification range. See table 5-12.

Table 5-12 Number of years qualified - physiotherapist student prescribers

Please indicate the number of years that you have been qualified as a physiotherapist - Number of years qualified					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-5 years	3	25.0	25.0	25.0
	6-10 years	3	25.0	25.0	50.0
	11-15 years	2	16.7	16.7	66.7
	16-20 years	1	8.3	8.3	75.0
	>20 years	3	25.0	25.0	100.0
	Total	12	100.0	100.0	

Physiotherapist non prescriber

The physiotherapist non prescribers were most populated by the 25-34 age range showing a slightly younger drift compared to those in the prescribing cohorts. See table 5-13.

Table 5-13 Age ranges for physiotherapist non prescribers

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-24	19	11.1	11.1	11.1
	25-34	79	46.2	46.2	57.3
	35-44	42	24.6	24.6	81.9
	45-54	23	13.5	13.5	95.3
	55-64	7	4.1	4.1	99.4
	>65	1	.6	.6	100.0
	Total	171	100.0	100.0	

Gender identification showed a similar pattern to the other cohorts with two individuals in this cohort preferring not to reveal their gender identity. See table 5-14.

Table 5-14 Gender identification - physiotherapist non prescribers

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	65	38.0	38.0	38.0
	Female	104	60.8	60.8	98.8
	Prefer not to say	2	1.2	1.2	100.0
	Total	171	100.0	100.0	

The variation in ethnicity shows similar patterns to other cohorts, with white British physiotherapists being the largest representation. There was an increased representation of physiotherapists identifying as Indian in this cohort. See table 5-15.

Table 5-15 Ethnicity identification - physiotherapist non prescribers

Ethnicity					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	White British (English, Scottish, Welsh, Northern Irish)	92	53.8	53.8	53.8
	White European (EU)	19	11.1	11.1	64.9
	White and Black Caribbean	8	4.7	4.7	69.6
	White and Black African	3	1.8	1.8	71.3
	White and Asian	7	4.1	4.1	75.4
	Indian	21	12.3	12.3	87.7
	Pakistani	5	2.9	2.9	90.6
	Chinese	1	.6	.6	91.2
	African	5	2.9	2.9	94.2
	Other	10	5.8	5.8	100.0
	Total	171	100.0	100.0	

The number of years qualified showed a clear difference between non-prescribing physiotherapists and prescribing physiotherapists with a majority of non-prescribing physiotherapists having been qualified for less than five (5) years. The smallest grouping was between 16-20 years with a relatively even spread between the other time ranges. Eight (8) participants did not complete this question. See table 5-16.

Table 5-16 Number of years qualified - physiotherapist non prescribers

Please indicate the number of years that you have been qualified as a physiotherapist - Number of years qualified					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-5 years	65	38.0	39.9	39.9
	6-10 years	31	18.1	19.0	58.9
	11-15 years	26	15.2	16.0	74.8
	16-20 years	10	5.8	6.1	81.0
	>20 years	31	18.1	19.0	100.0
	Total	163	95.3	100.0	
Missing	System	8	4.7		
Total		171	100.0		

Student physiotherapists

The majority of student physiotherapist participants were in the 18-24 age group, however 48.6% reported ages of over twenty-five suggesting a

significant number of mature students being attracted to the profession. See table 5-17.

Table 5-17 Age ranges - student physiotherapists

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-24	18	51.4	51.4	51.4
	25-34	10	28.6	28.6	80.0
	35-44	7	20.0	20.0	100.0
	Total	35	100.0	100.0	

Gender identification ratio for physiotherapy students echoes that of the other groups in the study with an approximate 2:1 ratio in favour of female students. See table 5-18.

Table 5-18 Gender identification - student physiotherapists

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	13	37.1	37.1	37.1
	Female	22	62.9	62.9	100.0
	Total	35	100.0	100.0	

Ethnicity variation is similar to the other groups with a majority of white British students. There is a range of ethnicities reported. See table 5-19.

Table 5-19 Ethnicity identification - student physiotherapists

Ethnicity					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	White British (English, Scottish, Welsh, Northern Irish)	21	60.0	60.0	60.0
	White European (EU)	4	11.4	11.4	71.4
	White and Asian	3	8.6	8.6	80.0
	Indian	6	17.1	17.1	97.1
	Caribbean	1	2.9	2.9	100.0
	Total	35	100.0	100.0	

In the student cohort, it was not applicable to ask number of years qualified, so students were asked to identify which year group they were studying with in their pre-reg degree. The majority of students reported as being first year students (34.3%) with the least year represented being the final year – 4thyear 17.1%. Given that some pre – reg programmes are 3 years and some 4 years, it is feasible to suggest that the final year students could be represented by the 3rd year and 4th year combined which in this case would show a small majority at 37.1%. See table 5-20.

Table 5-20 Cohort year - student physiotherapists

Please indicate the cohort of your pre-reg degree (1st year, 2nd year etc) - Year group					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1st year	12	34.3	34.3	34.3
	2nd year	10	28.6	28.6	62.9
	3rd year	7	20.0	20.0	82.9
	4th year	6	17.1	17.1	100.0
	Total	35	100.0	100.0	

5.5.3 Factor analysis

Factor analysis was applied using principal component analysis with oblique rotation (Pallant 2020 p188,192).

Data was analysed using SPSS version 28 (IBM Corp 2022).

The data were initially reviewed to determine if it was suitable for principal component analysis. Sixty-five (66) coefficients with a figure >.3 were noted in the correlation matrix (Appendix 26*). Kaiser-Mayer-Olkin measure of sampling adequacy was calculated to be 0.760 which is greater than the figure of .6 as recommended by Kaiser (1974). Bartlett's test of sphericity was reported at a level of statistical significance $p = 0.000$. As a consequence of this it was determined that the data supported the use of principal component analysis.

* Despite multiple attempts, the paper version of appendix 26 cannot be made bigger and still make sense, it will be easier to access and view electronically

Principal component analysis revealed that nine (9) components were reported as giving an eigen value >1, explaining 15.7%, 11.2%, 7.3%, 5.8%, 5.1%, 4.7%, 4.1%, 3.7% and 3.4% of the variance respectively (Appendix 27). However, inspection of the scree plot shown below in figure 7 shows a clear change at component 3 and 5. Use of parallel analysis supported the reduction in components from 9 to 6 (Appendix 28) however the change of direction was more marked at 3 on the scree plot. Examination of the results of principal component analysis for 5 components revealed that rotation analysis failed to converge within 25 rotations, however this was successful with 3 components. It was therefore decided to retain 3 components for further investigation (Appendices 29,30)

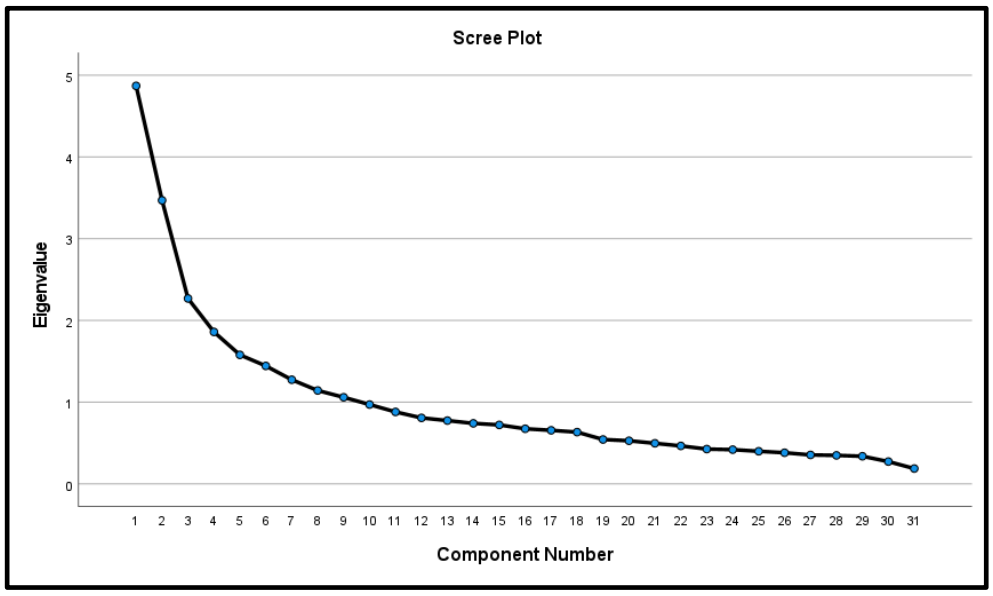

Figure 5-4 Scree plot of components (x) vs eigenvalue (y)

The three (3) component solution represented 34.2% of the variance with component 1 providing 15.7 %, component 2 11.2% and component 3 7.3%. The direct Oblimin rotation was selected in order to obtain a measure of the degree of correlation of the factors involved. The Oblimin rotation with Kaiser normalisation produced a pattern matrix and structure matrix that suggested the 3 components had very low interrelationship with each other as confirmed in the component correlation matrix (table 26) where the correlations are very low, being 0.113, 0.0546 and -0.075 respectively, suggesting that each of the components are not totally unrelated but have only a weak correlation with each other. The makeup of the three components are as follows. See table 5-21.

Table 5-21 Component Correlation Matrix

Component Correlation Matrix			
Component	1	2	3
1 physio as prescribers	1.000	.056	.113
2 physiotherapy identity	.056	1.000	-.075
3 future role transformation	.113	-.075	1.000
Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization.			

Component 1 consists of attitudes to pharmacology, impact of pharmacology on the pre reg education, when physiotherapists should be allowed to undertake training, and barriers including the current restrictions surrounding the independent prescribing of controlled drugs. The weakest elements associated with component 1 reflected areas where the scope of physiotherapy is made more complex. Component 1 therefore reflects the label **physiotherapist prescriber role identity**

Component 2 consists of listening, trust, rehab, being a listener, the benefit of interprofessional working, being holistic and concentrating on function, reflecting a label of **physiotherapy identity**

Component 3 consists of concerns over reliance on medicines, that physiotherapy should concentrate on physical measures, that the focus should be on rehabilitation and that the new post of first contact practitioner opens the profession to conflict, reflecting a label of **evolving identity.**

5.5.4 Between group comparison findings

Between group comparisons, were carried out to assess for differences between defined groups of physiotherapists. The groups being defined as prescribing physiotherapist, physiotherapist student prescriber, physiotherapist non prescriber and student physiotherapist. The statistical test used was the Kruskal Wallis sum rank test. The nine (9) questions which made up the between group comparisons are the questions as set out in Chapter 3. They are quantitative questions which have their origin in phase 1, where participants shared their viewpoints on a range of issues associated

with physiotherapy and prescribing medication. The questions cover key areas that were of importance to physiotherapists. .

5.5.4.1 There will be a between group statistical difference in the perceptions of physiotherapy by physiotherapists.

A Kruskal Wallis sum rank test failed to reveal a significant difference between the groups (Group one (prescribing physiotherapists n = 79; group two (physiotherapist student prescriber n =12; Group three physiotherapist non prescriber n=171 Group 4 student physiotherapist n = 35). X^2 (3, n=297) = 0.871, $\rho = 0.832$.

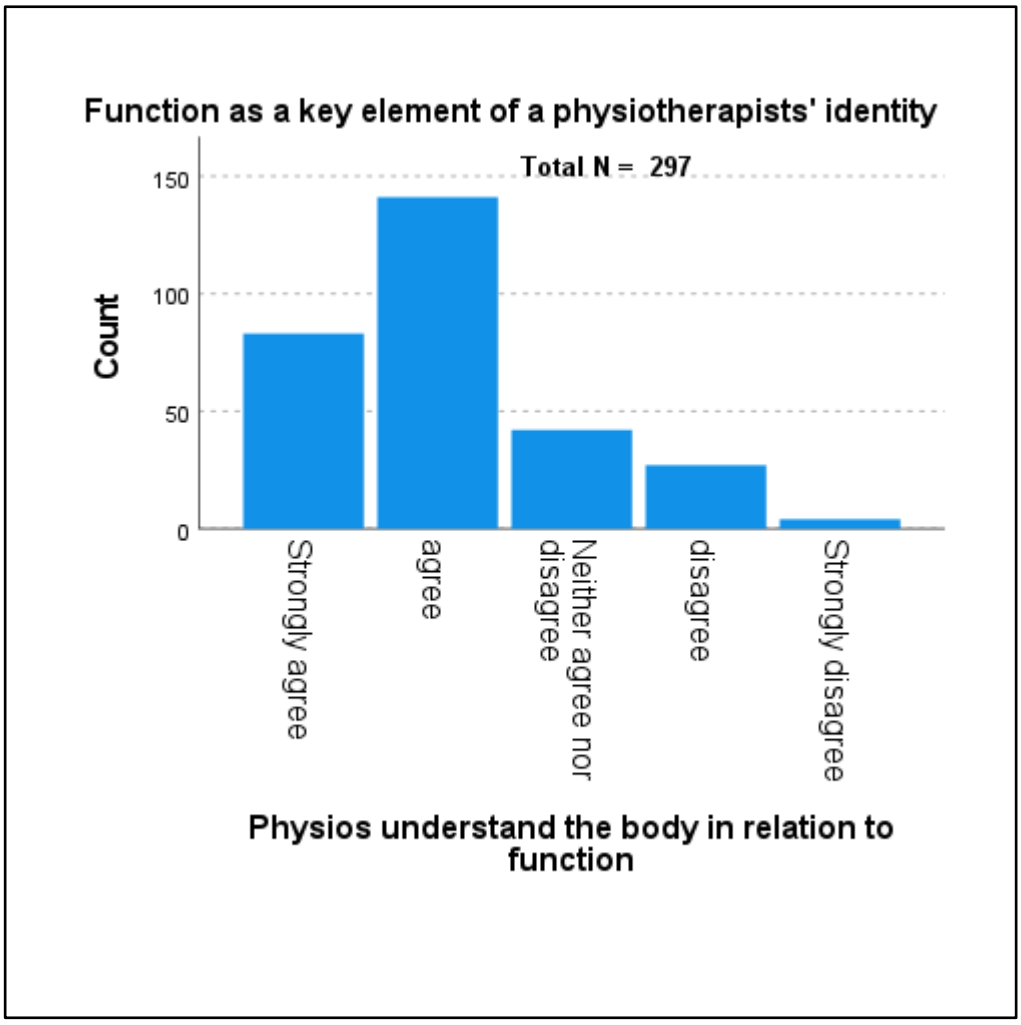

Figure 5-5 Function as a key element of identity

From Figure 8 above, it is clear that across the four groups of participants, there is agreement regarding the importance of the functional ability of the human body in the application, and approach to physiotherapy with 75.4% either agreeing or strongly agreeing with the concept that function is key to the thinking behind a physiotherapist's approach to patient care.

5.5.4.2 There will be a between group statistical difference between the four groups in perceptions of the content of physiotherapy.

A Kruskal Wallis sum rank test revealed a statistically significance across the groups (Group one (prescribing physiotherapists n = 79; group two

(physiotherapist student prescriber n =12; Group three physiotherapist non prescriber n=171 Group 4 student physiotherapist n = 35). X^2 (3,n=297) = 12.928, p = 0.005

Pairwise comparisons between the groups revealed the following relationships. See table 5-22 below.

Table 5-22 Pairwise comparison of groups re content of physiotherapy

Pairwise Comparisons of Groups					
Sample 1-Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.[a]
student physiotherapist-physiotherapist non prescriber	15.855	15.436	1.027	.304	1.000
student physiotherapist-physio student prescriber	21.155	27.833	.760	.447	1.000
student physiotherapist-physio prescriber	51.084	16.894	3.024	.002	.015
physiotherapist non prescriber-physio student prescriber	5.300	24.847	.213	.831	1.000
physiotherapist non prescriber-physio prescriber	35.229	11.319	3.112	.002	.011

physio student prescriber-physio prescriber	29.929	25.778	1.161	.246	1.000
Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. The significance level is .050.					
a. Significance values have been adjusted by the Bonferroni correction for multiple tests.					

Table 5-22 shows statistically significant differences between the groups of physiotherapist prescriber – physiotherapist non prescriber (p = 0.02) and student physiotherapist – physiotherapist prescriber (p = 0.02), suggesting that there are differences in perception of what physiotherapy entails after physiotherapists have undertaken a prescribing programme.

5.5.4.3 There will be a between group statistical difference regarding reducing the time post qualification to one year prior to undertaking prescriber training.

A Kruskal Wallis sum rank Test failed to reveal a significant difference between the groups (Group one (prescribing physiotherapists n = 79; group two (physiotherapist student prescriber n =12; Group three physiotherapist non prescriber n=171 Group 4 student physiotherapist n = 35). X^2 (3, n=297) = 4.949, p = 0.176.

Whilst there was not a statistical significance difference detected between the groups, descriptive statistical analysis revealed that 56.9% of physiotherapists (comprising physiotherapist prescribers, physiotherapist student prescribers,

physiotherapist non prescribers and student physiotherapists) either agree or strongly agree with the argument that like nursing, physiotherapists should be able to train for independent prescribing one year post qualifying. The percentage who either disagreed or strongly disagreed was 25.9%. (Median = 2 (Agree))

5.5.4.4 There will be a between group statistical difference regarding physiotherapists leaving pre reg as prescriber.

A Kruskal Wallis sum rank Test failed to reveal a significant difference between the groups (Group one (prescribing physiotherapists n = 79; group two (physiotherapist student prescriber n =12; Group three physiotherapist non prescriber n=171 Group 4 student physiotherapist n = 35). X^2 (3, n=297) = 4.890, p = 0.18.

Whilst there was not a statistical significance difference detected between the groups, descriptive statistical analysis revealed that 42.1% of physiotherapists (comprising physiotherapist prescribers, physiotherapist student prescribers, physiotherapist non prescribers and student physiotherapists) either agree or strongly agree with the argument that physiotherapists qualifying with a prescribing registration would be beneficial. The percentage who either disagreed or strongly disagreed was 39.1% (Median = 3). The results reveal a lack of consensus within the profession for this issue.

5.5.4.5 There will be a between group statistical difference regarding the inclusion of pharmacology within pre-registration.

A Kruskal Wallis sum rank Test failed to reveal a significant difference between the groups (Group one (prescribing physiotherapists n = 79; group two (physiotherapist student prescriber n =12; Group three physiotherapist non prescriber n=171 Group 4 student physiotherapist n = 35). X^2 (3, n=297) = 4.878, p = 0.181.

Whilst there was not a statistical significance difference detected between the groups, descriptive statistical analysis revealed that 89.9% of physiotherapists (comprising physiotherapist prescribers, physiotherapist student prescribers, physiotherapist non prescribers and student physiotherapists) either agree or strongly agree with the argument the inclusion of basic pharmacology within pre-reg physiotherapy would be beneficial. The percentage who either disagreed or strongly disagreed was 3.4% (Median = 2)

5.5.4.6 There will be a between group statistical difference that lengthening the programme to include pharmacology would benefit the profession

A Kruskal Wallis sum rank Test failed to reveal a significant difference between the groups (Group one (prescribing physiotherapists n = 79; group two (physiotherapist student prescriber n =12; Group three physiotherapist non prescriber n=171 Group 4 student physiotherapist n = 35). X^2 (3, n=297) = 1.137, p = 0.768. Whilst there was not a statistical significance difference detected between the groups, descriptive statistical analysis revealed that 59.9% of physiotherapists (comprising physiotherapist prescribers, physiotherapist student prescribers, physiotherapist non prescribers and

student physiotherapists) either agree or strongly agree with the argument that adding a year to a physiotherapy pre-reg degree to include pharmacology and awareness of medication would be beneficial. The percentage who either disagreed or strongly disagreed was 20.2% (Median = 2).

5.5.4.7 There will be a between group statistical difference regarding the potential harm that current restrictions on access to controlled drugs will cause patients.

A Kruskal Wallis sum rank test revealed a statistically significance across the groups (Group one (prescribing physiotherapists n = 79; group two (physiotherapist student prescriber n =12; Group three physiotherapist non prescriber n=171 Group 4 student physiotherapist n = 35). X^2 (3,n=297) = 30.947, $p < 0.001$

Pairwise comparison between the groups revealed the following relationship. See table 5-23 below

Table 5-23 Pairwise comparison of groups re: Impact of CD restriction Table

Pairwise Comparisons of groupings					
Sample 1-Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.[a]
physio prescriber-physio student prescriber	-14.948	25.832	-.579	.563	1.000
physio prescriber-physiotherapist non prescriber	-57.326	11.342	-5.054	<.001	.000
physio prescriber-student physiotherapist	-69.694	16.930	-4.117	<.001	.000

physio student prescriber-physiotherapist non prescriber	-42.378	24.899	-1.702	.089	.533
physio student prescriber-student physiotherapist	-54.746	27.891	-1.963	.050	.298
physiotherapist non prescriber-student physiotherapist	-12.369	15.469	-.800	.424	1.000

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.
Asymptotic significances (2-sided tests) are displayed. The significance level is .050.

a. Significance values have been adjusted by the Bonferroni correction for multiple tests.

Table 5-23 shows statistically significant differences between the groups of physiotherapist prescriber – physiotherapist non prescriber ($\rho < 0.001$) and student physiotherapist – physiotherapist prescriber ($\rho < 0.001$), with respect to beliefs among physiotherapists concerning the current restrictions that apply to independent prescribing for physiotherapists and issues surrounding the prescribing of controlled drugs (CDs)

5.5.4.8 There will be a between group statistical difference in beliefs that appropriate levels of support from the line manager will be present during training as a prescriber.

A Kruskal Wallis sum rank test revealed a statistically significance across the groups (Group one (prescribing physiotherapists n = 79; group two (physiotherapist student prescriber n =12; Group three physiotherapist non prescriber n=171 Group 4 student physiotherapist n = 35). X^2 (3,n=297) = 8.992, p < 0.029

Pairwise comparison between the groups revealed the following relationships in table 5-24 below

*Table 5-24 Pairwise comparisons: support **during** training*

Pairwise Comparisons of groupings					
Sample 1-Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.[a]
physio student prescriber-physio prescriber	5.846	25.240	.232	.817	1.000
physio student prescriber-physiotherapist non prescriber	-35.558	24.328	-1.462	.144	.863
physio student prescriber-student physiotherapist	-36.533	27.252	-1.341	.180	1.000
physio prescriber-physiotherapist non prescriber	-29.712	11.082	-2.681	.007	.044
physio prescriber-student physiotherapist	-30.687	16.542	-1.855	.064	.381

physiotherapist non prescriber-student physiotherapist	-.975	15.114	-.065	.949	1.000

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.
Asymptotic significances (2-sided tests) are displayed. The significance level is .050.

a. Significance values have been adjusted by the Bonferroni correction for multiple tests.

Table 5-24 above, shows a statistically significant difference between physiotherapist prescribers and physiotherapist non prescribers (p = 0.007. adj via Bonferroni correction p = 0.044)

Investigation of descriptive statistics for physiotherapist prescribers and physiotherapist non prescribers respectively, revealed that for physiotherapist prescribers more physiotherapists believed that they would receive support during training when combining the responses of strongly agree (26.6% (21/79)) and agree (40.5% (32/79)) at 67.1% versus 55.2% (strongly agree (12.3% (21/171)) and agree (39.2% (67/171))) of those who identified as physiotherapists non prescribers. The percentage who felt that they would not receive support was similar between the two groups: 11.4% for physiotherapist prescribers and 13.4% for physiotherapist non prescribers. The greatest area was in the set of participants who strongly agreed that they would receive support, and this shows a difference of 14.3% between the two groups suggesting more confidence among prescribers that they would receive support during the period of education. See graphical representation below (Figure 5-6) showing numbers for physiotherapist prescribers

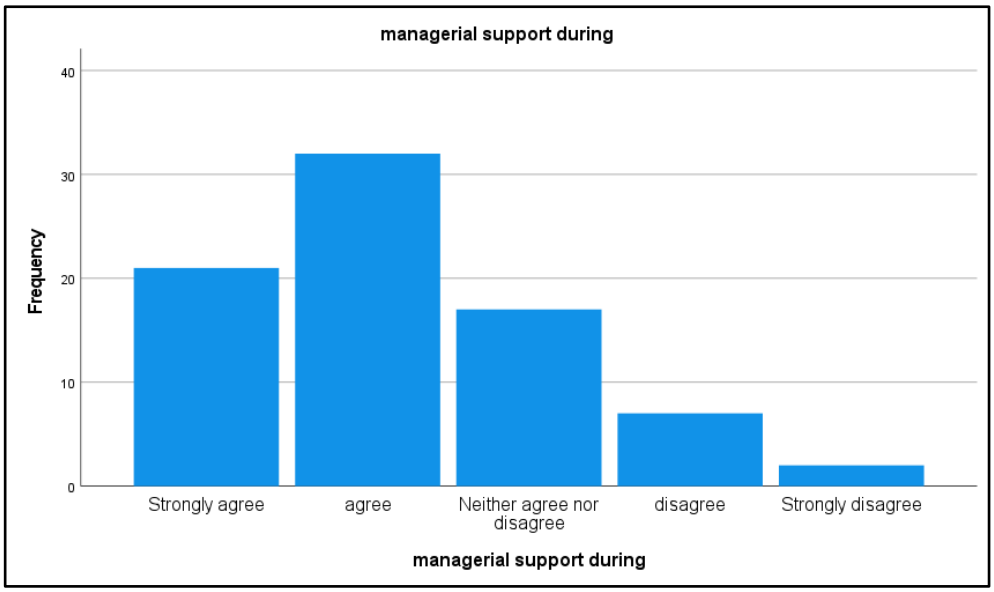

Figure 5-6 Managerial support during training - physiotherapist prescribers

See below (Figure 5-7) for the graphical representation of perception of support provided by line managers by physiotherapist non prescribers during training

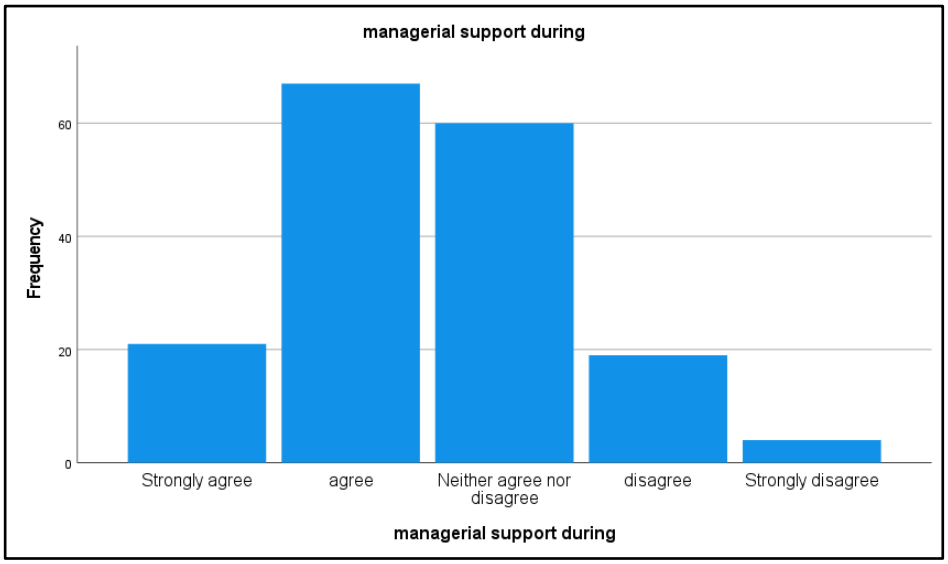

Figure 5-7 Managerial support during training - physiotherapist non prescribers

5.5.4.9 There will be a between group statistical difference in beliefs that appropriate levels of support from the line manager will be present after training as a prescriber.

A Kruskal Wallis sum rank Test failed to reveal a significant difference between the groups (Group one (prescribing physiotherapists n = 79; group two (physiotherapist student prescriber n =12; Group three physiotherapist non prescriber n=171 Group 4 student physiotherapist n = 35). X^2 (3, n=297) = 3.957, p = 0.266. Whilst there was not a statistical significance difference detected between the groups, descriptive statistical analysis revealed that 56.2% (17.2% strongly agree and 39.1% agree) of physiotherapists (comprising physiotherapist prescribers, physiotherapist student prescribers, physiotherapist non prescribers and student physiotherapists) either agree or strongly agree with the belief that they would receive appropriate levels of support after training as a prescriber. The percentage who either disagreed or strongly disagreed was 11.1% (8.1% disagree and 1.7% strongly disagree).

5.6 Merging the results - Presenting a mixed methods picture

Qualitative factors	Quantitative variables	ρ	Mixed methods interpretation
Thought leaders, physios and public participants shared ideas on identity of physiotherapy	There will be a difference in the Perceptions of physiotherapy by physiotherapists between the four groups	=0.832	Physiotherapists in the four groups supported the idea that the identity of physiotherapy lays in the understanding of the human body in relation to function

Thought leaders and physiotherapists reported that prescribing gives opportunities to physiotherapists to work differently	There will be a difference in perceptions of the content of physiotherapy between the four groups.	=0.005	Physiotherapist prescribers report a clear difference in the activities undertaken within consultations, alongside the clinical reasoning compared with physiotherapist non-prescribers
Thought leaders and physiotherapists reported concerns regarding the current formulary limitation for physiotherapists	There will be a difference among the groups regarding the potential harm that the current restrictions on access to controlled drugs will cause patients	<0.001	Physiotherapist prescribers are frustrated at the impact of the current CD limitation on their ability to treat patients.

Thought leaders and physiotherapists felt that including basic pharmacology in the pre-reg programme would be beneficial	There will be a difference among the groups regarding the belief that pharmacology should be included within pre-registration programmes	=0.181	There is agreement across the profession that the inclusion of basic pharmacology in the pre reg programme would be beneficial, this also includes the potential for lengthening the pre reg programme to include basic pharmacology
Thought leaders and physiotherapists reported issues surrounding support for study opportunities	There will be a difference across the four groups in the belief that appropriate levels of support from the line manager will be present during training as a prescriber	<0.029	Prescribing physiotherapists were more confident of receiving support during their training from line managers than physiotherapist non prescribers. However, this difference disappeared after training with as a whole only 56.2% of physiotherapists reporting confidence that they would receive appropriate support

5.7 Conclusion

The physiotherapist identity is resilient and remains intact despite role change and development. There is evidence however of statistical significance for differences in key areas between prescribing physiotherapists and physiotherapist non-prescriber groups. These are in the content of consultations, where activities undertaken during the consultation are seen significantly differently ($p = 0.02$). There is a significant difference between the groups with regards limitations surrounding the prescribing of controlled drugs. This appears to be acutely felt by prescribing physiotherapists ($p < 0.001$). More prescribing physiotherapists than physiotherapist non-prescribers felt that would receive support during training to become a prescriber ($p = 0.04$), however this is not maintained after completion of training with only 56.2% of participants reporting they agreed or strongly agreed that they would receive support.

In addition, there was support across all four groups for the inclusion of basic pharmacology within pre-registration physiotherapy programmes (89.9%)

Chapter 6 Discussion

6.1 Introduction

This thesis set out to examine the impact of prescribing medication on the role identity of physiotherapists. This was accomplished via the application of an exploratory sequential mixed methods study, designed to address the following questions:

1.How do thought leaders, physiotherapists, and members of the public perceive the role of physiotherapy, and how do they anticipate it will evolve with the introduction of prescribing rights for physiotherapists? QUAL

2. What are the key differences in role identity perceptions between prescribing and non-prescribing physiotherapists? QUAN

3. Are the identified themes and conceptual framework about role identity shifts in physiotherapists undergoing prescribing training applicable to the wider physiotherapy community? MM

This chapter will discuss results from a pragmatic ontology, using a symbolic interactionist lens, presenting a model of role identity change within the profession, with reference to work on structural role identity theories, social identity theory and identity theory within the published literature.

The chapter will discuss strengths and weaknesses of the thesis and present recommendations in areas of policy making, education and clinical activity.

6.2 The conceptual framework

6.2.1 Physiotherapy professional identity

The conceptual framework that emerged from phase 1 reveals a physiotherapy prescriber role identity fed by perceptions and ideas of a physiotherapy professional identity, and an evolving identity fed from aspects of response to need and role transformation, for example, First contact physiotherapist posts in primary care, Advanced Clinical Practitioner posts in secondary care. In addition there is a third feed based on a sense of frustration, which for some physiotherapists, threatens the future of prescribing within physiotherapy. See Figure 6-1 below.

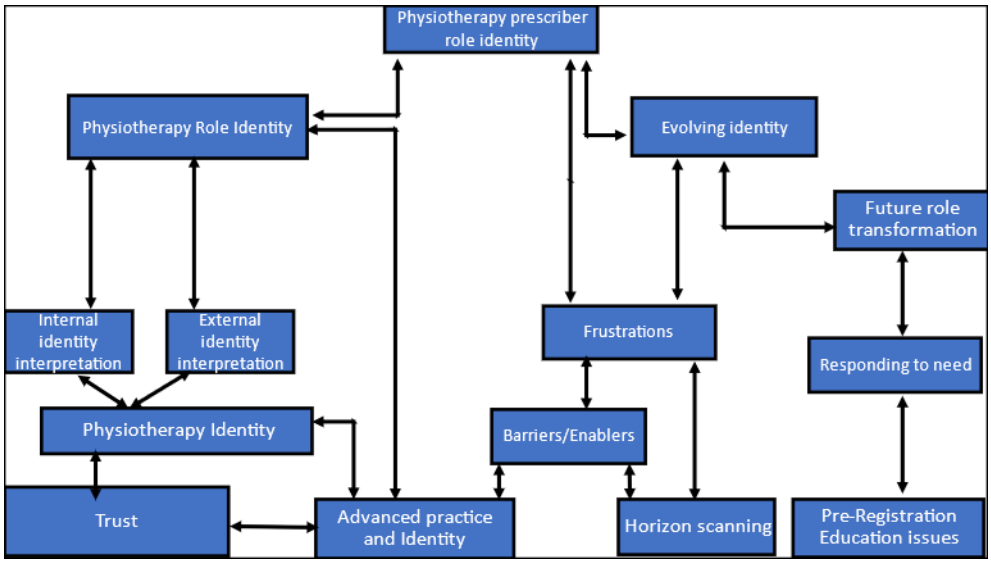

Figure 6-1 Conceptual framework for identity development as a physiotherapist prescriber

The background nature of identity has been discussed earlier in Chapter 2, where the interrelationship between individual, social and structural identity was reviewed. The concept of a physiotherapist prescribing role identity is at once an amalgam of multiple identities (non-medical prescriber, physiotherapist, advanced practitioner) and individual in nature since all

identities include the identity of the individual agent who holds them [28,30]. The linkage between identity of the individual and the impact of the structure on the identity is made clear by Stryker and Burke (2000) in which the authors review how both structural symbolic interaction and identity theory have linked outputs, with one originating from a structural role (e.g. a physiotherapist) and one originating from the individual. The importance of identity salience is stressed in regards to behaviour of individuals within a role (e.g. physiotherapist prescriber), wherein, if the meanings underlying the identity of being a prescriber are reinforced, then emotionally the novice prescriber is strengthened in their role of being a prescriber, whereas if the prescriber is isolated, and faced with instances where their role is not reinforced, they will suffer from negative emotions which may lead to withdrawing from the role of using their skills in prescribing. Fig 6-2 below demonstrates the control loop of identity theory where output associated with behaviour is the consequence of comparison of perception of the environment with the identity standard that is held by the individual. In roles where multiple identities are held (e.g., physiotherapist, physiotherapist prescriber) the identity that holds the most congruent identity salience will be the identity that is preferentially presented by the individual.

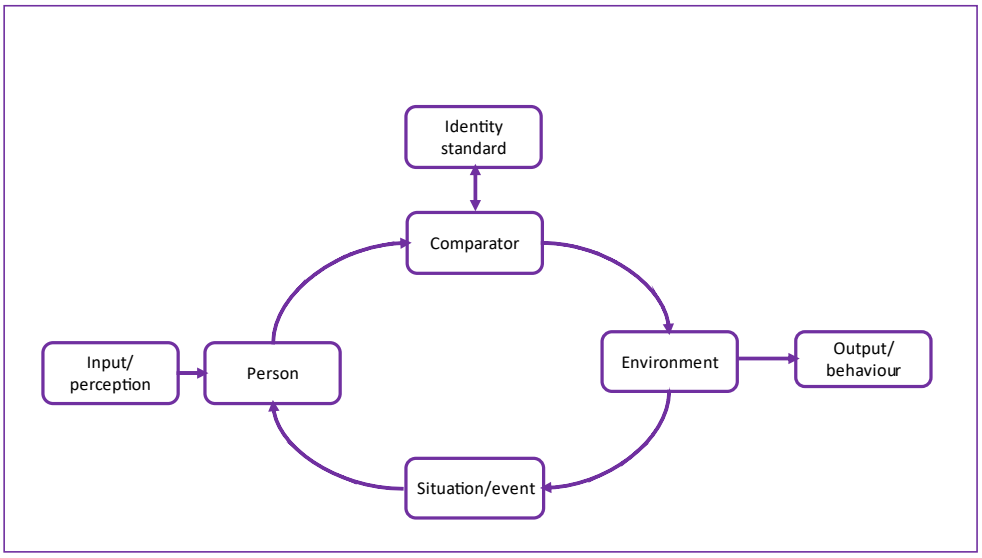

Figure 6-2 Identity verification model

The concept of a professional identity for physiotherapy in this thesis is developed by feeders of internal identity interpretation and external identity interpretation. These two elements are the principal feeders into developing a role identity of being a physiotherapist. As a profession, physiotherapy has not focused on what it means to be a physiotherapist to any great degree (Hammond et al 2016) with the majority of work that has been carried out focusing on the development of identity as a student (Lindquist et al 2006, Chambers 2012, Nygren-Bonnier et al 2022) with no evidence in the published literature of developing a conceptual framework for how the identity is created. Hammond et al (2016) undertook a narrative study to investigate the construction of a professional physiotherapy identity using an approach of collective memory work, in which a sample of eight physiotherapists engaged in group work over several weeks during which time discussions were held and ideas were recorded for the detection of underlying themes. Their conclusion was that professional identity in physiotherapy was both complex and fluid, sensitive to environment, individual and place. In comparison, this thesis presents a framework with the

constituent parts that underpin a physiotherapist's professional identity, constructed from both within the profession and without.

More recently, Filippo and Mourad (2021) make a claim that the profession is at risk of losing its identity. An identity that they perceived as based on the application of a set of interventions on a background multi-model set of clinical signs and symptoms, instead they picture physiotherapy as a follower of trends based on often outdated research (p68) leading to a sense of confusion surrounding the professional identity, presenting as fractured with elements aligning to disparate influencers. They present the following warning, that as a profession physiotherapy needs to have a clear link between clinical practice and research, otherwise it faces the risk of losing an identity as an evidence-based healthcare profession. Their claim suggests a lack of understanding of a clear identity within physiotherapy which is reflected by the lack of a scholarly debate in the literature, something that this thesis aims to add to.

The internal identity interpretation in the conceptual framework presented a key issue informing identity for physiotherapists of communication. This was felt as having primacy over physical and technical skills of treatment for physiotherapists, something that is reminiscent of earlier work on the identity development of student physiotherapists (Lindquist et al 2006) which revealed three identities among students two of which relate closely to communication, (empowerer and educator).

The issue of uniform as being important in the development of an identity is echoed in Chambers thesis (2012 p220) where a student physiotherapist stated "You start to feel like a physio when you go on placement when you get your

uniform on", which strongly aligns with a comment from Brett in this thesis where he stated, "I think it's there to show the patient I'm a physio, like wearing a badge".

The perception of physiotherapy from an external viewpoint, the external identity perception was gained from two sources, interviews from a lay perspective and physiotherapists who were asked what they thought were patients' perspectives on physiotherapy. The lay perspective focused on activities involved within assessment or treatment. Though one individual echoed an issue from how physiotherapists perceived themselves when they stated their immediate thought of physiotherapy was white tunics and blue trousers evocative of the importance of uniform. There were negative aspects where lay people felt that physiotherapy had little to offer, which echoed that from within the profession who proffered a view that sometimes patients believed that physiotherapy was a last-ditch option.

A concept of trust was offered by physiotherapists and members of the public as highly important in the therapeutic relationship. Members of the public shared views suggesting that in particular, trust in the person was important from the patient's perspective, sometimes more important than the qualification of extended practice. The importance of trust in how patients view physiotherapy is echoed in the literature with Bernhardsson et al (2017) highlighting how trust in the physiotherapist by a patient can be a positive factor in engagement with a rehabilitation programme. The breach of trust as shared by Gina in this thesis (Chapter 5, p196), shows clearly the negative impact of a situation where trust in the treating clinician was so damaged by their behaviour that no further appointments were made. The episode of

breach of trust upholds the concepts of trust in the person, as a breach in this trust was sufficient to break off all contact with the rehabilitation programme.

5.2.2. Evolving Identity

The development of new skills within physiotherapy leads to the development of new identities (Burke & Stets 2009) thus creating the potential for ratification of the new identities or for potential conflict between the new identities. Ibarra et al (2010) discuss the role of possible selves within career change. The selves that Ibarra discusses are equated with a person's identity, with potential identities being evaluated by the individual within a career. Particularly within a career, as a role changes, reflected by changes in activity, future possibilities can be either amplified or reduced in salience.

Within professions, especially those professions that are relatively new to prescribing, there is potential for a sense of internal conflict within the profession. This has been shown in chiropractic, a related manual therapy profession similar in activity to physiotherapy where in a narrative review undertaken in 2014, 42% of the chiropractic profession in Australia held the opinion that they should not prescribe medication, in the United Kingdom this was 51.2%, whereas in the United States, in a review of regions across the USA 54.3% of respondents felt that chiropractors should prescribe what was termed in the article "over the counter drugs" (Emary & Stuber 2014). This suggests an environmental impact on thinking, though it is of interest that in the UK there was a small majority that were against prescribing. It remains unclear why this is so or if the views of chiropractors has changed since. There is even evidence of opposition to prescribing within physiotherapy, as

shown in studies of opinions to prescribing in Australia (Noblet et al 2019). Interestingly one of the arguments made against prescribing by qualified staff involved the perceived risk that junior physiotherapists focus more on prescribing rather than traditional physiotherapy skills, with a recommendation for a structured professional framework involving robust clinical supervision. This argument is reminiscent of a viewpoint held by one of the physiotherapists interviewed in this thesis (Chapter 5, p212) who felt that time spent on prescribing and considering prescribing options would potentially impact on the ability of a physiotherapist to conduct more traditional physiotherapy activities such as overseeing exercise, the judicial use of manual therapies, and the provision of support towards a comprehensive rehabilitation programme. This thinking is supported by findings from a study of prescribing by physiotherapists within the UK (Holden et al 2018) in which a number of physiotherapists interviewed reported that prescribing shouldn't be in the remit of physiotherapy for reasons including increased responsibility, increased risk of being sued, not being paid enough, not part of physiotherapy. The final viewpoint of not being part of physiotherapy, is strongly reminiscent of the views held by chiropractors antagonistic to prescribing reported by Emary and Stuber (2014). Whilst one in five physiotherapists in Australia had significant concerns about prescribing (Noblet et al 2019a), in a separate study of student physiotherapists' views by the same authors (Noblet et al 2019b) the percentage of students in support of prescribing and who stated that they would seek to become prescribers post registration was over 90%. This was

some 20% higher than the equivalent viewpoint held by qualified physiotherapists (Noblet et al 2019a).

6.2.2.1 Frustrations

A key frustration raised by prescribing physiotherapists in this thesis surrounded the imposed limitation on independent prescribing due to the limited availability to prescribe controlled drugs and the recent loss of appropriate pain-relieving drugs that have been added to the controlled drug schedule since physiotherapists gained independent prescribing rights in 2013. This echoes findings by Mullan (2021) who linked this to a sense of frustration that the government was limiting professional autonomy by adversely impacting the ability to action a prescribing decision, for which they had shown themselves to be safe and effective, within both prescribing education programmes, and in practice. This includes using clinical management plans with the model of supplementary prescribing and prescribing in their role as independent prescribers. Due to the difficulties of supplementary prescribing as highlighted in the work that led to the introduction of independent prescribing (DoH 2012), this has required physiotherapists having to pass patients on to medical colleagues. This practice is alluded to in work regarding nurse prescribing and the impact of legislation on their prescribing of controlled drugs carried out in 2007 (Stenner and Courtenay 2007), prior to the legislative change that opened up full access to CD prescribing for both nurses and pharmacists. In their report, Stenner and Courtenay, present evidence where nurses found the legislative limitations confusing and potentially the cause for limiting access to appropriate patient care. Whilst supplementary prescribing afforded a

potential pathway, this was often not used in the field of pain, an area that is particularly of relevance to those physiotherapists who work in the musculoskeletal field, due to the cumbersome nature of the model. In the end it was deemed easier to ask the doctor to prescribe, which defeats the aims of non-medical prescribing. This sense of frustration is one of the common themes reported by physiotherapists (Mullan 2021) and echoed in the thesis by a consultant physiotherapist who felt that due in part to these restrictions, that prescribing in the field of MSK pain would be dead in the next 10 years (Chapter 5, p169). A participant from NHSE in phase 1 of this thesis shared that they were aware of the issues faced by physiotherapists due to the current list of controlled drugs available to physiotherapists and felt that any agreement that is forthcoming would only be catching up rather than enabling the profession going forwards. At the time of writing this current change is in the process of being enacted (NHSE 2020), however due to the risk of drugs currently available within the BNF moving to scheduled listing, thus putting access to them beyond physiotherapists, there remains a potential inequity between allied health prescribers who have undertaken equivalent post graduate education and assessment with their nursing and pharmacist colleagues.

6.3 Validation of framework

The conceptual framework was assessed for validity by sharing it amongst a random sample of the physiotherapy profession with the results being subjected to statistical analysis. As discussed earlier, factor analysis using the particular approach of principal component analysis was applied. The results indicated that there was agreement within the wider profession with

the main structure of the conceptual framework consisting of concepts of a professional physiotherapy identity, an evolving identity and the presence of frustrations driving the formation of a prescribing physiotherapy identity. The use of principal component analysis in determining construct validity of a questionnaire has been used elsewhere in physiotherapy. An example is the evaluation of the validity of the Emory University Internship Clinical Evaluation (EUICE) instrument (Bridges et al 2018), an instrument to assess the competencies of students of physical therapy in the USA. The authors used principal component analysis to confirm whether the survey instrument confirmed that the behaviours observed in clinical practice that were deemed to be essential for physiotherapists were condensed to the four competencies in the EUICE. Reminiscent of this thesis, the authors used Kaiser-Meyer-Olkin's measure of sampling adequacy and Barrett's test of specificity. They concluded that the questionnaire upheld the required competencies developed in the training of physical therapists.

Questionnaire development has been assessed within the field of stroke rehabilitation in physiotherapy (Drigny et al 2019). Qualitative interviews were held with patients and their viewpoints were subsequently included within the developed questionnaire. Exploratory factor analysis being used to determine the validity of the new tool for assessment of physical ability.

Outside of physiotherapy, within osteopathy, principal component analysis was used in the validation of a tool developed to assess the common therapeutic behaviours used by osteopaths (Thomson & Anstiss 2020). This particular study is useful as the authors developed their tool from a substantive grounded theory developed by one of the authors. Quotes used in

the original grounded theory study were used in the development of the osteopath's approaches therapeutic questionnaire. They subsequently used exploratory factor analysis to show convergence between the questionnaire and the grounded theory. An approach that is highly reminiscent of the methods in this thesis.

Finally, a study within the field of midwifery used principal component analysis in the evaluation of a questionnaire developed with items from the published literature. In this study Kalu et al (2020) utilized varimax rotation, an example of orthogonal rotation whilst focusing on groupings with eigen values >1. This was due to their interpretation that the groupings were unrelated to each other.

6.4 Descriptive statistics of participants

The statistics gathered in this thesis for background demographics of participants included age, ethnicity, gender, and length of time qualified. The results obtained in this thesis are discussed here in relation to statistics obtained for physiotherapists from their professional regulatory body the Health and Care Professions Council (HCPC).

Aggregating the groups of participants in my thesis (physiotherapist prescriber, physiotherapist student prescriber, physiotherapist non prescriber and student physiotherapist) for the data points of age and ethnicity allowed for comparison with data obtained from the HCPC (Appendix 31).

The results for both age and ethnicity in this thesis correspond well to the data held by the HCPC for December 2023. There was a slight differentiation regarding gender identity, however this could be because the HCPC collect data on sex at birth rather than gender identity. Despite this, the results did

not show significant differences between the male/female split in the profession within this thesis and data collected at the HCPC.

Comparison of the two data sets suggests that the participants in this thesis reflect the range of physiotherapists registered with the HCPC.

6.5 Which influences of role identity among physiotherapists reveal differences between prescribing and non-prescribing physiotherapists?

For ease of reference in the following discussion, the four groupings of physiotherapists used in the questionnaire are shown in table 30 below and will be referred to by their grouping (group1, group 2 etc)

Table 6-1 Groupings for physiotherapy participants

Category	Identification
physiotherapist prescriber	group 1
physiotherapist student prescriber	group 2
physiotherapist non prescriber	group 3
student physiotherapist	group 4

6.5.1 Does the meaning of physiotherapy change across roles

Physiotherapists who took part in this study shared a common perspective on what physiotherapy means. This echoes the findings of a study on Australian physiotherapy students, newly qualified physiotherapists, and advanced practitioners in which all the groups shared a common understanding and perspective on what the authors called, the ways, thinking and practice of physiotherapy (Barradell et al 2021). The only way the groups under investigation differed was in the theme of professional citizenship, a theme depicted by reflection on the role of being a physiotherapist, how this related to lifelong learning and the balances required between clinical practice,

professional learning, and life commitments in the form of marriage, childcare, and caring responsibilities. Importantly no differences were noted in the ways, thinking and practice of physiotherapy as a clinical entity between student and qualified physiotherapists. Equally the apparent breadth of the meaning of physiotherapy to physiotherapists is suggested by Hammond et al (2016) in their narrative work on the construction of a physiotherapy identity.

6.5.2 Perspectives on content of physiotherapy across roles

There is a statistical difference in respect to the viewpoints on the content of a physiotherapy consultation in particularly the focus on physical measures of treatment, between groups 1 and 3, and 1 and 4. There was no statistical difference between groups 2 and 3, or 2 and 4. This suggests the development of change in role identity is not finished until after the completion of prescribing training and active practice as a prescriber. Evidence for change in role of prescribing vs non-prescribing physiotherapists is supported in the literature within the field of mental health nursing (Avery et al 2007a) where nurses voiced concerns that more time would be spent on the decision making of prescribing than on the more tradition areas of mental health nursing care. This is reminiscent of viewpoints in this thesis where physiotherapists have raised concerns that prescribing risks moving the profession towards a quick fix of patients' problems rather than spending time with them to better understand psychosocial elements to recovery (Chapter 5 p212).

6.5.3 Reducing the time post qualification to undertake prescribing

A majority of physiotherapists from the sample obtained in this thesis felt that the required time post registration to undertake prescribing could be reduced to 1 year and so bring the profession in line with nursing. The Nursing and Midwifery Council updated their standards of proficiency for nurses and midwives in 2018 (NMC 2018), identifying competencies in the areas of medicines management, and importantly pharmacology that nurses and midwives would expect to meet on registration. This compares to the new standards for physiotherapists produced by the Health and Care Professions Council which make no mention of pharmacology or medicines management directly (HCPC 2024). To date there has been minimal discussion in the published literature regarding benefits or deficits associated with changing the time post registration, on the efficacy or value of prescribing by nurses or pharmacists. However, given the findings in this thesis, it is likely that this topic is something that will recur and needs evaluation in the future.

6.5.4 Leaving physiotherapy pre-registration education prescriber ready

The pharmacy profession has recently made the decision to make changes to the MPharm (pharmacy undergraduate) programme to enable pharmacists to qualify from their pre-registration programme and foundation year registered as independent and supplementary prescribers. In their updated standards for prescribers the GPhC have removed mention of time required in practice post qualification. Physiotherapists in the sample in this thesis did not reveal a majority in favour of changing to this. This may in part be related to findings reported that physiotherapists and student physiotherapists felt that they

lacked pharmacology knowledge within their pre-registration training (Noblet et al 2019b, Stenner et al 2018). This concern of a lack of pharmacology knowledge was evident in this thesis with minimal pharmacology education being present in pre-registration education being reported by physiotherapists interviewed. At time of writing, there does not appear to be significant interest in physiotherapists leaving their pre-registration programme as prescriber ready.

6.5.5 Including pharmacology in pre-registration programmes

Whilst there was not a significant difference between groups 1 to 4, there was a substantial majority of the sample population in this thesis who believe that basic pharmacology should be introduced within the pre-registration physiotherapy education programmes with almost 90% of participants feeling this should be the case. The concerns over lack of pharmacology in pre-registration programmes is reported by Waldock et al (2022) who highlighted the concerns among physiotherapists about lack of pharmacology training in preparation for prescribing. This supports and replicates that shown in an earlier review of medicines management activity within physiotherapy and podiatry where international evidence from New Zealand, Australia and Nigeria all reported lack of pharmacology education in pre-registration training (Stenner et al 2018). Meanwhile a Brazilian study looking into the feasibility of prescribing by physiotherapists in their own country refers to the same issue reported in the literature (Costa 2017), in which reference is made to Morris and Grimmer (2014) who also highlight concerns about lack of pharmacology education prior to undertaking prescribing training. More recently, this theme is repeated in a survey of attitudes to potential prescribing

of medication among South African physiotherapists in which 55% of respondents revealed concerns about pharmacology training (Kakano et al 2023). This underlying theme of concern at the lack of pharmacology knowledge prior to training remains problematic especially since the articles referred to date to the mid-2010s and we are now in 2024. This suggests that there has been a lack of response to these findings. This also reflects comments made by one of the thought leaders Christine (Chapter 5 p184)

6.5.6 Lengthening pre-registration programmes to include pharmacology

A majority of physiotherapists in this sample reported that lengthening the period of study for pre-registration programmes was an option to accommodate basic pharmacology. This was much smaller than the percentage who felt that pharmacology should be included within the programme at 59.9% against 89.9%. Despite a search of the current literature, using Google Scholar and CINAHL, and Medline, no literature was found debating the value or otherwise of lengthening the time of study in a physiotherapy pre-registration programme and thus would be a topic of potential further research.

6.5.7 Access to controlled drugs and impact on patients

This thesis presents evidence of frustrations felt by prescribing physiotherapists with regard to current limitations in accessing appropriate pain-relieving medication for their patients. This was felt most keenly within the prescribing physiotherapy group (Group 1), who believe that the inability to access medications in a timely manner for their patients could potentially cause harm. This sense of frustration and concern is replicated in a recent study of prescribing behaviours among musculoskeletal physiotherapist

prescribers (Noblet et al 2022), where the legal obstacles were clearly pointed out as a major problem and one that sat at odds with what is considered best practice. This issue has been ongoing since 2013 when physiotherapists first gained independent prescribing rights, and subsequently lost access to codeine phosphate, tramadol, gabapentin and pregabalin when the schedule for these drugs were changed to controlled drug status. This issue has also been highlighted within podiatry (Fitzpatrick & Borthwick 2022) where an argument was made for the removal of the lists of controlled drugs allowed under independent prescribing leading to equity of allied health professional prescribers with nurses and pharmacists. Linked to this is the argument made that the Misuse of Drugs Regulations 2001; reg. 6C(1) was not necessary in relation to prescribing by allied health professionals who already had the ability to prescribe any drug within the BNF except those within schedules 1,2,3 with exceptions to the limitations provided in the Human Medicines Regulations 2012; reg. 214(5B) (Gallagher 2001, 2021). The result has been an apparent contradiction within the current legislation, with a recommendation by Gallagher (2021) that the HCPC should amend their guidance clarifying that AHPs registered as prescribers can prescribe any drug under the Human Medicines Regulations 2012 reg 214 (5B). It is worth noting that this action would have the outcome of enabling physiotherapists to prescribe codeine phosphate but not tramadol, pregabalin or gabapentin via the IP route.

6.5.8 Support by line management

Whilst the Kruskal-Wallis test revealed a statistically difference between Group 1 and Group 3, this was not clearly represented by the descriptive

statistics. In this thesis the majority of physiotherapists whether prescribers or not felt that they would receive appropriate support from their line manager during and after undertaking a prescribing programme. There is however a 14.3% difference between physiotherapist prescribers and physiotherapist non prescribers concerning the perception of support during prescribing training. Physiotherapist prescribers strongly believed that they would receive appropriate support more than physiotherapist non prescribers. Despite this apparent majority of physiotherapists that believe they would be supported; it is concerning that up to 1 in 3 prescribing physiotherapists felt that they would not receive support during undertaking a prescribing programme and just under 1 in 2 felt that they would not receive sufficient support after a programme.

This is similar to findings reported in a systematic review (Edwards et al 2022) which highlighted ongoing issues across the professions engaged with non-medical prescribing in relation to lack of formal mentorship for newly qualified prescribers. This was highlighted as a long-term issue in non-medical prescribing. An issue that was raised by Noblet et al (Noblet et al 2017) in their review of non-medical prescribing in which lack of support was highlighted as a potential reason for non-use of a prescribing qualification. Despite the benefits of physiotherapist independent prescribing being asserted (Stenner et al 2018, Morris & Grimmer 2014, Noblet et al 2022) within the literature, the ongoing lack of consistency in support received by non-medical prescribers continues to be a concern.

6.6 Is the conceptual framework upheld by the Questionnaire results?

In a mixed methods study it is important to show where the qualitative results and the quantitative results relate to each other. I have already shown in sections 6.2 and 6.5 how the qualitative and quantitative results compare with the current literature and discussed the comparison of the sample in the study to a national sample data base. The aim of this section therefore is to show how the results of the comparison questions in section 6.5 compared to the categories underpinning the conceptual framework.

The overall physiotherapist identity appears to be robust, illustrated by the agreement across the participants groups with the question concerning the importance of function in the clinical reasoning of physiotherapists. An approach that continues to be important in the role of a prescriber.

As part of their evolving identity, physiotherapists are keen to meet the changing needs of the health care service. There was agreement across the profession with a majority of physiotherapists feeling that basic pharmacology should be part of the pre-registration qualification (90%) with 91% of prescribers and 89% of physiotherapist non prescribers feeling that this was important. This was surprising as it was hypothesised in the thesis that it would be an item that would be more important to prescribers. However, it is shared across the profession.

With reference to the physiotherapy prescriber role identity, there is evidence of distinction between groups in the activity of a physiotherapist. A clear difference was shown between physiotherapist prescribers and physiotherapist non prescribers ($p=0.002$) in relation to what activities are

carried out within a physiotherapy consultation. This supports distinction between the categories of physiotherapist and physiotherapist prescriber role identities. This distinction is echoed in the issues concerning frustration surrounding the limitations of prescribing controlled drugs and is felt keenly by prescribers more than non-prescribers ($p < 0.001$). Issues surrounding support from line management did show a statistically significant difference between physiotherapy prescribers and physiotherapist non prescribers for support during training suggesting the possibility of a distinction between the roles. Overall, though, the most concerning issue across the profession was the sizeable percentage that felt that they would not receive support.

This thesis therefore makes the argument that the results from phase 3 of the thesis reveals support from the wider physiotherapy community for the validity of the conceptual framework developed in phase 1 of the thesis.

6.7 Potential for wider utility of the framework across Allied Health Professionals

In response to limited published literature concerning how physiotherapists develop role identity and how in particular the non-medical prescribing programmes lead to changes in the identity of physiotherapists, this thesis sets out a conceptual framework for identity development and evolution within physiotherapy to that of a distinct role identity named here as the physiotherapy prescriber role identity.

Whilst there has been work within nursing and pharmacy regarding the development of identity within prescribers as set out earlier in this thesis (Lawler et al 2022, Harmer 2010, Machin et al 2012, Moyle 2018, Bradley et al 2008, Abuzour et al 2018a, Jarmain 2022) there is little within the literature

to inform that for allied health professionals, where work has focused on what the identity of allied health professionals consists of generically (McNiven et al 2021, Porter & Wilton 2019) rather than how the addition of prescribing impacts the identity. There is currently potential for widening of prescribing to professions such as Speech and Language Therapy, and Occupational Therapy, the potential for development of prescribing rights for dietitians and diagnostic radiographers towards independent prescribing and the further development of independent prescribing within paramedic science, podiatry and therapeutic radiographers. As such the results of this thesis may be valuable in determining how prescribing impacts the role identity of fellow allied health professions.

6.7.1 Application within physiotherapy

The thesis has set out clear challenges to the profession and the professional regulatory body the HCPC in three main areas.

Firstly, physiotherapy has a wide breadth of specialities, including that of neuro physiotherapy, respiratory physiotherapy and paediatric physiotherapy among others. As such specialisation within the profession will, on the arguments of identity as set out in this thesis, develop specific role identities for individuals working within the speciality areas. Developing a greater sense of awareness of role identity, and how identities change, would help physiotherapists identify themselves with greater clarity within their multi-disciplinary teams, allowing for a greater appreciation of the role of the specialist physiotherapist. Further work is recommended within these areas within the profession.

Secondly, there is the inclusion of basic pharmacology within physiotherapy pre-registration programmes. This change would benefit physiotherapists who aim to further develop their career to include prescribing medication, as well as those who choose not to, who would nevertheless, understand better the basic premises underpinning medicines management.

Finally, there is the challenge to implement further change regarding the legislation surrounding the independent prescribing of controlled substances. Whilst it is acknowledged that work is currently in progress to address the loss of specific medication (codeine phosphate, tramadol and the gabapentinoids), this alone it is argued is not enough, and as a profession, there is an argument to reach for and achieve equity with nurses and pharmacists, thus allowing physiotherapist independent prescribers to prescribe medication from the British National Formulary (BNF) whether the medication is a controlled substance or not, as long as the medication is within their agreed scope of practice.

6.8 Strengths and limitations

Strengths: This thesis presents a linked set of studies as part of a mixed methods study exploring the complexity of identity change and provides a potential to inform practice in multiple spheres. The benefit of using mixed methods allows for qualitative data and the emergent themes to be tested in a wider sample of participants. Thus, allowing for inferences to be made both within the progression and potentially for other related healthcare professions as well. An improved understanding of the identity processes that occur during the formation of a prescribing identity can be used to support

physiotherapists engaged in prescribing programmes and subsequently as newly qualified prescribers in the workplace.

The thesis represents a potential to inform role identity challenges outside of prescribing and develop a stronger awareness of the importance of understanding identity in physiotherapy. As physiotherapy continues to adapt within an ever-changing health and social care landscape, self-awareness within the profession will be an important factor in successful development of novel roles. Future research should focus on respiratory/neuro/paediatric special interest areas aiming to verify the conceptual framework in these areas as well.

The perceptions of identity have been informed within this thesis from both inside and outside of the profession. Great clarity for physiotherapists of who they are, as seen from multiple perspectives, will allow for improvements within the clinical environment where patient perceptions can be better met and/or challenged if required, contributing to improved compliance with treatment and rehabilitation programmes. In addition, greater clarity offers the potential for raising the profile of the profession within the country, where the image of physiotherapists portrayed by the media remain one of mostly walking a patient or overseeing exercise therapy.

Limitations: There has been a focus on musculoskeletal physiotherapy. This was not intentional on the part of the researcher, however, will no doubt have been influenced by the background of the researcher which was at the time of development a role of consultant physiotherapist in a private physiotherapy organisation providing services to the National Health Service, as well as a First Contact Physiotherapist (FCP) working directly for the National Health

service in primary care. Other reasons for this focus being the most common use of prescribing within physiotherapy taking place within the field of FCP roles and musculoskeletal services.

Whilst my background as a musculoskeletal physiotherapist can be viewed as a limitation, the use of Constructivist Grounded Theory as the method for phase 1 of the thesis, aligns with the application of reflexivity within a research study. Constructivist GT allows and promotes the researcher being informed whilst simultaneously being part of the subject under study.

Charmaz (2014) specifically argues that openness of the researcher to elements and areas of potential bias allows for a greater transparency of the research and thus adds credibility and value as the research is carried out within a more realistic environment where the presence of involvement can rarely be discounted. Within this thesis, the researcher has used the tool of memoing as a means of highlighting preconceptions. This practice of intentional reflexivity both poses questions and highlights rationale for decision making by the researcher, thus addressing the potential for confirmation bias, particularly within the qualitative strand of the thesis.

Interviews were the principal method of data collection used in phase 1 and these were impacted by the Covid pandemic that was then prevalent with impact on travel such that all interviews were undertaken virtually either by telephone or in the majority of circumstances by Teams. Whilst this enabled data collection to continue unabated during Covid, there were potential limitations to the quality of data collection – internet connectivity impacted some interviews with delays present between question and response. This required entering some questions via the chat mode of Teams which

inadvertently impacted the flow of the interview. The loss of the ability to conduct interviews in person could have negatively impacted on the non-verbal cues and behaviour present during interviews.

Chapter 7 Conclusion

This thesis presents a route map for physiotherapists as they undertake prescribing evolving their identity as they become physiotherapist independent prescribers. It has sought to set out the main influences of the process of change experienced by physiotherapists, as they come to grips with increased responsibilities as well as opportunities. Adjacent to this are the current concerns and sense of frustration shared by physiotherapists who have undertaken the journey.

Evidence for the usefulness of the conceptual framework is presented by the results obtained from the questionnaire shared with the wider profession. The outcomes support the following recommendations for the profession.

1. Further work be undertaken within the profession, assessing the fit of the conceptual framework set out in this thesis for the role identity of physiotherapists and for role change secondary to career development. A greater understanding within the profession of their identity will enable understanding of their place in the changing healthcare landscape. Greater self-awareness will lead to an enhanced ability for the profession to promote physiotherapists as lead clinicians in developing roles
2. Both the Chartered Society of Physiotherapy and Heath and Care Professions Council to work harder in their efforts to enable equity between allied health profession prescribers and nurse and/or pharmacist prescribers. It seems inequitable for experienced clinicians to undertake the same stringent post graduate training to the

find their access to prescribing medications limited. The results presented here strongly support other work in the literature that highlights the frustrations felt by clinicians and more importantly the concerns surrounding potential impact on patient care.

3. Across the profession, physiotherapists are keen on the inclusion of basic pharmacology within the pre-registration programmes. Conversations should be held between the Chartered Society of Physiotherapy and the Health and Care Professions Council to enable inclusion of this without adversely impacting on the other core physiotherapy skills required to undertake clinical practice. Almost 60% of the participants in this study felt that lengthening the pre-registration programme should be open to discussion. At this point in time, where more is expected of healthcare professionals working within a healthcare environment that is increasingly complex, lengthening the programme to allow for the inclusion of and embedding of clinical and professional skills should be considered in order to keep physiotherapy fit for the future.
4. With other allied health professions seeking to enter the world of prescribing, this thesis is presented as a valuable tool in understanding the processes of role identity formation and change for clinicians preparing for their prescribing journey.

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Appendix 1 – ethical approval letter 2018

medway school of pharmacy

17 April 2018

Dear Colin

Your application for ethical approval for project entitled *Independent Prescribing: identifying and exploring a paradigm shift in Physiotherapy,* REF0118 has now been considered on behalf of the Medway School of Pharmacy School Research Ethics Committee (SREC).

I am pleased to inform you that your study has been approved, with immediate effect.

I must remind you of the following:

1. that if you are intending to work unaccompanied with children or with vulnerable adults, you will need to apply for a DBS check; the project must be conducted under the supervision of someone who has an up-to-date DBS check; you must not be in the presence of children alone except if you have completed a DBS check;
2. that you must comply with the Data Protection Act (1998);
3. that you must comply throughout the conduct of the study with good research practice standards;
4. If you are completing this project off site, you must obtain prior approval from relevant authorities and adhere to the MSOP off site protocol.
5. to refer any amendment to the protocol to the School Research Ethics Committee (SREC) for approval.
6. You are required to complete an annual monitoring report or end of project report and submit to j.mowbray@kent.ac.uk

Yours sincerely

Dr Sarah Corlett

Appendix 3 Demographics thought leaders

Appendix 2 – ethical approval letter 2020

medway school of pharmacy

10th March 2020

Dear Colin

Your application for ethical approval for project entitled **Exploring the impact of non-medical prescribing on the role identity of physiotherapists** has now been considered on behalf of the Medway School of Pharmacy School Research Ethics Committee (SREC).

I am pleased to inform you that your study has been approved, with immediate effect.

I must remind you of the following:

1. that if you are intending to work unaccompanied with children or with vulnerable adults, you will need to apply for a DBS check; the project must be conducted under the supervision of someone who has an up-to-date DBS check; you must not be in the presence of children alone except if you have completed a DBS check;
2. that you must comply with the Data Protection Act (1998);
3. that you must comply throughout the conduct of the study with good research practice standards;
4. If you are completing this project off site, you must obtain prior approval from relevant authorities and adhere to the MSOP off site protocol.
5. to refer any amendment to the protocol to the School Research Ethics Committee (SREC) for approval.
6. You are required to complete an annual monitoring report or end of project report and submit to j.mowbray@kent.ac.uk

Yours sincerely

Appendix 3 Demographics thought leaders

Occupation	date contacted	date replied	reminder sent	accepted	declined	date appt booked	Time	Interview no	re-interview
DOH AHP lead	12.03.2020	no further response							
Chair CSP	12.03.2020	no response							
CSP Director of Practice and Development	12.03.2020	no response							
Lecturer, NMP researcher	12.03.2020	12.03.2020		12.03.2020		17.03.2020	930	1	
Education committee HCPC	12.03.2020	no response							
Education committee HCPC	12.03.2020	no response							
NMP lead for Nurses MSOP, founder of NMPrescribing	12.03.2020	12.03.2020		12.03.2020		19.03.2020	1000	3	
Pharmacist Educational Consultant	12.03.2020	12.03.2020			12.03.2020				
NMP course lead									
Physiotherapy course lead	12.03.2020		30.03.2020	30.03.2020		04.05.2020	1100	9	27.07.2020
NMP course lead	12.03.2020	12.03.2020				03.04.2020	1600	6	
NMP course lead	12.03.2020	no response							
NMP course lead	12.03.2020	16.03.2020	30.03.2020	16.03.2020		01.04.2020	1130	5	
NMP lead	16.03.2020	16.03.2020		16.03.2020		18.03.2020	1300	2	
Consultant Physiotherapist	30.03.2020	no response							
Consultant Physiotherapist	30.03.2020	03.04.2020		03.04.2020		08.04.2020	900	8	12.08.2020
NMP course lead	30.03.2020	02.04.2020		02.04.2020		07.04.2020	1430	7	
retired NHS England	12.03.2020	31.03.2020		31.03.2020		01.04.2020	1000	4	
Deputy Director Medical workforce for England	02.04.2020	no response							
Australian Physiotherapy lecturer - co-author of Allied health professions prescribing and medicines supply mechanisms scoping project report	25.04.2020	28.06.2020	not followed through in the end						

Appendix 4 – Introductory email (thought leaders)

medway school of pharmacy

Date

Dear [name]

RE: A PhD study entitled **Exploring the impact of non-medical prescribing on the role identity of physiotherapists**

I am contacting you as you are at the forefront of the introduction and development of non-medical prescribing within physiotherapy.

I would like to invite you to take part in a phase 1 of a study leading to a PhD. To explore how the role identity of physiotherapists is viewed by a range of stakeholders and if this view has changed, is changing or has potential to change as a result of the introduction of physiotherapist independent prescribing (PhIP)

If you are willing to take part, I would arrange a mutually convenient time to hold a face to face, skype or telephone interview with you lasting no longer than 30 minutes which would be audio-recorded in order to aid in providing an accurate transcription of the semi structured interview. Your name would not be associated with the recording

I would like to draw your attention to the participant information sheet and consent forms enclosed with this email.

Should you subsequently wish to take part in the study please complete the consent form and return to me, the lead researcher by email, at the contact details below.

I look forward to hearing from you

Colin Waldock MA BSC MCSP
Lecturer AHP Support Practitioner MSOP
Physiotherapy Independent Prescriber
PhD Candidate
c.waldock-551@kent.ac.uk

Supervisors
Dr Trudy Thomas
t.thomas@kent.ac.uk

Prof Jenny Billings
J.R.Billings@kent.ac.uk

Prof Bijayendra Singh
bijayendra.singh@nhs.net

Appendix 5 – consent form (thought leaders)

medway school of pharmacy

CONSENT FORM for
Interviews
Thought leaders/influencers

Exploring the impact of non-medical prescribing on the role identity of physiotherapists

Name of researcher Colin Waldock

I have read and understand the information provided for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily	Initial Here
I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason. Contact details of researcher below Colin Waldock – c.waldock-551@kent.ac.uk	Initial Here
I understand that if any personal information is collected during the study the information will be anonymised and remain confidential	Initial Here
I understand that the interview will be digitally audio recorded and that this recording will be transcribed verbatim	Initial Here
I understand that verbatim quotes taken from the recording of our conversation may be used in publications and reports, but that these will be anonymised and not traceable to me	Initial Here
I accept that whilst my name and job title will not be identified in any publication or report associated with this work, that because of the limited number of through leaders my involvement (although not my comments) may be implied by readers	Initial Here
I understand the I may be contacted for further interview	Initial Here

Name of Participant (Print) Signature Date

Appendix 6 – participant information leaflet (thought leaders)

medway school of pharmacy

PARTICIPANT INFORMATION SHEET

Title of Project: Exploring the impact of non-medical prescribing on the role identity of physiotherapists

Name of Researcher (s):

Colin Waldock, Dr T Thomas, Prof J Billings, Prof B Singh

You are being invited to take part in a study because you are a Physiotherapist who has been qualified for at least 6 months and are registered with the HCPC and/or you are at the forefront of the use of independent prescribing within physiotherapy including the teaching of students on non-medical prescribing programmes. Before you decide if you want to take part, you must understand why the study is being done and what it involves. Please take time to read the following information. Ask if anything is not clear or if you would like more information. Take time to decide if you want to take part or not.

Why is the study being done?

There is a lack of published literature regarding the impact non-medical prescribing has had on the healthcare professions involved within the project. Despite the ability of Physiotherapists to gain qualifications in supplementary prescribing since 2005 and independent prescribing since 2013; there has not been as large an uptake as expected. Currently approximately only 3% of qualified Physiotherapists have a non-medical prescribing qualification. This study seeks to explore the views of physiotherapists and the public about the impact non-medical prescribing is having or may have had on the profession's

role identity. Phase 1 of the study that we are inviting you to be part of seeks to explore the perception of the role of the physiotherapists and to explore the role of non-medical prescribing in physiotherapy of a group of 'thought leaders' and influencers within the profession

Do I have to take part?
No. It is up to you to decide whether or not to take part. Even if you agree to take part, you can change your mind at any time without giving any reason. If you decide not to take part in the study, you will not be affected in any way. If you are unable to take part but know of sowmone who you think would like to then please feel free to pass my contact details to them

If I do take part, what would I have to do and what would be done to me?
You will be invited to take part in an interview which will be conducted by the researcher. The interview will be held over the telephone, skype, or face to face at a time that is mutually convenient and will be audio recorded for the purpose of accuracy in transcription
If you agree to take part, you will be asked to sign a consent form. You may be contacted in the future for a further interview

Are there any risks if I take part?
There are no risks to taking part in the study

Are there any benefits if I take part?
This study seeks to explore the role identity of physiotherapists, subsequently leading to generation of a theory of the physiotherapy role identity including how the role identity responds to change. We intend to publish our work and try to use it to develop further work on the development of non-medical prescribing within physiotherapy. This is an opportunity for you to potentially influence the future of physiotherapist independent prescribing.

Will anyone know that I've taken part?
We will not tell anyone that you have taken part in the study and your name and specific job title will not be associated with any of the reports or publications produced as a result of this work. .
However because of the small number of people who might be construed as 'thought leaders' it is possible that your identity might be inferred from the broad description of the roles consulted in this phase. Specific quotes will not be attributable to you as an individual so you will be able to give your opinions without them being traced back to you. You need to be aware of this and happy that your involvement may be implied.

What will happen to the results?
The findings will be published in peer reviewed journals and presented at conferences. Your name will not appear in any publications (see comments above). Anonymised data may be used for future work e.g. post doctoral research.

All data will be held securely in lockable filing cabinets and using laptops and portable memory devices that are password protected with up to date virus

software installed. Hard copies of consent forms will be kept for 5 years in a locked cabinet to which only the researcher has access. At the end of this time they will be shredded. No identifiable data will be stored on laptops or university computers. Only members of the research team will have access to the anonymised data. Only the lead researcher will know your personal details in order to contact you.

Participants will be offered a summary of the results via a summary posted on the study website https://cwaldock-551.wixsite.com. Data for the study will be held securely for 5 years after the cessation of the project and then sent to a secure storage facility (the University of Kent Repository).

Who is Organising and Funding the study?
This study is being carried out by Colin Waldock in part fulfilment of a PhD at the Medway School of Pharmacy (MSoP). It is being funded by a studentship with the Medway School of Pharmacy (Universities of Kent and Greenwich)

Who should I contact if I want to know more about the study?
Dr Trudy Thomas t.thomas@kent.ac.uk Colin's PhD supervisor
Mr Colin Waldock c.waldock-551@kent.ac.uk

Who should I contact if I have any concerns about the study or the way it has been conducted?
If you have concerns about how this research study has been conducted please contact the Chair of the MSoP Research Ethics Committee on S.A.Corlett@kent.ac.uk

General Data Protection Regulation (GDPR) Privacy notice for research – University-level
The University of Kent uses personally-identifiable information to conduct research, including to improve health, care and services. As a publicly-funded organisation, we have to ensure that we use and safeguard your data according to the law. You can find more information or contact The University of Kent's Data Protection Officer at: https://www.kent.ac.uk/infocompliance/dp/staff-info/staff-info.html

Thank you for taking time to consider taking part in this study.

This project has been looked at and approved by the MSoP Research Ethics

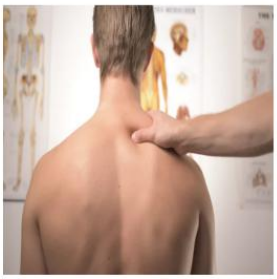
Committee

Appendix 7– poster advert (members of the public)

Physiotherapists as prescribers of medicine

C Waldock, Dr T Thomas, Dr. J MacInnes, Prof B Singh

Can you help ?



- Have you ever been to a physiotherapist or do you know someone who has ?

- Would you be willing to be interviewed over telephone or zoom to share your views on the prescribing of medicines by physiotherapists?

If yes then Contact Colin Waldock for more information.
C.Waldock-551@kent.ac.uk or phone 07375463774

Medway School of Pharmacy Universities of Kent and Greenwich

University of Kent

Appendix 8 – introductory email (members of the public)

medway school of pharmacy

Date

Dear Sir/Madam

Thank you for your interest in taking part in this research study. I would like to invite you to take part in a research project exploring the effects if any that non-medical prescribing has had on the perception physiotherapists have about their role.

Earlier I have sought the views of university course providers, the HCPC and CSP among others, a group I have termed "thought leaders and influencers" to explore the role identity of physiotherapists and of non-medical prescribing physiotherapists.

I would like to offer you the chance of taking part in this study in which I am seeking to build on theories gained from these initial interviews with perceptions among members of the public to further explore the role identity of physiotherapists. We want to use this phase of the research to subsequently develop an online questionnaire which will go out to physiotherapists and physiotherapy students nationally.

I would plan to hold either a telephone, skype, or face to face interview with you lasting no longer than 45 minutes which would be audio-recorded in order to aid in providing an accurate transcription of the semi structured interview.

I would like to draw your attention to the participant information sheet and consent forms enclosed with this email.

If subsequently you would like to take part in the study please complete the consent form and return to me, the lead researcher by email, contact details below.

I look forward to hearing from you

Colin Waldock MA BSC MCSP
Lecturer AHP Support Practitioner MSOP
Physiotherapy Independent Prescriber
PhD Candidate
c.waldock-551@kent.ac.uk

Supervisors
Dr Trudy Thomas
t.thomas@kent.ac.uk

Prof Jenny Billings
J.R.Billings@kent.ac.uk

Prof Bijayendra Singh
bijayendra.singh@nhs.net

Appendix 9 – consent form (members of the public)

medway school of pharmacy

CONSENT FORM TEMPLATE for
Interview with lay participant

Independent Prescribing: Exploring the impact of non-medical prescribing on the role identity of physiotherapists.
Name of researcher Colin Waldock

I have read and understand the information provided for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily	Initial Here
I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason. Contact details of researcher below Colin Waldock – c.waldock-551@kent.ac.uk	Initial Here
I understand that any personal information collected during the study will be anonymised and remain confidential	Initial Here
I understand that the interview will be digitally audio recorded and that this recording will be written up word for word	Initial Here
I understand that verbatim quotes taken from the recording of our conversation may be used in publications and reports, but that these will be anonymised and not traceable to me	Initial Here
I accept that whilst my name and job title will not be identified in any publication or report associated with this work, that because of the limited number of through leaders my involvement (although not my comments) may be implied by readers	Initial Here
I understand that I may be approached for a second interview, this will be within 3 months of the first interview.	Initial Here

Name of Participant (Print) Signature Date

Name of person taking consent Signature Date
(if different from the researcher). Where possible, this is normally signed and dated in presence of the participant

Appendix 10 – participation information leaflet (members of the public)

medway school of pharmacy

PARTICIPANT INFORMATION SHEET

Title of Project: Exploring the impact of non-medical prescribing on the role identity of physiotherapists

Name of Researcher (s):

Colin Waldock, Dr T Thomas, Prof J Billings, Prof B Singh

You are being invited to take part in a study because you are a member of the public and therefore may encounter physiotherapy and physiotherapists as part of a treatment programme. Before you decide if you want to take part, you must understand why the study is being done and what it involves. Please take time to read the following information. Ask if anything is not clear or if you would like more information. Take time to decide if you want to take part or not.

Why is the study being done?

The law states that only certain health care professionals are legally able to prescribe. Most people know that doctors and dentists can write prescriptions for their patients but for many years now other health care professionals such as nurses and pharmacists can do so too, provided they have undertaken appropriate training. This is referred to as non-medical prescribing or independent prescribing and it has been shown to be beneficial for patients and the health services alike. Since 2005 physiotherapists have been able to qualify as non-medical prescribers, and since 2013 physiotherapists have been allowed to train as independent prescribers, however there has not been a lot of physiotherapists undertaking the training unlike nurses and pharmacists. Currently approximately only 3% of qualified Physiotherapists have a non-medical prescribing qualification. This study seeks to explore the views of the public about the role identity of physiotherapists and in particular their perceptions of them as prescribers

Do I have to take part?
No. It is up to you to decide whether or not to take part. Even if you agree to take part, you can change your mind at any time without giving any reason. If you decide not to take part in the study, you will not be affected in any way.

If I do take part, what would I have to do and what would be done to me?
You will be invited to take part in an interview with the lead researcher. The Interview will be face to face, skype, or telephone and held at a mutually convenient time and place and will be audio recorded for the purpose of accuracy in transcription. We may want to make further contact with some people approximately 3 months after the first interview. This is to discuss ideas generated by the interviews.
If you agree to take part, you will be asked to sign a consent form for each interview

Are there any risks if I take part?
There are no risks to taking part in the study

Are there any benefits if I take part?
Involvement in this study will enable you to have a role in helping us to understand better the opinions of people outside of physiotherapy regarding what physiotherapy is. You will also be able to voice your thoughts surrounding the concept of physiotherapy independent prescribing. This study forms part of a larger piece of work seeking to understand better the role identity of physiotherapists, and how non-medical prescribing may be influencing this.

Will anyone know that I've taken part?
We will not tell anyone that you have taken part in the study.

What will happen to the results?
The findings will be published in peer reviewed journals and presented at conferences. Your name will not appear in any publications. Anonymised data may be used for future work e.g. post doctoral research.

All data will be held securely in lockable filing cabinets and using laptops and portable memory devices that are password protected with up to date virus software installed. No identifiable data will be stored on laptops or university computers. Hard copies of consent forms will be kept for 5 years in a locked cabinet to which only the researcher has access. At the end of this time they will be shredded.

Participants will be offered a summary of the results via a summary posted on the study website https://cwaldock-551.wixsite.com. Data for the study will be held securely for 5 years after the cessation of the project and then sent to a secure storage facility.

Who is Organising and Funding the study?
This study is being carried out by Colin Waldock in part fulfilment of a PhD at Medway School of Pharmacy. It is being funded by a studentship with the Medway School of Pharmacy (Universities of Kent and Greenwich)

Who should I contact if I want to know more about the study?
Dr Trudy Thomas t.thomas@kent.ac.uk Colin's PhD supervisor
Colin Waldock c.waldock-551@kent.ac.uk

Who should I contact if I have any concerns about the study or the way it has been conducted?
If you have concerns about how this research study has been conducted please contact the Chair of the MSoP Research Ethics Committee on S.A.Corlett@kent.ac.uk

General Data Protection Regulation (GDPR) Privacy notice for research – University-level
The University of Kent uses personally-identifiable information to conduct research, including to improve health, care and services. As a publicly-funded organisation, we have to ensure that we use and safeguard your data according to the law. You can find more information or contact The University of Kent's Data Protection Officer at: https://www.kent.ac.uk/infocompliance/dp/staff-info/staff-info.html

Thank you for taking time to consider taking part in this study.

This project has been looked at and approved by the MSoP Research Ethics

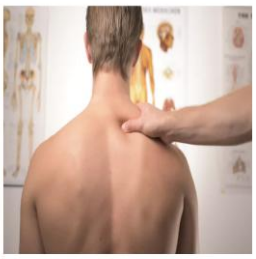
Committee

Appendix 11 – poster advert phase 1 (physiotherapists)

Physiotherapists as prescribers of medicine

C Waldock, Dr T Thomas, Dr. J MacInnes, Prof B Singh

Are you a physiotherapist who has been registered with HCPC for at least 6 months?



I am looking for 20 physiotherapists as part of my PhD project, either prescribers or non-prescribers to discuss the impact of prescribing on physiotherapy

Do you have opinions about prescribing medication and physiotherapy?

Would you be willing to be interviewed over telephone or zoom to share your views regarding the prescribing of medicines by physiotherapists?

If yes, contact Colin Waldock MCSP for more information.

C.Waldock-551@kent.ac.uk or phone 07375463774

Medway School of Pharmacy Universities of Kent and Greenwich

University of Kent

Appendix 12 – introductory email (physiotherapists)

medway school of pharmacy

Date

Dear Colleague

Thank you for your interest in taking part in this research study. If you are a member of the Chartered Society of Physiotherapy working in the UK and registered with the HCPC, I would like to invite you to take part in a research project exploring the effects if any that non-medical prescribing has had on the perception physiotherapists have about their role.

Earlier I have sought the views of university course providers, the HCPC and CSP among others, a group I have termed "thought leaders and influencers" to explore the role identity of physiotherapists and of non-medical prescribing physiotherapists. I have subsequently held interviews with members of the public to explore the public views and perceptions of physiotherapists who use non-medical prescribing

I would like to offer you the chance of taking part in this study in which I am seeking to build on theories gained from these initial interviews with perceptions among physiotherapists (prescribers and non-prescribers) to further explore the role identity of physiotherapists. We want to use this phase of the research to develop an online questionnaire which will go out to physiotherapists and physiotherapy students nationally.

I would plan to hold either a telephone, skype, or face to face interview with you lasting no longer than 45 minutes which would be audio-recorded in order to aid in providing an accurate transcription of the semi structured interview.

There is also the opportunity if you live in the South of England for you to take part in a cognitive interview which will take place 1-2 months after the telephone interviews.

In a cognitive interview the participant works through, in this case the questionnaire formed after we have carried out all the initial telephone or face to face interviews. In a cognitive interview you would work through the questionnaire and 'show us your thinking' by vocalising your thoughts as you

attempt each question. A participant might say ‘I don’t understand what that word means’ or ‘I don’t know whether this question is asking about me personally or my patients’ or ‘that’s a silly question’ for example. This ‘out loud thinking’ is audio recorded. In addition, the research team member will ask the cognitive interview participant a few questions about their overall experience at the end of the questionnaire, so all their views are captured.

The cognitive interview would be a face-to-face interview (hence the need for you to be based in the South East) that would take place at a place and time that is convenient to you. It would need to be carried out where there is a computer and where it is fairly quiet so you and the researcher wouldn’t be disturbed for about 30 minutes.

You don’t have to agree to the cognitive interview it is up to you. There is no reward for taking part in the initial interview, apart from helping to inform the future of the profession.

For those selected for a cognitive interview we will be offering a £20 Amazon thank you in consideration of their time.

I would like to draw your attention to the participant information sheet and consent forms enclosed with this email.

If subsequently you would like to take part in the study please complete the consent form and return to me, the lead researcher by email, contact details below.

I look forward to hearing from you

Colin Waldock MA BSC MCSP
Lecturer AHP Support Practitioner MSOP
Physiotherapy Independent Prescriber
PhD Candidate
c.waldock-551@kent.ac.uk

Supervisors
Dr Trudy Thomas
t.thomas@kent.ac.uk

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Prof Bijayendra Singh
bijayendra.singh@nhs.net

Appendix 13– consent form (physiotherapists)

medway school of pharmacy

CONSENT FORM for
Interviews
Physiotherapists; prescribers and non-prescribers

Examining the impact of medication prescribing on the role identity of physiotherapists.
Name of researcher Colin Waldock

I have read and understand the information provided for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily	Initial Here
I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason. Contact details of researcher below Colin Waldock – c.waldock-551@kent.ac.uk	Initial Here
I understand that any personal information collected during the study will be anonymised and remain confidential. Except where the researcher has a duty of disclosure as detailed in HCPC Standards of Proficiency (P12).	Initial Here
I understand that the interview will be digitally audio recorded and that this recording will be transcribed verbatim	Initial Here
I understand that verbatim quotes taken from the recording of our conversation may be used in publications and reports, but that these will be anonymised and not traceable to me	Initial Here
I accept that whilst my name and job title will not be identified in any publication or report associated with this work, that because of the limited number of through leaders my involvement (although not my comments) may be implied by readers	Initial Here
I understand that I may be contacted subsequently for further interview subsequent to analysis	Initial Here

Name of Participant (Print) Signature Date

Name of person taking consent Signature Date
(if different from the researcher) Where possible, this is normally signed and dated in presence of the participant

Appendix 14 – Participant information leaflet (physiotherapists)

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PARTICIPANT INFORMATION SHEET

Title of Project: Examining the impact of medication prescribing on the role identity of physiotherapists.

Name of Researcher (s):

Colin Waldock, Dr T Thomas, Dr Julia Macinnes, Prof B Singh

You are being invited to take part in a study because you are a Physiotherapist who has been qualified for at least 6 months and are registered with the HCPC. You may have an annotation as a non-medical prescriber but this is not essential. Before you decide if you want to take part, you need to understand why the study is being done and what it involves. Please take time to read the following information. Ask if anything is not clear or if you would like more information. Take time to decide if you want to take part or not.

Why is the study being done?
Despite the ability of Physiotherapists to gain qualifications in supplementary prescribing since 2005 and independent prescribing since 2013. Currently approximately only 3% of qualified Physiotherapists have a non-medical prescribing qualification. This study seeks to generate a theory explaining the role identity of physiotherapists and how it relates to the development in the profession of non-medical prescribing . Phase iii) of the study that we are inviting you to be part of seeks to better explore role identity of physiotherapists and the perception of non-medical prescribing as put forward by leaders within the profession and the general public

This phase consists of up to two parts, a telephone, skype, or face to face interview and a cognitive interview. Telephone or face to face interviews will be arranged at a mutually convenient time and will last about 45 minutes. In accordance with the principles of Grounded Theory, which is the method I am using in my research, you may be invited to a further interview with the researcher to review concepts uncovered in the initial interview. This will take

place approximately 3 months after the first interview and will be much shorter. All we are asking at this stage is permission to approach you again to see if you would be willing to undertake a follow-up interview if necessary. The cognitive interviews will be undertaken with people who live close enough to the South East of England to have a face-to-face visit from the lead researcher.

What is a Cognitive Interview?
In a cognitive interview the participant works through, in this case the questionnaire formed after we have carried out all the initial telephone interviews. As you work through the questionnaire you would 'show us your thinking' by vocalising your thoughts as you attempt each question. A participant might say 'I don't understand what that word means' or 'I don't know whether this question is asking about me personally or my patients' or 'that's a silly question' for example. This 'out loud thinking' is audio recorded. In addition, the research team member will ask the cognitive interview participant a few questions about their overall experience at the end of the questionnaire, so all their views are captured.

Do I have to take part?
No. It is up to you to decide whether or not to take part. You can choose to take part in just the telephone interview or both the telephone interview and the cognitive interview. Even if you agree to take part, you can change your mind at any time without giving any reason. If you decide not to take part in the study, you will not be affected in any way.

If I do take part, what would I have to do and what would be done to me?
You will be invited to take part in a telephone interview which will be conducted by the researcher. The interview will be held over the telephone at a time that is mutually convenient and will be audio recorded for the purpose of accuracy in transcription.

If you would like to take part in the cognitive interview too and live in the South East of England you can volunteer for that now, although it won't take place for quite a few months after the initial telephone interview. In the cognitive interview, the draft online questionnaire will be read through and completed by the participant and the researcher will make notes. The cognitive interviews will also be audio recorded and afterwards transcribed verbatim by a member of the research team and checked for accuracy by another member.

Whilst we are aiming to undertake an initial interview with around 20 participants, we will probably only need to perform the cognitive interviews with 6 participants. This means that, depending on how many people come forward, not necessarily everyone who volunteers for a cognitive interview will be able to undertake one. If we do get too many cognitive interview volunteers, we will aim to select a range of participants providing the maximum variation (for example, we would seek opinions from a range of specialties; people who have been qualified for differing times, males and females for example). We will notify you if you have been selected for

cognitive interview or not. The place where you undertake the cognitive interview with the researcher needs to be fairly quiet so you won't be disturbed and needs to have a computer with a connection to the internet.
For those that are selected for a cognitive interview (only) we will be offering a £20 Amazon thank you in consideration of their time.

If you agree to take part in an interview (initial and/or cognitive), you will be asked to sign a consent form.

Are there any risks if I take part?
There are no risks to taking part in the study. The lead researcher who is male will visit those who take part in the cognitive interviews at a mutually convenient time and place. You are welcome to have someone else sit in on the interview if you prefer.

Will my taking part in the study be kept confidential?
Yes. All information will be kept in the strictest confidence and ethical and legal practice will be followed. However, in the unlikely circumstances where disclosures are either in the public interest or required by law, the researcher has a professional responsibility to disclose information. In accordance with the HCPC Standards of proficiency (2012) disclosures will be made "where necessary to prevent a serious crime or actual or potential harm to the patient or others" (p13).

Are there any benefits if I take part?
Whilst there may be no identifiable benefits per se in taking part, you will have the opportunity to contribute to the professional development of physiotherapy. Should you be randomly chosen to take part in a cognitive interview, on completion of the interview you will receive a £20 Amazon voucher

Will anyone know that I've taken part?
We will not tell anyone that you have taken part in the study.

What will happen to the results?

The findings will be published in peer reviewed journals and presented at conferences. Your name will not appear in any publications. Anonymised data may be used for future work e.g. post doctoral research.

All data will be held securely in lockable filing cabinets and using laptops and portable memory devices that are password protected with up to date virus software installed. No identifiable data will be stored on laptops or university computers. Hard copies of consent forms will be kept for 5 years in a locked cabinet to which only the researcher has access. At the end of this time they will be shredded.

Participants will be offered a summary of the results via a summary posted on the study website https://cwaldock-551.wixsite.com. Data for the study will be held securely for 5 years after the cessation of the project and then sent to a secure storage facility.

Who is Organising and Funding the study?
This study is being carried out by Colin Waldock in part fulfilment of a PhD at Medway School of Pharmacy. It is being funded by a studentship from the Medway School of Pharmacy (Universities of Kent and Greenwich)

Who should I contact if I want to know more about the study?
Dr Trudy Thomas t.thomas@kent.ac.uk
Colin Waldock c.waldock-551@kent.ac.uk

Who should I contact if I have any concerns about the study or the way it has been conducted?
If you have concerns about how this research study has been conducted please contact the Chair of the MSoP Research Ethics Committee on S.A.Corlett@kent.ac.uk

General Data Protection Regulation (GDPR) Privacy notice for research – University-level
The University of Kent uses personally-identifiable information to conduct research, including to improve health, care and services. As a publicly-funded organisation, we have to ensure that we use and safeguard your data according to the law. You can find more information or contact The University of Kent's Data Protection Officer at: https://www.kent.ac.uk/infocompliance/dp/staff-info/staff-info.html

Thank you for taking time to consider taking part in this study.

This project has been looked at and approved by the MSoP Research Ethics Committee

Appendix 15 – Topic guide – Thought leaders

Topic Guide Semi Structured interview – thought leaders and influencers
Introduction – role and background to study – re-confirms consent. Reminds of confidentiality issues, don't have to answer any question don't want to, can stop at any time. Check happy with recording. Starts recording
As a thought leader and influencer within the profession/ as someone with experience in teaching physiotherapists, we would like to gather your views regarding the future development of physiotherapy
Question bank.

- How do you envision physiotherapy developing over the next decade?
- Which are the key drivers in society that the profession needs to adapt to?
- How do you see physiotherapy independent prescribing (PhIP) impacting on these drivers?
- Where do you think PhIP will be in 10 years?
- When physiotherapy prescribing first became an option, what vision did you have for PhIP?
- Has this vision changed? If so in what ways?
- What effects from your viewpoint has the development of medicines use within physiotherapy had on the profession?
- In what ways do you think PhIP might be changing the view of physiotherapy from the perspective of the public
- In what ways do you think PhIP is changing or might change the perception of physiotherapy among physiotherapists themselves
- Less than 3% of physiotherapists currently have an IP annotation. What do you think can be done to improve uptake from within the profession
- How would the introduction of pharmacology undergraduate teaching in pre- registration courses impact on "graduate confidence and competence"

Thank you for your time

Appendix 16 – Topic guide members of the public

Topic Guide Semi Structured interview – public participant
Introduction – role and background to study – re-confirms consent. Reminds of confidentiality issues, participant doesn't have to answer any question doesn't want to, can stop at any time. Check happy with recording. Starts recording
As a potential patient or use of physiotherapy, I would like to gather your views regarding the what you perceive to be the role identity of physiotherapy and how it may develop with non-medical prescribing
Question bank.
What do you understand by the term role identity?

- What we are/what we do
- What makes us identifiable

What are the key factors that define physiotherapy for you?

- Exercise
- Massage
- Manual Therapy
- Drugs

How do you think physiotherapy might change over the next decade?

- Privatisation
- GP Practices
- Community care
- Long term care

Can you share what you think the key role physiotherapy has in healthcare in society?

- Rehabilitation
- Advisory
- Treatment

Have you ever heard of the term non-medical prescribing?

- Prescribing of drugs by people other than doctors
- Nurses/Pharmacists – what other professions do you know of that prescribe medicines
- Do you know of any restrictions placed on these professionals

How do you think prescribing medicines might change how patients view physiotherapy?

- Trust
- Relationship
- Risk

Would it change your perspective on physiotherapy? If so in what ways?

- Greater sense of importance of role
- No longer different to medicine?
- Mini doctor

Thank you for your time

Appendix 17 – Topic guide for physiotherapists

Topic Guide for Physiotherapists

Envisioning Physiotherapy
Can you tell me what attracted you to physiotherapy as a career option?
What factors led you to choose physiotherapy as opposed to other health courses?
As a physiotherapist, can you tell me what you feel are the key skills you possess?
How do you think patients view physiotherapy?
Among the general public there is a limited view of physiotherapy beyond MSK. Why do you think this is and what do you think can be done to increase the profile of physiotherapy beyond MSK in the public imagination?

Creating Identity
What image comes to your mind when you think of the word physiotherapy? How does this relate to what you do?
As a physiotherapist, how would you describe your role to patients and fellow healthcare professionals?
When you add to your skills, such as when you go on a training course, does this change how you perceive yourself as a physiotherapist? If so how, if not why not?
Can you tell me your views about any impact that prescribing medication may have on the role of physiotherapists?
To what extent do you think physiotherapy has adopted a medical model in their practice?
What are your views about adopting a medical model within physiotherapy? What changes would this create? (Good/bad/indifferent)

Developing Trust
One of the important aspects for patients was a concept of trust in the physiotherapist, I'd like to ask some questions around this:
How important is trust in a therapeutic relationship for you, and can you tell me why?
What strategies do you use to develop trust in therapeutic relationships?
Can you tell me about how trust works professionally within a work environment? For example with your work colleagues
What impact do you think prescribing medication has on the element of trust in the therapeutic relationship?

Perceiving Prescribing
What would be the impact in relation to other professions if more physiotherapists were prescribers?

Can you let me know your thoughts on how prescribing alters the service that we offer our patients? In what ways does it?
What do you think is the best way for physiotherapists to use prescribing within their role?
What are your views on junior physiotherapists undertaking prescribing programmes ?

Developing advanced Practice
Can you tell me what your thoughts are about the move to create FCP posts in primary care?
Do you see physiotherapists taking on wider responsibilities within primary care? How might this change the view of what a physiotherapist is? Is it a good thing or not – Why?
What impacts do you think Covid has had on physiotherapy services and ways of working? If none why not, if yes how will this change how physiotherapy is viewed internally (by physiotherapists) and externally (by patients and other HCPs)
I would like to hear your views about prescribing, is this part of advanced practice or should it be part of normal practice for physiotherapists? What do you think?

Informing Pre-Reg education
Physiotherapists currently have to work for 3 years in clinical practice before undertaking education for a prescribing programme. Can you tell me your thoughts on this time period? What would be your thoughts on it reducing?
What are your thoughts about physiotherapists qualifying from their pre-reg programmes as being prescriber ready? (This is happening for pharmacists and nurses are heading in this direction)
Why do you feel this way?
In your undergraduate teaching, how much pharmacology teaching did you receive? do you think it was sufficient? Why?

Appendix 18 – Phase 1 codebook 1 (Thought leaders)

Exploring the impact of non medical prescribing on the role identity of physiotherapists

Codes

Name	Files	References
accepting new approaches	1	5
Advanced Practice	14	47
being prescriber ready	1	1
concordance	1	2
evaluating vision	11	73
finance	1	1
frustrations	4	33
generic working	11	36
having confidence in treatment	2	7
Impact of prescribing on societal drivers	4	17
Increasing uptake	6	24
influence of medicine management	8	19
local versus national	4	8

Name	Files	References
ministerial	2	10
need for prescribing	3	5
new ways of working	14	73
NHS service	8	15
population needs	11	29
Private Practice	3	7
professional domains	2	13
professional identity issues + or -	10	121
public awareness	12	64
resistance	9	27
risk	2	11
scope expansion	6	16
undergraduate education	11	43
USP identity	3	28
which model - medical vs rehab	3	18
workforce development	9	20

Appendix 19 – Phase 1 codebook 2 (combined coding Thought leaders + members of the public)

Examining the impact of medication prescribing on the role identity of physiotherapists thought leaders and influencers and public. Summary of coding 15.02.2021

Codes

Name	Files	References
adapting professional identity	16	138
Advanced Practice	20	60
attitudes to prescribing by physiotherapists	19	74
awareness of NMP	21	28
being accountable	2	3
being affected by age	2	3

Name	Files	References
being prescriber ready	18	19
beyond MSK	14	15
breaking trust	1	2
centering the patient	1	3
changing practice	13	25
changing undergraduate education	16	48
concordance	1	2
coping with change	1	1
developing the workforce	11	23
evaluating vision	14	78
exercise	10	11
expectation of improvement	3	3

Name	Files	References
finance	1	1
frustrations	12	51
imaging physiotherapy	18	49
Impact of prescribing on societal drivers	5	18
Increasing uptake	7	27
influence of medicine management	10	21
international perspective	1	1
leading from government	2	11
local versus national	4	8
need for prescribing	6	11
NHS service	10	18

Name	Files	References
part of the healthcare team	5	6
physical rehabilitation	3	3
physical treatments	14	17
population needs	12	32
Private Practice	6	10
professional domains	12	29
public awareness	16	77
relating image	7	9
resisting change	10	30
risk	4	14
scope expansion	8	19
specialist	15	28
trusting	19	71
USP identity	4	29

Name	Files	References
which model - medical vs rehab	4	20
working generically	12	37
working in new ways	19	85

Appendix 20 – Phase 1 codebook 3 (combined coding Thought leaders + members of public + physiotherapists)

Examining the impact of non medical prescribing on the role identity of physiotherapists

Codes

Name	Description	Files	References
Advanced Practice	Where prescribing medication is seen as relating to advanced practice in physiotherapy	34	86
attitudes to prescribing by physiotherapists	How people perceive prescribing by physiotherapists, is it a good or bad thing	36	151
being aware of NMP	What is the awareness especially among the public of non medical prescribing	23	30
being prescriber ready	What do people feel about physiotherapists qualifying from a pre reg programme being prescriber ready	31	39
experiencing risk	What are the potential risks of physiotherapists prescribing medications	12	27
prescribing by junior staff	What are the views of people towards junior physiotherapists (<3 yrs qualified) prescribing medications	14	50

Name	Description	Files	References
balancing models of care - medical vs rehab	Does it matter to physiotherapy which model of care is adopted	19	53
being accountable	What does it mean to HCPs and public to be accountable, how does prescribing impact this	6	10
being affected by age	How does the age of the clinician impact the perception of their competence among the public	3	4
being an adjunct	Viewpoints of prescribing by physios, is it core to skills or just another tool in the box	3	5
Career choice influencing factors	What factors influenced people who became physios?	18	68
centering the patient	The importance of placing the patient at the centre of the consultation. Does prescribing affect this	5	8
changing practice	What factors lead to change in practice from prescribing	27	56
changing undergraduate education	How does UG education need to adapt to enable better interaction with prescribing programmes by physiotherapists	26	69
coping with change	How important is this to physios?	3	3

Name	Description	Files	References
cultural influences on career choice	International perspectives from physios who qualified outside of the UK. What led them to choose physiotherapy	2	5
dealing with uncertainty	How do people deal with uncertainty	2	5
developing - evolving role identity	How the role identity of physiotherapists changes when significant skills are learnt	32	221
influences of prescribing skills	How prescribing skills can particularly influence change in role	19	37
USP identity	Importance of a USP identity to physiotherapy	6	31
developing the workforce	Adapting work patterns to meet new challenges	18	41
part of the healthcare team	Being part of the wider healthcare team	18	32
developing trust	Key skills in developing trust between clinician and patient	37	163
breaking trust	Instances of breakage in trust - abuse of power	2	3
concordance	The route to building trust	2	3
evaluating vision	How prescribing has developed within the profession	15	79

Name	Description	Files	References
expecting improvement	Viewpoints of users of physiotherapy	3	3
finance	Viewpoints of physios - suitable recompense for added skills	3	8
frustrations	Frustrations with Controlled Drug listings and lack of support	20	68
imaging physiotherapy	How people view physiotherapy from both outside and inside the profession	36	102
Impact of prescribing on societal drivers	How prescribing has met the needs of patients	8	21
Increasing uptake	What factors might lead to improving uptake of physiotherapists in prescribing programmes	7	27
international perspective	Views from across the channel	1	1
International background	How an international background impacts role	2	4
Joined up thinking	Working across professional boundaries	5	7
key skills		1	3
key skills - communicating	Communication	8	13
listening	Listening	4	9
physical rehabilitation		5	6
problem solving		1	2
using exercise	Using exercise as	11	12

Name	Description	Files	References
	a key skill		
leading from government	Govt initiatives	2	11
local versus national	Drivers for change and development within physiotherapy	4	8
needing to prescribe	Drivers to prescribe	13	21
NHS service	NHS related viewpoints	12	21
physical treatments	Views of public as to what is expected in physio.	14	17
population needs	What does the public need	12	32
Private Practice	Issues within private practice	7	11
professional domains	Boundary thinking	24	57
public awareness	What does the public think?	33	152
sensitising influences	Prior experience affecting public awareness	4	8
pushing too fast	Concerns about change being too rapid	2	5
Representing physiotherapy	How physios sell themselves to others	12	28
Changing public perceptions	Work done on challenging public perceptions	22	38
relating image	Reviewing changes in image	9	11
resisting change	Concerns about change, wanting to maintain current ways of	14	36

Name	Description	Files	References
	doing things		
specialist	How the public view physios and how others professions view them	17	30
sporting activity	How important is this?	1	1
time availability	Concerns about impact on time of added responsibility	2	2
undergraduate knowledge	Previous pharmacology knowledge, from UG studies	14	17
working in new ways (FCP - Covid impacts)	Impact of Covid on ways of working and new role of FCP in Primary care.	34	153
scope expansion	New ways of working/generic roles/FCP - impacts of prescribing	19	40
working generically	Working across boundaries, FCP role	16	42

Appendix 21– Research distress/disclosure policy

Research Distress/Disclosure Policy

Introduction

Interviews can be an opportunity for people to raise issues and or concerns that are not only relevant to a research project, but may cause discomfort to both the participant and/or the researcher. In addition, the researcher is under a professional duty to to disclose information. In accordance with the HCPC Standards of proficiency (2012) disclosures will be made "where necessary to prevent a serious crime or actual or potential harm to the patient or others" (p13).

As a consequence, at a recent supervision meeting, it was decided to develop a protocol in case of distress experienced by a participant and/or disclosure of statements that reveal significant risk to wellbeing of the participant or others.

We have therefore developed two protocols, one for distress of the participant and one for disclosure of information that could be deemed to meet the requirements outlined in the HCPC Standards of proficiency (2012).

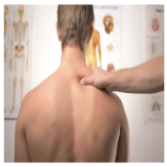
Appendix 22 – Phase 2 outcome of cognitive interviews

		Comments
PN	1	Overall comments that questionnaire had good feel no difficulties in understanding what was being asked. misspelling of should, ? Add question relating to scope or area of practice?
PC	2	reported that questionnaire had good flow, no difficulties in completion.
MM	3	completed Q in 5-10 mins, reported that content made sense, no reports of difficulty in understanding question content or wording, layout of questionnaire clear
CB	4	reported that questionnaire was of a good length Q13 (2) " uses knowledge of " rather than uses exercise rehab and movement. Empathising with an S Q13 (3) Q13 (5) without any prescription of medication. Delete ref to surgery Q18 ? Add an option for remaining at 3 years. - for working at advanced level needs to be clarified as band 7 or above. Q22 (2) remain an option for patients. - prescribing practice Q at end qualified as a physio, do we need an extra line qualified as a physio?
FS	5	questionnaire has good flow and is of an appropriate length suggest Add other tab for question on career choices; Q18 add an option for remaining at 3 years. Define advanced as level 7 or above. Q re medical or rehab model - this caused some confusion; partcipant felt that it is not an either or example - can the question be made clearer; Q re barriers from professional colleagues - participant felt that this was more related to lack of knowledge of detail - this could be a subquestion or potentially somethng for further investigation. last Q needs clarification for length of time qualified AS A Physiotherapist
WG	6	questionnaire has good flow , completed in 10 minutes with discussion so time wise good. Q18 add option for remaining at 3 years, consider changing wording for advanced. ? Extended, ? Level 7? Q re medical or rehab did not cause confusion but marked as neither agree nor disagree. last question re length of time caused confusion so needs clarification

Appendix 23 – Phase 3 poster - physiotherapists

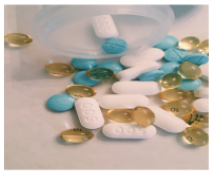
Physiotherapists as prescribers of medicine

C Waldock, Dr T Thomas, Dr. J MacInnes, Prof B Singh



Are you a physiotherapist?

What do you think physiotherapy is?



Do you have opinions about prescribing medication and physiotherapy?

How do you think this might impact pre-reg education

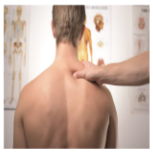
I would love to capture your views in this profession wide study. Enter for a chance to win £50 in Amazon vouchers.
https://msp.eu.qualtrics.com/jfe/form/SV_820cadgBUnOCKEK

If you would like further information please contact me via Email:
C.Waldock-551@kent.ac.uk

Appendix 24 – Phase 3 poster – student physiotherapists

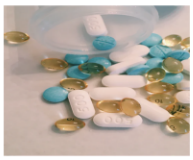
Physiotherapists as prescribers of medicine

C Waldock, Dr T Thomas, Dr. J MacInnes, Prof B Singh



Are you a student physiotherapist?

What do you think physiotherapy is?



Do you have opinions about prescribing medication and physiotherapy?

How do you think this might impact pre-reg education

I would love to capture your views in this profession wide study. Enter for a chance to win £50 in Amazon vouchers.
https://msp.eu.qualtrics.com/jfe/form/SV_820cadgBUnOCKEK

If you would like further information please contact me via Email:
C.Waldock-551@kent.ac.uk

Appendix 25 - Questionnaire

Examining the impact of prescribing medications on the role identity of physiotherapists

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Start of Block: Default Question Block

Q1 I would like to invite you as a physiotherapist to take part in a research project to improve understanding of the impact that prescribing medications has on the role identity of physiotherapists. The term "role identity" encompasses what it means to be a physiotherapist. Interviews with a range of stakeholders including physiotherapists, prescribing course leads, Department of Health representatives and members of the public have been completed and a theory of what I think happens to the role identity of physiotherapists has been developed. The purpose of this questionnaire is to test this theory within a wider population of physiotherapists.

Please note that once you have read the information leaflet you should click on the back space arrow to return to the questionnaire.

Please click here to access the information leaflet.

Q2 I have read the information leaflet

- ○ Yes (1)

Q3 Please click to indicate if you would like to proceed with the study

- ○ I am happy to proceed with the study (1)
- ○ I am not happy to proceed with the study (2)

Skip To: End of Survey If Please click to indicate if you would like to proceed with the study = I am not happy to proceed with the study

Q4 Before we start we just need to collect some background about you.

Q55 Have you taken part in phase 1 or 2 of this project?

- ○ yes (1)

○ no (2)

Skip To: End of Survey If Have you taken part in phase 1 or 2 of this project? = yes

Q5 Please indicate which age range you belong to

○ 18-24 (1)

○ 25-34 (2)

○ 35-44 (3)

○ 45-54 (4)

○ 55-64 (5)

○ >65 (6)

Q6 Which gender to you identify as?

○ Male (1)

○ Female (2)

○ Non-binary / third gender (3)

○ Transgender (4)

○ Prefer not to say (5)

Q7 Please idicate your ethnicity. (Choose one option that best describes your ethnic group or background

○ White British (English, Scottish, Welsh, Northern Irish) (1)

○ White European (EU) (2)

○ Gypsy or Irish Traveller (3)

○ White and Black Carribeab (4)

○ White and Black African (5)

○ White and Asian (6)

○ Indian (7)

○ Pakistani (8)

○ Bangladeshi (9)

○ Chinese (10)

○ African (11)

○ Carribean (12)

○ Arab (13)

○ Other (14)

Q8 If other please describe in the box below

_____

Q9 Please indicate which of the following you belong to

○ Physiotherapist Prescriber IP/SP (has annotation of IP/SP or SP on HCPC register) OR Physiotherapist student prescriber (currently on an accredited prescribing programme) (1)

○ Physiotherapist (no prescribing annotation on HCPC register) OR Student Physiotherapist (pre-registration) (2)

Skip To: Q10 If Please indicate which of the following you belong to = Physiotherapist Prescriber IP/SP (has annotation of IP/SP or SP on HCPC register) OR Physiotherapist student prescriber (currently on an accredited prescribing programme)

Skip To: Q11 If Please indicate which of the following you belong to = Physiotherapist (no prescribing annotation on HCPC register) OR Student Physiotherapist (pre-registration)

Q10 Please indicate which of the following you belong to

○ Physiotherapist Prescriber IP/SP (has annotation of IP/SP or SP on HCPC register) (1)

○ Physiotherapist student prescriber (currently on an accredited prescribing programme) (2)

Skip To: Q12 If Please indicate which of the following you belong to = Physiotherapist Prescriber IP/SP (has annotation of IP/SP or SP on HCPC register)

Skip To: Q24 If Please indicate which of the following you belong to = Physiotherapist student prescriber (currently on an accredited prescribing programme)

Q11 Please indicate which of the following you belong to

○ Physiotherapist (no prescribing annotation on HCPC register) (1)

○ Student Physiotherapist (pre-registration) (2)

Skip To: Q34 If Please indicate which of the following you belong to = Physiotherapist (no prescribing annotation on HCPC register)

Skip To: Q44 If Please indicate which of the following you belong to = Student Physiotherapist (pre-registration)

Q12 The first section concentrates on how physiotherapy is perceived. Quotes from individuals depicting their perception of physiotherapy from both inside and outside the profession are shared below

Q13 Looking at the statements below, please indicate how much you agree with each of the following statements

	Strongly agree (1)	agree (2)	Neither agree nor disagree (3)	disagree (4)	Strongly disagree (5)
A physiotherapist is “A specialist who understands the human body in relation to function, particularly in relation to bone structure”. (1)	○	○	○	○	○
A physiotherapist is someone who uses “Exercises, rehab, and movement” (2)	○	○	○	○	○
A physiotherapist is “somebody who can not only assess the patient, but look at the patient in the world that they live in” (3)	○	○	○	○	○
Physiotherapy is “for me it's about listening, empathizing”, understanding the patient. (4)	○	○	○	○	○

Physiotherapy is “like treating patients with physical measures. Without any prescription without any any surgery, just massage, manipulation, mobilization stretches, exercises” (5)	○	○	○	○	○

Q14 Tick any of these treatments you would expect patients to receive during physiotherapy treatments. (you can choose more than one)

- ☐ Massage (1)
- ☐ Manipulation (2)
- ☐ Electrotherapy (3)
- ☐ Acupuncture (4)
- ☐ Steroid Injections (5)
- ☐ Laser (6)
- ☐ Exercises (7)

☐ A prescription for medication (8)

Q15 Please indicate your level of agreement with the following statements regarding key aspects of physiotherapy

	Strongly agree (1)	agree (2)	Neither agree nor disagree (3)	disagree (4)	Strongly disagree (5)
"The fact that we are called physical therapists would denote that we should be doing physical treatments and exercise" (1)	○	○	○	○	○
"I've always viewed physio as more medical anyway, so I just feel like it's going towards what a medic would do as opposed to conservative management and physio" (2)	○	○	○	○	○
"Physiotherapists are...more allied to medicine than say someone like an osteopath or chiropractor" (3)	○	○	○	○	○
"Listening is an important skill for	○	○	○	○	○

physiotherapists" (4)					
"Trust is a key influence in developing a therapeutic relationship" (5)	○	○	○	○	○

Q16 Which of the following factors influenced your career choice

- ☐ Sport (1)
- ☐ Family influences (2)
- ☐ Interest in life sciences (3)
- ☐ Career options within the NHS (4)
- ☐ Wanting to work in a hospital (5)
- ☐ Academic achievement (6)
- ☐ Earning potential (7)
- ☐ other - please state in box below (8)

Q56 If other please state here

_____

Q17 Prescribing medication within physiotherapy

Q18 Please indicate your level of agreement with the following statements about prescribing in physiotherapy

	Strongly agree (1)	agree (2)	neither agree nor disagree (3)	disagree (4)	strongly disagree (5)
Physiotherapists should be annotated as independent prescribers on completion of their pre-registration training (1)	○	○	○	○	○
Like nursing, physiotherapists should be able to train for independent prescribing 1 year post qualifying (2)	○	○	○	○	○

The current 3 year time period post qualification should remain the same (3)	○	○	○	○	○
Prescribing medications should be limited to those who are working at level 7 or above (4)	○	○	○	○	○
Physiotherapy pre-reg education should include the basics of pharmacology (5)	○	○	○	○	○
My pre-reg has given me a good grounding in pharmacology (6)	○	○	○	○	○
Including pharmacology in pre-reg education programmes will enable physiotherapists to be more holistic in their patient management education (7)	○	○	○	○	○
Adding a year to a physiotherapy pre-reg degree to include pharmacology and awareness of medication would benefit the profession in	○	○	○	○	○

the longer term (8)	

Q19 Scope of Practice and professional boundaries

Q20 Please indicate your level of agreement with the following statements regarding key aspects of physiotherapy

	strongly agree (1)	agree (2)	Neither agree nor disagree (3)	disagree (4)	Strongly disagree (5)
Working in interprofessional teams is beneficial for healthcare (1)	○	○	○	○	○
The recent use of remote consultations due to Covid are likely to remain in situ long after the pandemic is over (2)	○	○	○	○	○
Prescribing by First Contact Physiotherapists can lead to potential for conflict regarding professional	○	○	○	○	○

boundaries with primary care colleagues (3)					
The healthcare service needs more physiotherapists who are generalists rather than specialists (4)	○	○	○	○	○
Clinicians working across professional boundaries are beneficial to patient care. (For example: A pharmacist advising on initial MSK care, a physiotherapist carrying out a medication review (5)	○	○	○	○	○
Physiotherapy needs to be seen as part of the rehabilitation model and not part of the medical model of care (6)	○	○	○	○	○
Prescribing medications carries the risk of physiotherapists overly relying on medications as opposed to using traditional physiotherapy skills (7)	○	○	○	○	○

Q21 Prescribing Practice

Q22 Please indicate your level of agreement with the following statements regarding key aspects of prescribing practice

	Strongly agree (1)	agree (2)	Neither agree nor disagree (3)	disagree (4)	Strongly disagree (5)
The current restrictions applied to prescribing of controlled drugs for physiotherapists will adversely impact my ability to provide effective care to patients (1)	○	○	○	○	○
Physiotherapists should be financially recompensed for the increased responsibilities as a prescriber (2)	○	○	○	○	○
The Chartered Society of Physiotherapy is too focused on rehabilitation to the detriment of	○	○	○	○	○

independent prescribing (3)					
Physiotherapists are continuing to face barriers to prescribing from professional colleagues (4)	○	○	○	○	○
Physiotherapists can expect to receive good levels of support from their line management WHEN UNDERTAKING a prescribing programme (5)	○	○	○	○	○
Physiotherapists can expect to receive good levels of support from their line management AFTER completing a prescribing programme (6)	○	○	○	○	○

Q57 Please indicate the number of years that you have been qualified as a physiotherapist

	0-5 years (1)	6-10 years (2)	11-15 years (3)	16-20 years (4)	>20 years (5)
Number of years qualified (1)	○	○	○	○	○

Skip To: End of Block If Please indicate the number of years that you have been qualified as a physiotherapist = 0-5 years

Skip To: End of Block If Please indicate the number of years that you have been qualified as a physiotherapist = 6-10 years

Skip To: End of Block If Please indicate the number of years that you have been qualified as a physiotherapist = 11-15 years

Skip To: End of Block If Please indicate the number of years that you have been qualified as a physiotherapist = 16-20 years

Skip To: End of Block If Please indicate the number of years that you have been qualified as a physiotherapist = >20 years

Q24 Perceptions of Physiotherapy

Q25 Looking at the statements below, please indicate how much you agree with each of the following statements

	Strongly agree (1)	agree (2)	Neither agree nor disagree (3)	disagree (4)	Strongly disagree (5)
A physiotherapist is "A specialist who understands the human body in relation to, particularly in relation to bone structure". (1)	○	○	○	○	○
A physiotherapist is someone who uses	○	○	○	○	○

"Exercises, rehab, and movement" (2)					
A physiotherapist is "somebody who can not only assess the patient, but look at the patient in the world that they live in" (3)	○	○	○	○	○
Physiotherapy is "for me it's about listening, empathizing", understanding the patient. (4)	○	○	○	○	○
Physiotherapy is "like treating patients with physical measures. Without any prescription without any any surgery, just massage, manipulation, mobilization stretches, exercises" (5)	○	○	○	○	○

Q26 Tick any of these treatments you would expect patients to receive during physiotherapy treatments. (you can choose more than one)

☐ Massage (1)

- [ ] Manipulation (2)
- [ ] Electrotherapy (3)
- [ ] Acupuncture (4)
- [ ] Steroid Injections (5)
- [ ] Laser (6)
- [ ] Exercises (7)
- [ ] A prescription for medication (8)

Q27 Please indicate your level of agreement with the following statements regarding key aspects of physiotherapy

	Strongly agree (1)	agree (2)	Neither agree nor disagree (3)	disagree (4)	Strongly disagree (5)
"The fact that we are called physical therapists would denote that we should be doing physical treatments and exercise" (1)	○	○	○	○	○

"I've always viewed physio as more medical anyway, so I just feel like it's going towards what a medic would do as opposed to conservative management and physio" (2)	○	○	○	○	○
"Physiotherapists are..more allied to medicine than say someone like an osteopath or chiropractor" (3)	○	○	○	○	○
"Listening is an important skill for physiotherapists" (4)	○	○	○	○	○
"Trust is a key influence in developing a therapeutic relationship" (5)	○	○	○	○	○

Q28 Which of the following factors influenced your career choice

- ☐ Sport (1)
- ☐ Family influences (2)
- ☐ Interest in life sciences (3)

- [ ] Career options within the NHS (4)
- [ ] Wanting to work in a hospital (5)
- [ ] Academic achievement (6)
- [ ] Earning potential (7)
- [ ] other (8)

Q59 If other please state here

_____

Q29 Prescribing medication within physiotherapy

Q62 Please indicate your level of agreement with the following statements about prescribing in physiotherapy

	Strongly agree (1)	agree (2)	neither agree nor disagree (3)	disagree (4)	strongly disagree (5)
Physiotherapists should be annotated as independent prescribers on completion of their pre-registration training (1)	○	○	○	○	○
Like nursing, physiotherapists should be able to train for independent prescribing 1 year post qualifying (2)	○	○	○	○	○
The current 3 year time period post qualification should remain the same (3)	○	○	○	○	○
Prescribing medications should be limited to those who are working at level 7 or above (4)	○	○	○	○	○
Physiotherapy pre-reg education should include the basics of pharmacology (5)	○	○	○	○	○

My pre-reg has given me a good grounding in pharmacology (6)	○	○	○	○	○
Including pharmacology in pre-reg education programmes will enable physiotherapists to be more holistic in their patient management education (7)	○	○	○	○	○
Adding a year to a physiotherapy pre-reg degree to include pharmacology and awareness of medication would benefit the profession in the longer term (8)	○	○	○	○	○

Q31 Scope of Practice and professional boundaries

Q32 Please indicate your level of agreement with the following statements regarding key aspects of physiotherapy

	strongly agree (1)	agree (2)	Neither agree nor disagree (3)	disagree (4)	Strongly disagree (5)
Working in interprofessional teams is beneficial for healthcare (1)	○	○	○	○	○
The recent use of remote consultations due to Covid are likely to remain in situ long after the pandemic is over (2)	○	○	○	○	○
Prescribing by First Contact Physiotherapists can lead to potential for conflict regarding professional boundaries with primary care colleagues (3)	○	○	○	○	○
The healthcare service needs more physiotherapists who are generalists rather than specialists (4)	○	○	○	○	○
Clinicians working across professional boundaries are beneficial to patient care. (For example: A pharmacist advising on initial MSK care, a	○	○	○	○	○

physiotherapist carrying out a medication review (5)					
Physiotherapy needs to be seen as part of the rehabilitation model and not part of the medical model of care (6)	○	○	○	○	○
Prescribing medications carries the risk of physiotherapists overly relying on medications as opposed to using traditional physiotherapy skills (7)	○	○	○	○	○

Q64 Prescribing Practice

Q63 Please indicate your level of agreement with the following statements regarding key aspects of prescribing practice

	Strongly agree (1)	agree (2)	Neither agree nor disagree (3)	disagree (4)	Strongly disagree (5)

The current restrictions applied to prescribing of controlled drugs for physiotherapists will adversely impact my ability to provide effective care to patients (1)	○	○	○	○	○
Physiotherapists should be financially recompensed for the increased responsibilities as a prescriber (2)	○	○	○	○	○
The Chartered Society of Physiotherapy is too focused on rehabilitation to the detriment of independent prescribing (3)	○	○	○	○	○
Physiotherapists are continuing to face barriers to prescribing from professional colleagues (4)	○	○	○	○	○
Physiotherapists can expect to receive good levels of support from their line management WHEN UNDERTAKING a prescribing programme (5)	○	○	○	○	○
Physiotherapists can expect to receive good levels of support	○	○	○	○	○

from their line management AFTER undertaking a prescribing programme (7)	

Q33 Please indicate the number of years that you have been qualified as a physiotherapist

	0-5 years (1)	6-10 years (2)	11-15 years (3)	16-20 years (4)	>20 years (5)
Number of years qualified (1)	○	○	○	○	○

Skip To: End of Block If Please indicate the number of years that you have been qualified as a physiotherapist = 0-5 years

Skip To: End of Block If Please indicate the number of years that you have been qualified as a physiotherapist = 6-10 years

Skip To: End of Block If Please indicate the number of years that you have been qualified as a physiotherapist = 11-15 years

Skip To: End of Block If Please indicate the number of years that you have been qualified as a physiotherapist = 16-20 years

Skip To: End of Block If Please indicate the number of years that you have been qualified as a physiotherapist = >20 years

Q34 Perceptions of Physiotherapy

Q35 Looking at the statements below, please indicate how much you agree with each of the following statements

	Strongly agree (1)	agree (2)	Neither agree nor disagree (3)	disagree (4)	Strongly disagree (5)
A physiotherapist is “A specialist who understands the human body in relation to, particularly in relation to bone structure”. (1)	○	○	○	○	○
A physiotherapist is someone who uses “Exercises, rehab, and movement” (2)	○	○	○	○	○
A physiotherapist is “somebody who can not only assess the patient, but look at the patient in the world that they live in” (3)	○	○	○	○	○
Physiotherapy is “for me it's about listening, empathizing”, understanding the patient. (4)	○	○	○	○	○

Physiotherapy is “like treating patients with physical measures. Without any prescription without any any surgery, just massage, manipulation, mobilization stretches, exercises” (5)	○	○	○	○	○

Q36 Tick any of these treatments you would expect patients to receive during physiotherapy treatments. (you can choose more than one)

- ☐ Massage (1)
- ☐ Manipulation (2)
- ☐ Electrotherapy (3)
- ☐ Acupuncture (4)
- ☐ Steroid Injections (5)
- ☐ Laser (6)
- ☐ Exercises (7)

☐ A prescription for medication (8)

Q37 Please indicate your level of agreement with the following statements regarding key aspects of physiotherapy

	Strongly agree (1)	agree (2)	Neither agree nor disagree (3)	disagree (4)	Strongly disagree (5)
"The fact that we are called physical therapists would denote that we should be doing physical treatments and exercise" (1)	○	○	○	○	○
"I've always viewed physio as more medical anyway, so I just feel like it's going towards what a medic would do as opposed to conservative management and physio" (2)	○	○	○	○	○
"Physiotherapists are...more allied to medicine than say someone like an osteopath or chiropractor" (3)	○	○	○	○	○
"Listening is an important skill for	○	○	○	○	○

physiotherapists" (4)					
"Trust is a key influence in developing a therapeutic relationship" (5)	○	○	○	○	○

Q38 Which of the following factors influenced your career choice

- ☐ Sport (1)
- ☐ Family influences (2)
- ☐ Interest in life sciences (3)
- ☐ Career options within the NHS (4)
- ☐ Wanting to work in a hospital (5)
- ☐ Academic achievement (6)
- ☐ Earning potential (7)
- ☐ other (8)

Q60 If other please state here

_____

Q39 Prescribing medication within physiotherapy

Q63 Please indicate your level of agreement with the following statements about prescribing in physiotherapy

	Strongly agree (1)	agree (2)	neither agree nor disagree (3)	disagree (4)	strongly disagree (5)
Physiotherapists should be annotated as independent prescribers on completion of their pre-registration training (1)	○	○	○	○	○
Like nursing, physiotherapists should be able to train for independent prescribing 1 year post qualifying (2)	○	○	○	○	○
The current 3 year time period post qualification	○	○	○	○	○

should remain the same (3)					
Prescribing medications should be limited to those who are working at level 7 or above (4)	○	○	○	○	○
Physiotherapy pre-reg education should include the basics of pharmacology (5)	○	○	○	○	○
My pre-reg has given me a good grounding in pharmacology (6)	○	○	○	○	○
Including pharmacology in pre-reg education programmes will enable physiotherapists to be more holistic in their patient management education (7)	○	○	○	○	○
Adding a year to a physiotherapy pre-reg degree to include pharmacology and awareness of medication would benefit the profession in the longer term (8)	○	○	○	○	○

Q41 Scope of Practice and professional boundaries

Q42 Please indicate your level of agreement with the following statements regarding key aspects of physiotherapy

	strongly agree (1)	agree (2)	Neither agree nor disagree (3)	disagree (4)	Strongly disagree (5)
Working in interprofessional teams is beneficial for healthcare (1)	○	○	○	○	○
The recent use of remote consultations due to Covid are likely to remain in situ long after the pandemic is over (2)	○	○	○	○	○
Prescribing by First Contact Physiotherapists can lead to potential for conflict regarding professional boundaries with primary care colleagues (3)	○	○	○	○	○
The healthcare service needs more physiotherapists	○	○	○	○	○

who are generalists rather than specialists (4)					
Clinicians working across professional boundaries are beneficial to patient care. (For example: A pharmacist advising on initial MSK care, a physiotherapist carrying out a medication review (5)	○	○	○	○	○
Physiotherapy needs to be seen as part of the rehabilitation model and not part of the medical model of care (6)	○	○	○	○	○
Prescribing medications carries the risk of physiotherapists overly relying on medications as opposed to using traditional physiotherapy skills (7)	○	○	○	○	○

Q67 Prescribing Practice

Q65 Please indicate your level of agreement with the following statements regarding key aspects of prescribing practice

	Strongly agree (1)	agree (2)	Neither agree nor disagree (3)	disagree (4)	Strongly disagree (5)
The current restrictions applied to prescribing of controlled drugs for physiotherapists will adversely impact my ability to provide effective care to patients (1)	○	○	○	○	○
Physiotherapists should be financially recompensed for the increased responsibilities as a prescriber (2)	○	○	○	○	○
The Chartered Society of Physiotherapy is too focused on rehabilitation to the detriment of independent prescribing (3)	○	○	○	○	○
Physiotherapists are continuing to face barriers to prescribing from professional colleagues (4)	○	○	○	○	○

Physiotherapists can expect to receive good levels of support from their line management WHEN UNDERTAKING a prescribing programme (5)	○	○	○	○	○
Physiotherapists can expect to receive good levels of support from their line management AFTER completing a prescribing programme (6)	○	○	○	○	○

Q43 Please indicate the number of years that you have been qualified as a physiotherapist

	0-5 years (1)	6-10 years (2)	11-15 years (3)	16-20 years (4)	>20 years (5)
Number of years qualified (1)	○	○	○	○	○

Skip To: End of Block If Please indicate the number of years that you have been qualified as a physiotherapist = 0-5 years

Skip To: End of Block If Please indicate the number of years that you have been qualified as a physiotherapist = 6-10 years

Skip To: End of Block If Please indicate the number of years that you have been qualified as a physiotherapist = 11-15 years

Skip To: End of Block If Please indicate the number of years that you have been qualified as a physiotherapist = >20 years

Skip To: End of Block If Please indicate the number of years that you have been qualified as a physiotherapist = 16-20 years

Q44 Perceptions of Physiotherapy

Q45 Looking at the statements below, please indicate how much you agree with each of the following statements

	Strongly agree (1)	agree (2)	Neither agree nor disagree (3)	disagree (4)	Strongly disagree (5)
A physiotherapist is "A specialist who understands the human body in relation to, particularly in relation to bone structure". (1)	○	○	○	○	○
A physiotherapist is someone who uses "Exercises, rehab, and movement" (2)	○	○	○	○	○

A physiotherapist is “somebody who can not only assess the patient, but look at the patient in the world that they live in” (3)	○	○	○	○	○
Physiotherapy is “for me it's about listening, empathizing”, understanding the patient. (4)	○	○	○	○	○
Physiotherapy is “like treating patients with physical measures. Without any prescription without any any surgery, just massage, manipulation, mobilization stretches, exercises” (5)	○	○	○	○	○

Q46 Tick any of these treatments you would expect patients to receive during physiotherapy treatments. (you can choose more than one)

- ☐ Massage (1)
- ☐ Manipulation (2)

- [ ] Electrotherapy (3)
- [ ] Acupuncture (4)
- [ ] Steroid Injections (5)
- [ ] Laser (6)
- [ ] Exercises (7)
- [ ] A prescription for medication (8)

Q47 Please indicate your level of agreement with the following statements regarding key aspects of physiotherapy

	Strongly agree (1)	agree (2)	Neither agree nor disagree (3)	disagree (4)	Strongly disagree (5)
"The fact that we are called physical therapists would denote that we should be doing physical treatments and exercise" (1)	○	○	○	○	○
"I've always viewed physio as more medical anyway, so I just feel like it's going	○	○	○	○	○

towards what a medic would do as opposed to conservative management and physio" (2)					
"Physiotherapists are...more allied to medicine than say someone like an osteopath or chiropractor" (3)	○	○	○	○	○
"Listening is an important skill for physiotherapists" (4)	○	○	○	○	○
"Trust is a key influence in developing a therapeutic relationship" (5)	○	○	○	○	○

Q48 Which of the following factors influenced your career choice

- ☐ Sport (1)
- ☐ Family influences (2)
- ☐ Interest in life sciences (3)
- ☐ Career options within the NHS (4)
- ☐ Wanting to work in a hospital (5)

- [ ] Academic achievement (6)
- [ ] Earning potential (7)
- [ ] other (8)

Q61 If other please state here

_____

Q49 Prescribing medication within physiotherapy

Q64 Please indicate your level of agreement with the following statements about prescribing in physiotherapy

	Strongly agree (1)	agree (2)	neither agree nor disagree (3)	disagree (4)	strongly disagree (5)
Physiotherapists should be annotated as independent prescribers on completion of their pre-	○	○	○	○	○

registration training (1)					
Like nursing, physiotherapists should be able to train for independent prescribing 1 year post qualifying (2)	○	○	○	○	○
The current 3 year time period post qualification should remain the same (3)	○	○	○	○	○
Prescribing medications should be limited to those who are working at level 7 or above (4)	○	○	○	○	○
Physiotherapy pre-reg education should include the basics of pharmacology (5)	○	○	○	○	○
My pre-reg has given me a good grounding in pharmacology (6)	○	○	○	○	○
Including pharmacology in pre-reg education programmes will enable physiotherapists to be more holistic in their patient	○	○	○	○	○

management education (7)					
Adding a year to a physiotherapy pre-reg degree to include pharmacology and awareness of medication would benefit the profession in the longer term (8)	○	○	○	○	○

Q51 Scope of Practice and professional boundaries

Q52 Please indicate your level of agreement with the following statements regarding key aspects of physiotherapy

	strongly agree (1)	agree (2)	Neither agree nor disagree (3)	disagree (4)	Strongly disagree (5)
Working in interprofessional teams is beneficial for healthcare (1)	○	○	○	○	○
The recent use of remote consultations due to Covid are likely to remain	○	○	○	○	○

in situ long after the pandemic is over (2)					
Prescribing by First Contact Physiotherapists can lead to potential for conflict regarding professional boundaries with primary care colleagues (3)	○	○	○	○	○
The healthcare service needs more physiotherapists who are generalists rather than specialists (4)	○	○	○	○	○
Clinicians working across professional boundaries are beneficial to patient care. (For example: A pharmacist advising on initial MSK care, a physiotherapist carrying out a medication review (5)	○	○	○	○	○
Physiotherapy needs to be seen as part of the rehabilitation model and not part of the medical model of care (6)	○	○	○	○	○
Prescribing medications	○	○	○	○	○

carries the risk of physiotherapists overly relying on medications as opposed to using traditional physiotherapy skills (7)	

Q68 Prescribing Practice

Q66 Please indicate your level of agreement with the following statements regarding key aspects of prescribing practice

	Strongly agree (1)	agree (2)	Neither agree nor disagree (3)	disagree (4)	Strongly disagree (5)
The current restrictions applied to prescribing of controlled drugs for physiotherapists will adversely impact my ability to provide effective care to patients (1)	○	○	○	○	○
Physiotherapists should be financially	○	○	○	○	○

recompensed for the increased responsibilities as a prescriber (2)					
The Chartered Society of Physiotherapy is too focused on rehabilitation to the detriment of independent prescribing (3)	○	○	○	○	○
Physiotherapists are continuing to face barriers to prescribing from professional colleagues (4)	○	○	○	○	○
Physiotherapists can expect to receive good levels of support from their line management WHEN UNDERTAKING a prescribing programme (5)	○	○	○	○	○
Physiotherapists can expect to receive good levels of support from their line management AFTER completing a prescribing programme (6)	○	○	○	○	○

Q53 Please indicate the cohort of your pre-reg degree (1st year, 2nd year etc)

	1st year (1)	2nd year (2)	3rd year (3)	4th year (4)
Year group (1)	○	○	○	○

Page Break

End of Block: Default Question Block

Start of Block: Block 1

Q58 If you would like to be included in the draw for a £50 Amazon voucher, please enter your email address and role. (prescriber, student prescriber, physiotherapist non prescriber, student physiotherapist)

○ email address (4)

_____

○ role (5) _____

End of Block: Block 1

Appendix 26 – Correlation matrix – factor analysis (principal component analysis)Correlation matrix – factor analysis

Correlation Matrix

		function.	rehab'	Holistic	Listener	physical	PTonly	Paramedical	clicker to medicine than osteopaths	Listening	Trust	Prescribeaway	1yr post qual	3year post qual	level 7 or above	Physiotherapy pre-reg education should include the basics of pharmacology	My pre-reg has given me a good grounding in pharmacology	Including pharmacology	attend course 1 yr	IP point	Remote to stay	FTP prone to conflict	more physiotherapists who are generalists rather than specialists	- Clinicians working across professional boundaries are beneficial to patient care. (For example: A pharmacist advising on initial MSK care, a physiotherapist carrying out a medication review	Rehab important	reliance on meds	CD restrictions	Paid more to prescribe	CSP not supportive	Barriers to prescribe	managerial support during	managerial support after
Correlation	function.	1.000	.444	.135	.273	.039	.148	.212	.192	.142	.073	.256	.164	.041	.115	.051	.174	.111	.110	.066	.063	.080	-.084	.093	-.025	-.065	.064	.240	.162	.051	.143	.154
	rehab'	.444	1.000	.182	.326	.069	.187	.065	.075	.176	.211	.012	.035	.121	.167	.122	.037	.142	.043	.234	.173	-.013	-.021	.053	.014	.006	-.079	.248	-.013	.032	.096	.093
	Holistic	.135	.182	1.000	.284	-.169	-.132	-.167	.087	.370	.395	-.160	-.114	.021	.002	.119	-.245	.137	-.045	.330	-.044	-.090	-.143	-.002	-.118	-.206	-.049	.013	-.105	-.033	-.148	-.050
	Listener	.273	.326	.284	1.000	-.071	-.094	.021	.072	.428	.268	.048	.035	.003	.112	.153	-.045	.120	.065	.176	.060	-.027	.016	.159	-.078	-.073	-.030	.066	.016	.107	.074	.093
	physical	.039	.069	-.169	-.071	1.000	.406	.293	-.058	-.143	-.138	.220	.207	.013	.015	-.093	.322	-.012	.150	-.236	.096	.390	.307	.038	.290	.364	.064	-.089	.217	.149	.174	.125
	PTonly	.148	.107	-.132	-.094	.406	1.000	.137	-.030	-.118	-.075	.068	.127	-.049	-.073	-.128	.161	.015	.053	-.123	.026	.307	.076	-.039	.214	.307	-.053	-.038	.023	.042	.096	.052
	Paramedical	.212	.065	-.167	.021	.293	.137	1.000	.207	-.139	-.254	.360	.351	.023	.142	.064	.412	.147	.352	-.247	.117	.196	.274	.136	-.043	.211	.312	.224	.446	.269	.213	.229
	clicker to medicine than osteopaths	.192	.075	.087	.072	-.058	-.030	.207	1.000	.088	.032	.109	.079	-.035	.074	.125	.051	.134	.044	-.031	-.024	.040	-.062	.010	-.098	-.060	.027	.097	.068	.098	-.005	-.010
	Listening	.142	.176	.370	.428	-.143	-.118	-.139	.088	1.000	.526	-.131	-.147	-.016	.091	.071	-.197	.079	-.103	.415	.089	-.080	-.134	.069	-.097	-.127	-.100	.049	-.128	-.053	-.037	.021
	Trust	.073	.211	.395	.268	-.138	-.075	-.254	.032	.526	1.000	-.195	-.183	.019	.037	.056	-.292	.124	-.099	.562	.048	-.105	-.172	-.076	-.158	-.190	-.190	.046	-.184	-.053	-.120	-.117
	Prescribeaway	.256	.012	-.180	.048	.220	.068	.360	.108	-.131	-.195	1.000	.431	-.043	.023	.097	.424	.125	.338	-.224	.051	.080	.042	.024	.063	.080	.021	.081	.282	.152	.210	.140
	1yr post qual	.164	.035	-.114	.035	.207	.127	.351	.076	-.147	-.183	.431	1.000	-.383	-.127	.179	.314	.166	.441	-.243	.113	.149	.140	.062	.015	.136	.077	.074	.320	.288	.129	.105
	3year post qual	.041	.121	.021	.063	.013	-.048	.023	-.035	-.016	.019	-.043	-.383	1.000	.329	.023	.060	-.065	-.167	.050	.049	.037	.061	.019	.060	.072	.023	.076	-.044	.009	.064	.069
	level 7 or above	.115	.167	.002	.112	.015	-.073	.142	.074	.091	.037	.023	-.127	.329	1.000	.037	.191	-.016	.126	-.021	.079	.126	.171	.097	.106	.073	.066	.179	.014	.030	.177	.174
	Physiotherapy pre-reg education should include the basics of pharmacology	.051	.122	.119	.153	-.093	-.128	.064	.125	.071	.056	.097	.179	.023	.037	1.000	.091	.590	.371	.113	.146	-.110	.064	.097	-.142	-.156	.164	.270	.205	.312	.161	.139
	My pre-reg has given me a good grounding in pharmacology	.174	.037	-.245	-.045	.322	.161	.412	.051	-.197	-.292	.424	.314	.060	.191	.091	1.000	.145	.308	-.287	.028	.199	.213	.015	.219	.271	.118	.074	.289	.194	.241	.229
	Including pharmacology	.111	.142	.137	.120	-.012	.015	.147	.134	.079	.124	.125	.168	-.065	-.016	.590	.145	1.000	.407	.109	.144	-.063	-.045	.069	-.140	-.054	.167	.160	.235	.210	.120	.150
	attend course 1 yr	.110	.043	-.045	.065	.150	.053	.352	.044	-.103	-.099	.338	.441	-.167	.120	.371	.308	.407	1.000	-.097	.101	.090	.203	.089	-.073	.018	.175	.205	.426	.325	.319	.262
	IP point	.066	.234	.330	.176	-.236	-.123	-.247	-.031	.415	.562	-.224	-.243	.050	-.021	.113	-.287	.109	-.097	1.000	.103	-.196	-.144	-.081	-.211	-.250	-.193	.016	-.253	-.173	-.099	-.055
	Remote to stay	.063	.173	-.044	.060	.096	.026	.117	-.024	.089	.048	.051	.113	.049	.079	.146	.028	.144	.101	.103	1.000	.103	.131	.221	-.011	.049	.014	.216	.022	.120	.079	.060
	FTP prone to conflict	.080	-.013	-.090	-.027	.390	.307	.196	.040	-.060	-.105	.090	.149	.037	.126	-.110	.199	-.063	.090	-.196	.103	1.000	.191	-.031	.202	.429	-.045	-.123	.043	.214	.025	-.011
	more physiotherapists who are generalists rather than specialists	-.084	-.021	-.143	.016	.307	.076	.274	-.062	-.134	-.172	.042	.140	.061	.171	.064	.213	-.045	.203	-.144	.131	.191	1.000	.200	.133	.205	.135	.032	.241	.293	.175	.089
	- Clinicians working across professional boundaries are beneficial to patient care. (For example: A pharmacist advising on initial MSK care, a physiotherapist carrying out a medication review	.093	.053	-.002	.159	.038	-.039	.136	.010	.069	-.079	.024	.062	.019	.097	.067	.015	.069	.099	-.081	.221	-.031	.200	1.000	-.087	-.171	.237	.257	.262	.160	.169	.068
	Rehab important	-.025	.014	-.118	-.078	.290	.214	-.043	-.099	-.097	-.158	.063	.015	.080	.106	-.142	.219	-.140	-.073	-.211	-.011	.202	.133	-.087	1.000	.370	-.131	-.071	-.072	.070	.047	.036
	reliance on meds	-.065	.006	-.206	-.073	.364	.307	.211	-.060	-.127	-.190	.060	.136	.072	.075	-.156	.271	-.054	.018	-.250	.049	.426	.205	-.171	.370	1.000	-.161	-.067	.026	.162	.059	.101
	CD restrictions	.064	-.079	-.049	-.030	.064	-.053	.312	.027	-.100	-.190	.021	.077	.023	.066	.164	.118	.167	.175	-.193	.014	-.045	.135	.237	-.131	-.161	1.000	.205	.371	.248	.159	.126
	Paid more to prescribe	.240	.248	.013	.066	-.089	-.038	.224	.097	.049	.046	.081	.074	.076	.179	.270	.074	.180	.205	.016	.216	-.123	.032	.257	-.071	-.067	.205	1.000	.319	.150	.071	.018
	CSP not supportive	.162	-.013	-.105	.016	.217	.023	.446	.068	-.128	-.184	.282	.320	-.044	.014	.205	.289	.235	.426	-.253	.022	.043	.241	.262	-.072	.029	.371	.319	1.000	.339	.246	.234
	Barriers to prescribe	.051	.032	-.033	.107	.149	.042	.269	.098	-.053	-.053	.152	.298	.009	.030	.312	.194	.210	.325	-.173	.120	.214	.293	.160	.070	.162	.248	.150	.339	1.000	.022	.027
	managerial support during	.143	.096	-.146	.074	.174	.096	.213	-.005	-.037	-.120	.210	.129	.064	.177	.161	.241	.120	.319	-.099	.079	.025	.175	.169	.047	.059	.159	.071	.246	.022	1.000	.752
	managerial support after	.154	.093	-.050	.093	.125	.052	.229	-.010	.021	-.117	.140	.105	.069	.174	.139	.229	.150	.262	-.055	.060	-.011	.089	.069	.036	.101	.126	.018	.234	.027	.752	1.000

Appendix 27 – Principal Component analysis results

Principal component analysis (9 components)

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.870	15.711	15.711	4.870	15.711	15.711
2	3.470	11.193	26.904	3.470	11.193	26.904
3	2.269	7.320	34.224	2.269	7.320	34.224
4	1.860	5.999	40.223	1.860	5.999	40.223
5	1.579	5.094	45.317	1.579	5.094	45.317
6	1.444	4.658	49.975	1.444	4.658	49.975
7	1.275	4.113	54.088	1.275	4.113	54.088
8	1.143	3.687	57.775	1.143	3.687	57.775
9	1.060	3.420	61.195	1.060	3.420	61.195
10	.971	3.134	64.328			
11	.881	2.842	67.171			
12	.808	2.607	69.778			
13	.775	2.501	72.278			
14	.741	2.391	74.669			
15	.722	2.329	76.998			
16	.675	2.177	79.175			
17	.656	2.116	81.291			
18	.634	2.045	83.336			
19	.544	1.754	85.090			
20	.528	1.704	86.794			
21	.497	1.604	88.398			
22	.465	1.500	89.898			
23	.426	1.376	91.273			
24	.419	1.353	92.627			
25	.400	1.289	93.916			
26	.382	1.231	95.147			
27	.355	1.145	96.292			
28	.349	1.127	97.419			
29	.339	1.092	98.511			
30	.273	.882	99.393			
31	.188	.607	100.000			

Extraction Method: Principal Component Analysis.

Appendix 28 – Parallel analysis

Parallel analysis

Actual eigen values > criterion values are accepted

Component number	Actual eigenvalue from PCA	Criterion value from parallel analysis	Decision
1	4.87	1.6638	accept
2	3.47	1.5714	accept
3	2.269	1.4985	accept
4	1.86	1.4445	accept
5	1.579	1.3875	accept
6	1.444	1.34	accept
7	1.279	1.2975	reject
8	1.143	1.2531	reject
9	1.06	1.2117	reject

Appendix 29 – 5 component extraction

5 component extraction

Component Matrix[a]

	Component				
	1	2	3	4	5
Paramedical	.684				
My pre-reg has given me a good grounding in pharmacology	.656				
CSP not supportive	.630				
extend course 1 yr	.611	.327			
1yr post qual	.571			-.523	
Prescriberready	.519				
physical	.505		.365		
IP good	-.482	.472			
more physiotherapists who are generalists rather than specialists	.445				.368
Physiotherapy pre-reg education should include the basics of pharmacology		.567			
Listener		.529	.326		
Including pharmacology		.528			
Listening	-.328	.519	.350		
Trust	-.448	.484	.321		
Holistic	-.336	.479			
Paid more to prescribe		.427			
Rehab important		-.410	.399		
function,		.393	.351		
closer to medicine than osteopaths					
rehab"		.433	.500		
reliance on meds	.352	-.430	.440		
FTP prone to conflict	.336		.428		
PTonly			.392		
CD restrictions	.349		-.392		
3year post qual				.599	
level 7 or above			.331	.518	
managerial support after	.425			.361	-.591
managerial support during	.481			.386	-.553
Barriers to prescribe	.468				.478
- Clinicians working across professional boundaries are beneficial to patient care. (For example: A pharmacist advising on initial MSK care, a physiotherapist carrying out a medication review				.304	.310
Remote to stay					

Extraction Method: Principal Component Analysis.

a. 5 components extracted.

Appendix 30 – 3 component extraction

3 component extraction

Component Matrix[a]

	Component		
	1	2	3
Paramedical	.684		
My pre-reg has given me a good grounding in pharmacology	.656		
CSP not supportive	.630		
extend course 1 yr	.611	.327	
1yr post qual	.571		
Prescriberready	.519		
physical	.505		.365
IP good	-.482	.472	
managerial support during	.481		
Barriers to prescribe	.468		
more physiotherapists who are generalists rather than specialists	.445		
managerial support after	.425		
Physiotherapy pre-reg education should include the basics of pharmacology		.567	
Listener		.529	.326
Including pharmacology		.528	
Listening	-.328	.519	.350
Trust	-.448	.484	.321
Holistic	-.336	.479	
Paid more to prescribe		.427	
Rehab important		-.410	.399
function,		.393	.351
- Clinicians working across professional boundaries are beneficial to patient care. (For example: A pharmacist advising on initial MSK care, a physiotherapist carrying out a medication review			
closer to medicine than osteopaths			
Remote to stay			
rehab"		.433	.500
reliance on meds	.352	-.430	.440
FTP prone to conflict	.336		.428
PTonly			.392
CD restrictions	.349		-.392
level 7 or above			.331
3year post qual			

Extraction Method: Principal Component Analysis.

a. 3 components extracted.

Appendix 31 – Pattern of Matrix 3 component

Pattern Matrix 3 component

Pattern Matrix[a]

	Component		
	1	2	3
extend course 1 yr	.717		
CSP not supportive	.711		
Paramedical	.607		
Physiotherapy pre-reg education should include the basics of pharmacology	.558		-.370
1yr post qual	.544		
Including pharmacology	.531		
CD restrictions	.494		
Barriers to prescribe	.488		
My pre-reg has given me a good grounding in pharmacology	.459		.430
managerial support during	.456		
Paid more to prescribe	.446		
Prescriberready	.429		
managerial support after	.415		
- Clinicians working across professional boundaries are beneficial to patient care. (For example: A pharmacist advising on initial MSK care, a physiotherapist carrying out a medication review	.360		
more physiotherapists who are generalists rather than specialists	.302		
closer to medicine than osteopaths			
Listening		.674	
Trust		.657	
rehab"		.632	
Listener		.598	
IP good		.587	
Holistic		.529	
function,		.463	
level 7 or above			
3year post qual			
Remote to stay			
reliance on meds			.704
physical			.639
FTP prone to conflict			.617
Rehab important			.581
PTonly			.556

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 17 iterations.

Appendix 32 - Structure of Matrix 3 Component

Structure of Matrix 3 Component

Structure Matrix

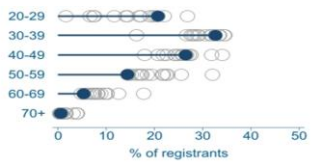
	Component		
	1	2	3
extend course 1 yr	.712		
CSP not supportive	.697		
Paramedical	.630		.329
1yr post qual	.547		
Physiotherapy pre-reg education should include the basics of pharmacology	.526		-.319
Including pharmacology	.511		
My pre-reg has given me a good grounding in pharmacology	.501		.490
Barriers to prescribe	.494		
managerial support during	.483		
CD restrictions	.454		
Prescriberready	.452		
managerial support after	.443		
Paid more to prescribe	.438		
- Clinicians working across professional boundaries are beneficial to patient care. (For example: A pharmacist advising on initial MSK care, a physiotherapist carrying out a medication review	.347		
Remote to stay			
closer to medicine than osteopaths			
Listening		.677	
Trust		.658	
rehab"		.624	
Listener		.608	
IP good		.594	-.350
Holistic		.542	-.304
function,	.325	.466	
level 7 or above			
3year post qual			
reliance on meds			.703
physical			.663
FTP prone to conflict			.616
Rehab important			.563
PTonly			.554
more physiotherapists who are generalists rather than specialists	.329		.339

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

Appendix 33 – HCPC Data set

HCPC data set as at December 2023

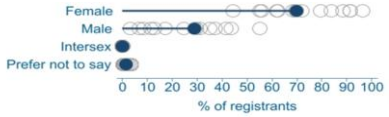
Age	Physiotherapists Count	%	All professions Count	%
Not recorded	15	*0*	95	*0*
Recorded	66,445	*100*	320,515	*100*
20-29	13,755	*21*	50,615	*16*
30-39	21,710	*33*	97,400	*30*
40-49	17,585	*26*	83,735	*26*
50-59	9,540	*14*	61,345	*19*
60-69	3,485	*5*	24,225	*8*
70+	370	*1*	3,195	*1*
	66,445	*100*	320,515	*100*



Question asked: **What is your Date of Birth?**

Note: This was used to calculate current age at the point of production of this factsheet.

Sex	Physiotherapists Count	%	All professions Count	%
Not recorded	15	*0*	150	*0*
Recorded	66,455	*100*	320,455	*100*
Female	46,385	*70*	232,105	*72*
Male	19,115	*29*	84,010	*26*
Intersex	5	*0*	25	*0*
Prefer not to say	950	*1*	4,315	*1*
	66,455	*100*	320,455	*100*



Question asked: **What is your Sex?**

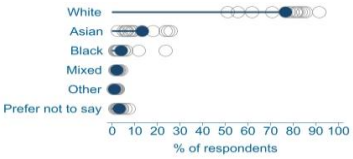
Note: This is the sex assigned at birth. For births registered in the UK, this is either male or female. However, some other countries may include 'intersex' as an option. We also ask if registrants gender identity is different from the sex they were assigned at birth. Gender identity may be the same as the assigned sex, but it may be different. Registrants may identify as the opposite gender to their assigned sex, may identify with neither, or with a self-described gender identity.

Disability	Physiotherapists Count	%	All professions Count	%
Not recorded	20	*0*	50	*0*
Recorded	50,275	*100*	182,340	*100*
No	47,195	*94*	167,045	*92*
Yes	1,960	*4*	9,760	*5*
Prefer not to say	1,120	*2*	5,535	*3*
	50,275	*100*	182,340	*100*

Question asked: **Do you consider yourself to have a disability or to be a disabled person?**

Accompanying note in portal: In the UK, a disability is defined as "a physical or mental impairment which has a substantial and long-term* adverse effect on a person's ability to carry out normal day-to-day activities" You may have none, one, or more conditions that you believe are covered by this definition. Please answer how you feel this definiton applies to you. (*long-term means that the impact has lasted, or is expected to last, for 12 months or more)

Ethnicity	Physiotherapists Count	%	All professions Count	%
Not recorded	15	*0*	35	*0*
Recorded	50,275	*100*	182,360	*100*
White	38,495	*77*	138,645	*76*
Asian	6,715	*13*	21,015	*12*
Black	2,025	*4*	9,905	*5*
Mixed	990	*2*	3,955	*2*
Other	520	*1*	2,650	*1*
Prefer not to say	1,530	*3*	6,190	*3*
	50,275	*100*	182,360	*100*

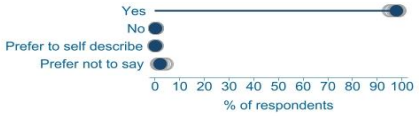


Question asked: **Which of the following best describes your ethnic origin? Ethnicity is defined as including colour, ethnic or national origin, or nationality. Please choose whichever answer best reflects how you think of yourself.**

Portal category options:
White
Asian or Asian British
Black, African, Caribbean or Black British
Mixed or multiple ethnic groups
Other ethnic group
Prefer not to say

Note: The categories presented here are the high level categories collected by HCPC. Respondents are also asked for a lower level category (18 options) based on their high level response.

Gender Reassignment	Physiotherapists Count	%	All professions Count	%
Not recorded	80	*0*	255	*0*
Recorded	50,215	*100*	182,135	*100*
Yes	49,070	*98*	177,005	*97*
No	80	*0*	415	*0*
Prefer to self-describe	20	*0*	180	*0*
Prefer not to say	1,045	*2*	4,535	*2*
	50,215	*100*	182,135	*100*



Question asked: **Is the gender you identify with the same as your sex registered at birth?**

Accompanying note in portal: Your gender identity may be the same as your assigned sex, but it may be different. You may identify as the opposite gender to your assigned sex, you may identify with neither, or with a self-described gender identity.