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Friday 16th April 2021





Twitter: @physioResSoc

Website: <https://prs.csp.org.uk>

Email: physiotherapyresearchsociety@gmail.com

**2021 conference held online via Microsoft Teams, hosted by
Keele University, Keele, Staffordshire, ST5 5BG**

Note from the Chair-Elect.

Ali Aries



On behalf of the Physiotherapy Research Committee (PRS) I would like to welcome you to the 2021 PRS conference, which is being held for the first time online.

We have had a busy year as a committee. We have appointed some new committee members and are now a very diverse, enthusiastic committee with representation internationally.

We have lots of plans for how we can better support the researchers of the future. Do keep an eye on our Twitter feed and PRS website and also join us for the annual general meeting if you are a member of the PRS.

In the meantime, sit back and enjoy what I hope will be an inspiring, motivational day.

I would like to take this opportunity to thank our sponsors, keynote speakers and presenters for the conference, without whom today would not have been possible. A huge thank you is also necessary for the fabulous PRS committee members who have worked so hard over the last year:

Caroline Belchamber, Alex Benham, Caroline Coulthard, Annegret Hagenberg, Sam Harrison, Nathan Hutting, Gemma Kelly, Michael Mansfield, Jenni Naisby, Wajida Perveen, Jayanti Rai, Sam Stuart and Lianne Wood.

Ali

PRS CONFERENCE LINKS FOR THE ONLINE SESSIONS:

Please go straight to this first link: <https://tinyurl.com/MS-Teams-Live---MAIN-ROOM>

MAIN PRS CONFERENCE SESSION LINK (via MS TEAMS Live) – This will be used for the keynote speaker presentations, general/Neuro/CVR oral presentations and the rapid 5 poster presentations (A/A): <https://tinyurl.com/MS-Teams-Live---MAIN-ROOM>

MS TEAMS Live – ROOM 2: <https://tinyurl.com/MS-Teams-Live--ROOM-2>

Presentations here will involve musculoskeletal (MSK) topics:

[10.00-10.50: Papers 1, 2, and 3]

[13.00-13.55: Papers 4, 5 and 6]

ILLUSTRATOR - watch how the day evolves through the eyes of the talented illustrator Berwyn Mure at: <https://picarto.tv/bmure/PRSconference>

SPONSOR PRESENTATIONS AND NETWORKING:

Biosense break out room [Available from 12.15-1.00pm] at: <https://tinyurl.com/Sponsor-Biosense-breakout-room>

Output Sports breakout room [Available from 12.15-1.00pm] at: <https://tinyurl.com/PRS-sponsor-Output-Sports-room>

NETWORKING ROOMS FOR COFFEE/LUNCHBREAKS (available to all throughout the day):

General (MS Team Breakout room A): <https://tinyurl.com/PRS-General-breakout-room> **[NB From 11.55-12.15 the PRS AGM will run here, all members of PRS are welcome]**

MSK specific breakout room (MS Team Breakout room B): <https://tinyurl.com/PRS--MSK-Breakout-Room-B>

Neuro specific breakout room (MS Team Breakout room C): <https://tinyurl.com/PRS-Neuro-Breakout-room-C>

CVR specific breakout room (MS Team Breakout room D): <https://tinyurl.com/PRS-CVR-Breakout-room-D>

Extra networking room (MS Team Breakout room E): <https://tinyurl.com/PRS-extra-networking-room-E>

Extra networking room (MS Team Breakout room F): <https://tinyurl.com/PRS-Extra-networking-room-F>

Extra networking room (MS Team Breakout room G): <https://tinyurl.com/PRS-Extra-networking-room-G>

These separate, extra rooms have been set up so further networking and collaborative discussions can take place if you wish to use them. You might perhaps meet someone in the general/MSK/Neuro/CVR networking rooms and want to have a more personal conversation with them. You can take this to one of these other networking rooms.

We would like to thank the companies whose sponsorship has helped enable us to run the 2021 online PRS conference.

Particular thanks go to our two main sponsors. Please read about these companies on the following two pages and do, please, visit them at lunchtime in the breakout rooms to find out more:

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Our thanks also go to the companies who have generously donated prizes too:

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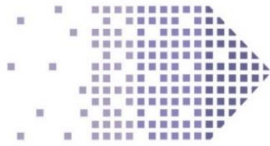
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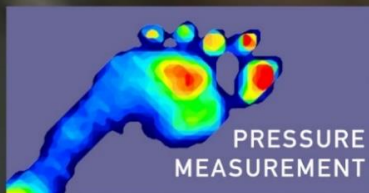


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PRS INTRO

INTRODUCTORY SUMMARY

WHO ARE OUTPUT SPORTS?

We are an interdisciplinary team of researchers in sports-science, physio biomechanics and data-science driven to bring a whole new level of efficiency, practicality and portability to off-field athlete performance optimisation. After 8 years of research, our first products were launched in Q1 2020, have now been deployed across Europe and the USA across the pro, university and clinics and hospital sectors.

OUR COMMUNITY



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"Output technology is key in our process of creating individualized workouts for not only pro/college athletes, but youth athletes too!"

Lester Spellman

CONTACT

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Time	PRS CONFERENCE 2021 PROGRAMME – Friday 16 th April 2021
08.15-08.45	<p>Networking (in the networking breakout rooms – see page 4 for all links, but main link- Room A - PRS General breakout room below)</p> <p>PRIOR TO CONFERENCE STARTING YOU CAN VISIT: General (MS Team Breakout room A): https://tinyurl.com/PRS-General-breakout-room</p> <p>MAIN PRS CONFERENCE SESSION LINK (via MS TEAMS Live): https://tinyurl.com/MS-Teams-Live---MAIN-ROOM</p>
08.45-09.00	<p>IN MAIN MS Team LIVE link: https://tinyurl.com/MS-Teams-Live---MAIN-ROOM</p> <p>Opening Introductions: Chair-Elect Dr Ali Aries</p>
09.00-9.45	<p>SESSION CHAIRS: Ali Aries & Sam Stuart</p> <p>IN MAIN MS Team LIVE link: https://tinyurl.com/MS-Teams-Live---MAIN-ROOM</p> <p>Keynote Speaker 1</p> <p>Including Q&A</p> <p>Dr Lesley Thompson MBE</p> <p><i>Twists and turns</i></p> <p>My own career has been punctuated by a number of forks in the road although looking back all were eventually positive. From a research start I worked for a funder and now work for a multinational. Through telling my story, I hope to provide a pause for thought and the opportunity for you to consider your motivations, passions and reflect on a very different career path.</p>
9.45-10.00	COMFORT BREAK

10.00	<p>SESSION CHAIRS: Jayanti Rai & Caroline Coulthard</p> <p>Free paper session 1 (MSK) in MS Teams Live room 2: https://tinyurl.com/MS-Teams-Live--ROOM-2</p> <p>Paper 1: Laiba Naeem – 10.00 Comparative Study of Cervical Traction versus Positional Pain Release Phenomenon in the Management of Non-Specific Neck Pain: A Randomised Clinical Trial</p> <p>Paper 2: Pauline May – 10.15 Rehabilitation following proximal humeral fracture in the UK National Health Service: A survey of publicly facing information</p> <p>Paper 3: Tahreem Anwar – 10.30 Comparison of effects of dry needling with conventional physiotherapy treatment in knee osteoarthritis patients for pain management and improving functional ability</p> <p>Further questions/comments- 10.45-10.50</p>	<p>SESSION CHAIRS: Caroline Belchamber & Sam Stuart</p> <p>Free paper session 2 (General/Neuro/CVR) in MAIN MS Team LIVE link: https://tinyurl.com/MS-Teams-Live---MAIN-ROOM</p> <p>Paper 7: Nicola Parker – 10.00 Physiotherapists' perceptions of Continuing Professional Development (CPD)</p> <p>Paper 8: Alison Aries – 10.15 A new non-medical Clinical Academic role informed by clinicians' views and perceived barriers to research: exploratory study for service development</p> <p>Paper 9: Rida Wahba – 10.30 Do neurological physiotherapists consider executive dysfunctions post-stroke: A UK survey</p> <p>Further questions/comments- 10.45-10.50</p>
10.50-11.15	COFFEE BREAK AND NETWORKING (see links to breakout rooms on page 4 for networking)	
11.15-11.55	<p>SESSION CHAIRS: Caroline Belchamber & Wajida Perveen</p> <p>IN MAIN MS Team LIVE link: https://tinyurl.com/MS-Teams-Live---MAIN-ROOM</p> <p>Rapid 5 poster presentations</p> <p>Poster 1: Umer Ilyas – 11.15 Physical Therapy Students' Attitudes towards Older People and Willingness to Consider Career in Geriatric Physical Therapy</p> <p>Poster 2: Laura Hemmings – 11.25 Physiotherapist and Healthcare Professionals' Perceptions of Treating Patients with Mental Health Illness: A Systematic Review</p> <p>Poster 3: Mohammad Darabseh – 11.35 Does Virtual Reality Physiotherapy Interventions Change Cardiopulmonary Function and Breathing-Control in Cystic Fibrosis? A Systematic Review</p> <p>Poster 4: Mohammad Darabseh – 11.45 Impact of Vaping and Smoking on Maximum Respiratory Pressures and Respiratory Function</p> <p>Further questions/comments – 11.55-12.00</p>	

12.00-12.15	<p>In MS Team Breakout room, A - General PRS Breakout room: https://tinyurl.com/PRS-General-breakout-room</p> <p>Physiotherapy Research Society AGM – all PRS members welcome!</p>	
12.15-13.00	<p>LUNCH BREAK AND NETWORKING (see links to breakout rooms on page 4 for networking)</p> <p>Please visit our sponsors:</p> <p>Biosense break out room [Available from 12.15-1.00pm]: https://tinyurl.com/Sponsor-Biosense-breakout-room</p> <p>Output Sports break out room [Available from 12.15-1.00pm]: https://tinyurl.com/PRS-sponsor-Output-Sports-room</p>	
	<p>MS Teams Live Room 2 – 5 MINUTE RECORDINGS OF FREE PAPER SESSION 2 will be shown</p>	<p>IN MAIN MS Team LIVE link – 5 MINUTE RECORDINGS OF FREE PAPER SESSION 1 will be shown</p>

13.00-13.55	<p>SESSION CHAIRS: Jayanti Rai & Caroline Coulthard</p> <p>Free paper session 3 (MSK) in MS Teams Live room 2:</p> <p>https://tinyurl.com/MS-Teams-Live--ROOM-2</p> <p>Paper 4: Philip Bright – 13.00 Online Community of Knee-patients Requiring Arthroplasty</p> <p>Paper 5: Sophie Gilhooly – 13.15 An exploration of physiotherapy telephone services and the impact on patient and service outcomes: a narrative review</p> <p>Paper 6: Anthony Gilbert– 13.30 What factors influence patient preference for the use of communication technology consultations in orthopaedic rehabilitation? A qualitative investigation</p> <p>Further questions/comments- 13.45 – 13.55</p>	<p>SESSION CHAIRS: Sam Stuart & Annegret Hagenberg</p> <p>Free paper session 4 (General/Neuro/CVR)</p> <p>IN MAIN MS Team LIVE link: https://tinyurl.com/MS-Teams-Live--MAIN-ROOM</p> <p>Paper 10: Gemma Stanford – 13.00 Investigating outcome measures for physiotherapy trials of airway clearance in adults with cystic fibrosis (CF)</p> <p>Paper 11: Karen Hambly – 13.15 Exercise participation in people with antiphospholipid syndrome: Associations with exercise self-efficacy and illness perception</p> <p>Further questions/comments- 13.30-13.45</p>
COMFORT BREAK/SET UP		
14.00-14.45	<p>IN MAIN MS Team LIVE link: https://tinyurl.com/MS-Teams-Live--MAIN-ROOM</p> <p>SESSION CHAIRS: Ali Aries & Jayanti Rai</p> <p style="text-align: center;">Keynote Speaker 2</p> <p style="text-align: center;">Including Q&A</p> <p style="text-align: center;">Dr Caroline Alexander</p> <p style="text-align: center;"><i>Integrating research into clinical practice: how can we achieve this?</i></p> <p>As a profession, we have struggled to create clinical academic career structures however, I will talk about how I have been carving out a career mixing clinical and research activity sitting within a healthcare organisation. I hope that this will give you ideas about how to do the same or support others to mix the two. Clinical academics bring benefits for the patients, organisation, departments as well as ourselves. Finally, I'll talk about how we have structured the support of our clinicians doing research at Imperial College Healthcare NHS Trust with the aim of sparking your own ideas of how this can be developed where you work.</p>	

14.45-15.30	AFTERNOON BREAK AND NETWORKING (see links to breakout rooms on page 4 for networking)	
	MS Teams Live Room 2 – 5 MINUTE RECORDINGS OF FREE PAPER SESSION 4 will be shown	Main MS Team Live link – 5 MINUTE RECORDINGS OF FREE PAPER SESSION 3 will be shown
15.30-16.15	<p>SESSION CHAIRS: Ali Aries & Caroline Coulthard https://tinyurl.com/MS-Teams-Live---MAIN-ROOM</p> <p style="text-align: center;">Keynote Speaker 3</p> <p style="text-align: center;">Including Q&A</p> <p style="text-align: center;">Dr Andrew Bateman</p> <p style="text-align: center;"><i>Research routes to patient benefit: Expect Diversions along the way!</i></p> <p>This lecture will include a motivational message for all conference participants! I will help you think about creating your own pathway through the research jungle that leads to your vision for patient benefit. During this interactive presentation I will reflect on my own research journey, provide some analyses of current funding streams and we will specifically explore opportunities available through the National Institute Health Research. Make sure your phones/tablets/laptops are charged, so you can take part in the fun polling activities and tweets! Sign up to twitter (if you haven't already) for further material related to this talk.</p>	
16.15-16.45	Prize Distribution, conference evaluation and close https://tinyurl.com/MS-Teams-Live---MAIN-ROOM	

KEYNOTE SPEAKERS

Dr. Lesley Thompson MBE



Dr Lesley Thompson joined Elsevier in 2016 as Director Academic & Government Strategic Alliance in the UK. At Elsevier she is responsible for building strong collaborative partnerships with the UK Research Base.

Prior to joining Elsevier, Lesley worked for 26 years at the Engineering and Physical Sciences Research Council, EPSRC, the largest of the UK's 7 Research Councils. In 2006 she was appointed Research Director, responsible for the strategy and delivery of the scientific programme, with an annual budget of £800 M. She drove the quality of the research portfolio as well as fostering the collaboration with industry. EPSRC's collaboration with industry grew from 12 to 54% from 1994 to 2015 while the international research standing grew ensuring the portfolio delivered Excellence with Impact. During her time in EPSRC, Lesley introduced a number of innovations including; Ideas Factories, designed to encourage radical thinking with funding available to enact research following a sandpit in a research area; Discipline Hopping enabling academics to take time out in another discipline and cohort based doctoral training growing the investment of 2 centres in 2001 to 115 centres in 2014.

She has always championed early career researchers, interdisciplinary research and diversity. She is a former member of the Royal Society Diversity group, a member of Keele University Council and Chair of the Oxfordshire Innovation Board. In January 2016 was awarded an MBE for services to research. Lesley has a PhD in Biology from the University of Essex and is married with 2 children.

Twists and turns

My own career has been punctuated by a number of forks in the road although looking back all were eventually positive. From a research start I worked for a funder and now work for a multinational. Through telling my story, I hope to provide a pause for thought and the opportunity for you to consider your motivations, passions and reflect on a very different career path.

Dr. Caroline Alexander



Caroline Alexander is the Lead Clinical Academic for Therapies at Imperial College Healthcare NHS Trust and Adjunct Reader. She has a Motor Control Laboratory situated in the Physiotherapy Department of Imperial College Healthcare NHS Trust. She is also a member of the Human Performance group in the Department of Surgery and Cancer led by Alison McGregor (Professor of Musculoskeletal Biodynamics, Surgery & Cancer).

She received her Physiotherapy Professional Qualification in 1987 from Guy's Hospital School of Physiotherapy, her MSc in Advanced Physiotherapy and PhD in Physiology from University College London in 1994 and 2002 respectively. She has held a position as a clinical specialist and researcher within the Physiotherapy Department of Imperial College Healthcare NHS Trust since 2003.

Her research interests include investigation of the cortical and reflex control of movement using transcranial magnetic stimulation and electrical stimulation of peripheral nerves. She is particularly interested in the control of movement in healthy people and in people with musculoskeletal problems such as Joint Hypermobility Syndrome and shoulder instability.

She is a member of the Musculoskeletal Association of Chartered Physiotherapists, the Health and Care Professions Council, the Chartered Society of Physiotherapy, the Physiological Society and the Society for Neuroscience, and is the Treasurer of the London hub of the Council for Allied Health Professional Research. She is also a Physiotherapy Advocate for the National Institute of Health Research. The Advocates are a cohort of passionate and proactive researchers working both individually and as a group to act as ambassadors for health research careers, promoting the NIHR training and career opportunities and supporting and advocating for non-medical professions and for individuals who wish to begin or continue a research career. See <https://www.nihr.ac.uk/our-faculty/trainees/support-and-resources-for-trainees/support-for-trainees-in-nihr-infrastructure/training-advocates/>

She is an NIHR mentor for non-medical clinical academics and supervises BSc, MSc, MRes and PhD projects undertaken at Imperial College and other universities nationally.

Integrating research into clinical practice: how can we achieve this?

As a profession, we have struggled to create clinical academic career structures however, I will talk about how I have been carving out a career mixing clinical and research activity sitting within a healthcare organisation. I hope that this will give you ideas about how to do the same or support others to mix the two. Clinical academics bring benefits for the patients, organisation, departments as well as ourselves. Finally, I'll talk about how we have structured the support of our clinicians doing research at Imperial College Healthcare NHS Trust with the aim of sparking your own ideas of how this can be developed where you work. See Twitter [@CMarthaAlex](#) for further updates.

Dr. Andrew Bateman



Andrew has worked in research and clinical rehabilitation since 1990, the year he qualified as a Chartered Physiotherapist (East London). He completed a PhD in Neuropsychology in 1997 (Birmingham). He led research in East London for a few years before moving to an NHS management role - where he led the Oliver Zangwill Centre for Neuropsychological Rehabilitation (Ely, UK) 2002-19. He is interested in a wide range of topics; current projects include helping clinical teams to develop their research strategy, access to sport after brain injury, lobbying for policy changes to support rehab, executive functions assessment and rehab, assistive technology, social media in rehabilitation, & occasionally indulging himself in the world of Rasch Analyses and rehab outcome data analysis. He is now a Reader at the School of Health and Social Care and has taken up the post of Director of NIHR Research Design Service East of England. He is also an Affiliated Lecturer in Dept of Psychiatry (University of Cambridge), Past President of The Society for Research in Rehabilitation; and Chair of the United Kingdom Acquired Brain Injury Forum. See twitter [@DrAndrewBateman](https://twitter.com/DrAndrewBateman) for news.

Research routes to patient benefit: Expect Diversions along the way!

This lecture will include a motivational message for all conference participants! I will help you think about creating your own pathway through the research jungle that leads to your vision for patient benefit. During this interactive presentation I will reflect on my own research journey, provide some analyses of current funding streams and we will specifically explore opportunities available through the National Institute Health Research. Make sure your phones/tablets/laptops are charged, so you can take part in the fun polling activities and tweets! Sign up to twitter (if you haven't already) for further material related to this talk.

ABSTRACTS FOR THE PRS CONFERENCE 16th April 2021**Paper 1 – Laiba Naeem****Title: Comparative Study of Cervical Traction versus Positional Pain Release Phenomenon in the Management of Non Specific Neck Pain: A Randomised Clinical Trial.**

Introduction: Neck pain is one of the commonest musculoskeletal problem and major cause of work disability especially women. 70% of the population worldwide experiences the problem of neck pain at some points in their lifetime. Nonspecific neck pain can be treated by many manual therapy techniques like cervical traction and cervical compression.

This study was designed to find out the effective treatment technique for non-specific neck pain.

Methodology: It was single blind, parallel assignment, single Centre, randomized control trial in which 42 patients were recruited using non probability convenient sampling. The study was conducted after ethical approval from November 2017 to April 2018. Patients with Age 25-55 years of both Genders, Presenting with complaint of non-specific neck pain and Limitation of Cervical ROM were included while Patients with red flag sign, cervical injury, advanced degenerative changes and altered mental status were excluded. The patients were randomly divided in two groups A and B. Group A was given cervical traction and Group B was given positional pain release phenomenon (PRPs). Both groups received neck isometrics and moist heat as baseline treatment. Pre and post treatment readings were observed for pain on VAS, ROM on goniometer and disability in functions on NDI.

Results: VAS showed more significant results for cervical traction with p value less than 0.05. Whereas NDI showed more significant results for Pain Release Phenomenon with p value less than 0.05. The results for range of motion were equal for both groups.

Conclusion: It is concluded from the study that cervical traction in patients with non-specific neck pain is a significant treatment outcome on Visual Analogue Scale (VAS). When scoring on Neck Disability Index (NDI), Pain Release Phenomenon showed more significant results as compare to cervical traction.

Clinical Trial No: IRCT20201031049207N3

Impact: This small scale study may be replicated into larger scale study conducted on multiple centres and larger study population, with some funding opportunity to generate more impactful evidence. More techniques may be considered to be investigated for the treatment of the condition.

References:

1. Groeneweg R, Kropman H, Leopold H, van Assen L, Mulder J, van Tulder MW, et al. The effectiveness and cost-evaluation of manual therapy and physical therapy in patients with sub-acute and chronic non specific neck pain. Rationale and design of a Randomized Controlled Trial (RCT). BMC musculoskeletal disorders. 2010;11(1):1.
2. Sihawong R, Janwantanakul P, Sitthipornvorakul E, Pensri P. Exercise therapy for office workers with nonspecific neck pain: a systematic review. Journal of manipulative and physiological therapeutics. 2011;34(1):62-71.
3. Huisman PA, Speksnijder CM, De Wijer A. The effect of thoracic spine manipulation on pain and disability in patients with non-specific neck pain: a systematic review. Disability and rehabilitation. 2013;35(20):1677-85.
4. Driessen MT, Lin C-WC, van Tulder MW. Cost-effectiveness of conservative treatments for neck pain: a systematic review on economic evaluations. European Spine Journal. 2012;21(8):1441-50.
5. Cai C, Ming G, Ng LY. Development of a clinical prediction rule to identify patients with neck pain who are likely to benefit from home-based mechanical cervical traction. Eur Spine J. 2011;20:912-22.

Table 1

Paired Samples Statistics

Treatment Group			Mean	N	Std. Deviation	Std. Error Mean
Cervical Traction	Pair 1	VAS Pre Treat	5.0952	21	.62488	.13636
		VAS Post Treat	3.0476	21	.58959	.12866
Pain Release Phenomena	Pair 1	VAS Pre Treat	4.8571	21	.72703	.15865
		VAS Post Treat	2.8095	21	.51177	.11168

Paper 2 – Pauline May

Title: Rehabilitation following proximal humeral fracture in the UK National Health Service: A survey of publicly facing information

Introduction: Proximal humeral fractures (PHF) are a common injury in the older population but there is limited research evaluating rehabilitation following PHF. The aim of this study was to understand current National Health Service (NHS) practice for rehabilitation following PHF as a platform for conducting future research.

Methods: Two reviewers independently undertook electronic searches for publicly available information sheets (PIS) from websites of NHS Trusts that included detail about rehabilitation following PHF, for example, duration of immobilisation. One reviewer extracted data and a second reviewer verified this.

Results: Seventeen PIS from 17 different NHS trusts were identified. All provided some information on the method of immobilisation but only six provided guidance on duration of immobilisation with the median time being 2 weeks (range 0–6). The median time to commencement of passive exercise was 2 weeks (range 0–4) and 9 weeks (range 6–12) for active exercise. Only one PIS reported on the time for commencement of resisted exercises and this was reported as 6 weeks. The median time recommended return to work was 7.5 weeks (range 6–12).

Conclusion: This study found limited publicly available information for rehabilitation following PHF in the NHS but offers some insight into current approaches. Our results will facilitate development of relevant information for patients and evaluation of rehabilitation strategies in future research.

Impact: This study has informed understanding of rehabilitation following PHF and highlighted the limited and variable information available to patients. Variability of information and approaches to rehabilitation risks not achieving optimal clinical outcomes. As PHF is common and burdensome, there is a need for high-quality research to inform optimal rehabilitation approaches.

References:

Handoll, H. H. G., & Brorson, S. (2015). Interventions for treating proximal humeral fractures in adults. *Cochrane Database of Systematic Reviews*, 11, CD000434.
<https://doi.org/10.1002/14651858.CD000434.pub4>

Paper 3 – Tahreem Anwar

Title: Comparison of effects of dry needling with conventional physiotherapy treatment in knee osteoarthritis patients for pain management and improving functional ability.

Introduction: Knee osteoarthritis is a common condition which causes pain, functional limitation, disability and progressive deterioration of joint. Different non pharmacological treatments preferred over pharmacological treatments due to less side effects. Conventional physical therapy and dry needling is one of them. The objective of our study was to compare the effectiveness of dry needling with conventional physical therapy in knee osteoarthritis patients and identify the more effective treatment modality between them.

Methods: It was a quasi-experimental study of four month duration. Purposive sampling technique was used to collect data of 30 patients at Syed medical complex and Amin Welfare & Teaching Hospital Sialkot, after ethical approval. There was a predetermined inclusion and exclusion criteria for the patients. They were randomly allocated in to two groups (A and B). Group A received conventional physical therapy treatment and group B received dry needling. Both groups received moist heat as a baseline. Treatment duration was of three weeks, 2 sessions per week, for both groups.

This study was approved by Riphah Ethics Committee wide Ref

No. RCR & AHS/REC MS- OMPT/027 dated 15-10-2018.

Results: Both dry needling and conventional physical therapy presented significant outcomes to reduce pain and functional limitation. Pre-treatment mean \pm SD of WOMAC score in group A was 50.07 \pm 11.835 and in group B was 45.87 + 12.512. Post treatment mean + SD of WOMAC score in group A was 38.87 +13.731 and in group B 24.33 \pm 8.926. Score of WOMAC scale and numeric rating scale is improved in both groups but B group B showed significant improvement as compared to group A.

Conclusion: The results of this study concluded that both conventional physical therapy and dry needling are effective to manage pain and functional limitation in knee osteoarthritis patients. But dry needling proved more effective as compare to conventional physical therapy.

Impact: Dry Needling is a newly used intervention for the management of pain and improvement of functional outcomes in patients with Knee Osteoarthritis in Pakistan. Further studies with larger sample size and blind study designs may be carried out in multicentre studies to produce more generalizable results.

References:

1. Dommerholt J. Dry needling—peripheral and central considerations. *Journal of Manual & Manipulative Therapy*. 2011;19(4):223-7.
2. Corbett M, Rice S, Madurasinghe V, Slack R, Fayter D, Harden M, et al. Acupuncture and other physical treatments for the relief of pain due to osteoarthritis of the knee: network meta-analysis. *Osteoarthritis and cartilage*. 2013;21(9):1290-8.
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Table No.1 Paired Sample T Test between the Groups.

Paired Samples Test										
Groups			Paired Differences					t	df	Sig. (2-tailed)
			Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
						Lower	Upper			
A	Pair 1	Pre Treatment WOMAC score-Post treatment WOMAC score	11.200	7.849	2.026	6.854	15.546	5.6	14	.000
B	Pair 1	Pre Treatment WOMAC score-Post Treatment WOMAC score	21.533	10.941	2.825	15.5	27.5	7.6	14	.000

Paper 4 – Dr Philip Bright

Online Community of Knee-patients Requiring Arthroplasty

Introduction: There is suggestion that use of home-based exercise and patient-engagement with knee-specific online support tools may be suitable to help with knee pain sufferers. This proposed Research for Patient Benefit study aims to see if it is possible for patients to report their progress and experiences via an online forum when engaging with a series of home-based knee exercises using bathroom scales. This is with a view to help patients improve their adoption of prehabilitation activities prior to total knee replacement surgery.

Methods: Using a feasibility design, knee replacement candidates would be recruited to undergo standard care complemented with bathroom scale-facilitated, home exercises and report their progress. Reporting would be undertaken using an online forum specifically created for the study. The self-reported outcomes would then be compared to measures taken from patients following standard care alone. Statistical comparison between the groups, using a recognised knee outcome measure, would be expected and thematic analysis of narrative commentary from the patients would be undertaken. Visual representation of individual patient data in the form of graphs would be undertaken for determining statistical significance in progress for each participant.

Results: Patient and public involvement are underway to inform study development. Results would include reporting of patient experience in engaging with prehabilitation exercises, derived from posts added to an online Padlet forum (see Figure1). Statistical significance for single subjects would be explored using a statistical process control. The WOMAC outcome measure would be compared between the two study groups. The analytical strategy has been reported as feasible in previous studies.

Conclusion: Patients can potentially engage with an online forum for reporting progress when undertaking exercise programs. The importance of individualized visual data to patients and the role of forums in monitoring patients' progress in symptomatic knee pain populations need further consideration.

Impact: Patient self-monitoring and follow-up is lacking due to high demand on out-patient services in the NHS and potential over-reliance on complex approaches. The scope to extend physical therapy support for reporting, monitoring and compliance to a domiciliary setting is warranted, particularly with regard to a cost-effective and accessible solution.

Paper 5: Sophie L. Gilhooly

Title: An exploration of physiotherapy telephone services and the impact on patient and service outcomes: a narrative review.

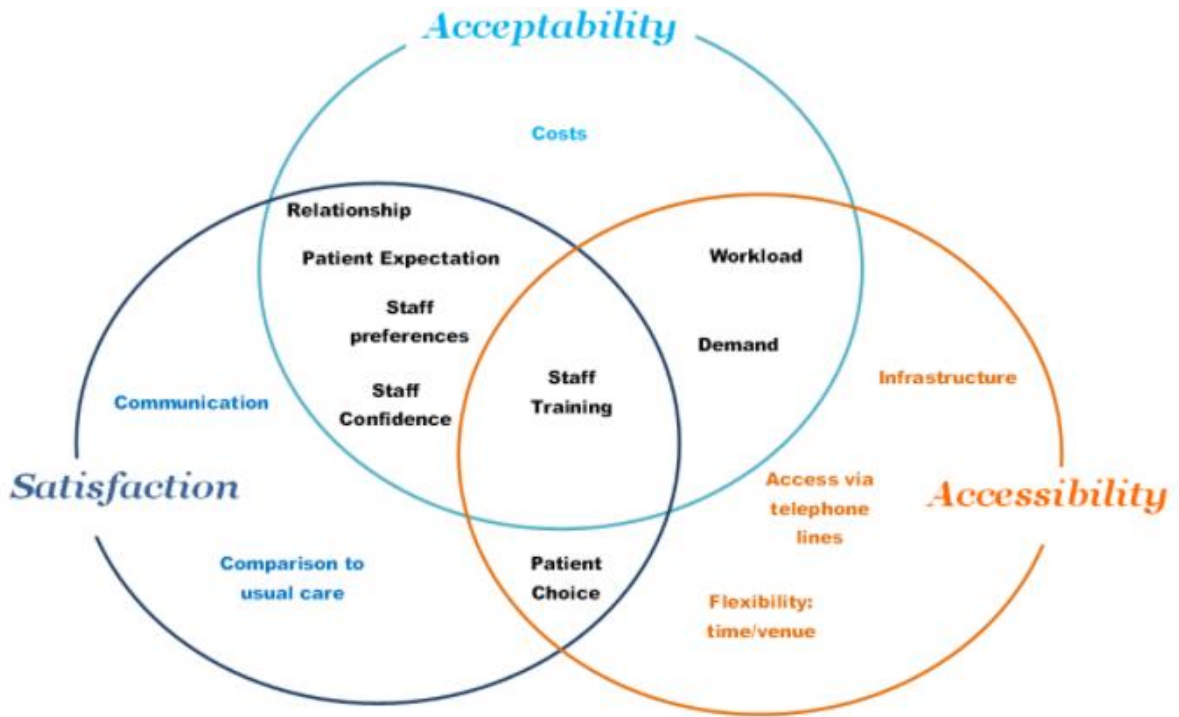
Introduction: Demand for healthcare is continuing to rise with an increasingly complex, ageing population. There are growing demands for services to provide easier and faster information to patients regarding their health and the need for services to adapt to advances in technology has never been more prominent. Telephone services are well placed technical options which may be useful in managing demand and reducing waiting times. Despite existing throughout healthcare, there is a lack of consensus on the impact of telephone services: particularly regarding acceptability, accessibility and satisfaction. The central aim of this narrative review was to explore the evolution of telephone services and the impact of implementation on service and patient outcomes within the physiotherapy profession. **Methods:**

Electronic databases, MEDLINE, CINAHL and Pubmed were searched using basic and combination key terms without date restriction. Additional hand searches of references lists identified further appropriate articles and ensured saturation of the data.

Results: Physiotherapy is considered by many a hands-on profession and failure to meet this expectation appears to take precedent over quality of care. Staff with prior or greater experience view telephone services better and are more willing to engage. Interestingly no specific training requirements have been set to aid the development of staff in this new role. Telephone services can manage a modest proportion of patients purely via the telephone however care must be taken to avoid increases in consulting time and costs via mechanisms such as repeated consultations. Patient choice, satisfaction and access also impacts on acceptability of these services for patients and staff.

Conclusions: Telephone services are flexible, alternative options for patients and offer variation and skill development for staff. Despite this they appear to be less satisfactory than usual care. Further research into specific areas highlighted amongst this review will enable a better understanding of these mechanisms.

Impact: This review has highlighted multiple elements of telephone services that require intervention to optimise suitability for the physiotherapy profession. This review would be useful in the creation of a service evaluation tool to further investigate aspects of the service considered most influential for patients and staff.



Paper 6 – Dr Anthony Gilbert

Title: What factors influence patient preference for the use of communication technology consultations in orthopaedic rehabilitation? A qualitative investigation.

Introduction: The 2019 NHS Long Term Plan envisions that the NHS 'redesign services so that over the next five years patients will be able to avoid up to a third of face-to-face outpatient visits'. Despite these government targets, the use of communication technology for consultations remains low. Our previous research identified that the change in 'work' required of patients to operationalise the technologies may influence their preference (and choice) on whether or not to use them in clinical practice. The purpose of this research was to identify the factors that influence patient preference for the use of communication technology consultations in an orthopaedic rehabilitation setting.

Methods: A qualitative study, using semi-structured interviews, was conducted. Interviews were audio recorded and transcribed verbatim. An abductive analysis was performed to identify a range of factors that could potentially influence preference.

Results: Twenty-two patients [12 female, average age 46] and 22 clinicians [14 female, average age 35] participated in interviews. The average interview length was 48 minutes. Key factors that influence preference include: 1) the patient situation (a) condition requiring care, (b) general health, (c) infrastructure, (d) competing priorities; 2) technology (a) availability, (b) suitability, (c) support requirements; 3) clinical care (a) clinician, (b) capacity of service; 4) the clinical encounter.

Conclusions: The factors that influence patient preference for the use of communication technology consultations in orthopaedic rehabilitation are multi-factorial. Preferences will differ between patients and may change dependent on the patient, technological and clinical situation. A thorough understanding of these factors will support the design of patient centred-care pathways utilising communication technology. Further research, utilising a deductive approach, may illuminate the weight of importance of these factors for patients.

Impact: This research presents a model explaining the factors that influence patient preference for the use of communication technology consultations in orthopaedic rehabilitation. Consideration of these factors by patients, clinicians, managers and policy makers may support successful implementation of pathways utilizing these technologies across a range of clinical settings.

Paper 7 – Nicola Parker

Title: Physiotherapists' perceptions of Continuing Professional Development (CPD)

Introduction: Despite being essential for HCPC registration, variability in CPD uptake was identified locally. Previous research did not explore personal opinions or experiences of CPD. This evaluation was undertaken to aid planning and delivery of an effective in-house CPD program for clinical staff.

Methods: A generic qualitative approach was taken using semi-structured interviews of 7 participants. Volunteers were selected from an initial questionnaire using their duration of qualified work and their CPD experiences to achieve the most data-rich purposeful sample. Thematic analysis was conducted.

Results: Three main themes were identified: (1) What is good CPD?; (2) Self-efficacy links with CPD and; (3) The relationship between CPD and career progression are indistinct. Participants felt that "good CPD" meant training relevant to physiotherapy clinical practice. Non-clinical activity and Advanced Practice skills were perceived to be detached from their perception of physiotherapy and not always considered as CPD. CPD was felt to be valuable where it reassured physiotherapists that their practice was appropriate. Self-efficacy was identified as a barrier and a driver, with a significant impact upon CPD choices; some participants feared that courses might reduce their clinical confidence; others felt they did not need development if they had sufficient self-belief in their current practice. A degree of resilience seemed required to engage in CPD activity.

Conclusions: Self-efficacy underpins successful CPD; recognition and promotion of this has potential to change the focus of CPD research and its implementation. Further qualitative studies are needed to understand the physiotherapists' feelings towards advanced practice and non-clinical skills. Greater clarity from employers, the CSP and higher education institutes to link CPD with career development is necessary.

Impact:

- Self-efficacy is required in CPD to promote critical thinking and integration of evidence into practice
- Possible barriers were identified around the development of advanced practice and non-clinical skills which may influence the future of our profession
- 'Best' versus 'better' practice to measure clinical success
- Links between best practice and self-efficacy

Main theme	Sub themes
1. What is good CPD?	Focus on clinical effectiveness Not all learning is CPD Establishing positive learning experiences
2. Self-efficacy links with CPD	Ability to confidently manage patients Resilience is required Confidence to analyse one's own practice
3. The relationship between CPD and career progression are indistinct	Perceptions of career development MSc study in career development

Paper 8 – Dr Alison Aries

Title: A new non-medical Clinical Academic role informed by clinicians' views and perceived barriers to research: exploratory study for service development

Introduction: Research is a core component of the Royal Wolverhampton Trust (RWT) culture. There is an awareness that it takes 17 years for research to be implemented into practice (Grant 2000). A relatively new initiative to facilitate implementation of research is the development of non-medical Clinical Academic posts, contributing to a research-rich environment (Wootton, 2016) driving evidence-based practice (DOH, 2012). Building upon a local survey undertaken to establish enablers, barriers and general attitudes towards research, clinicians' views and perceived barriers to research were explored to inform a new non-medical Clinical Academic role in the Trust.

Methods: Design: Exploratory study of clinicians' opinions. Sample: Allied Health Professionals (any grade), involved in neurological rehabilitation within the RWT. Focus groups were undertaken, audiotaped, transcribed and analysed using thematic analysis following the six stages described by Braun and Clarke (2006).

Results: Three focus groups (n=6, n=11 and n=9) were undertaken October–November 2019, enabling approximately 65% of neurological rehabilitation therapists (n=26) to express their opinions. Analysis of qualitative data confirms that clinicians are interested in undertaking research; however, significant barriers exist including resources (time, lack of access to relevant papers), lack of knowledge of the research process (ethics, consent), how to search for and critique literature (particularly statistics elements), and information technology skills. Suggestions were using journal clubs and critical appraised topic groups, as well as training, to facilitate knowledge.

Conclusions: Engagement of clinicians in the focus groups was good. Useful information was gained to inform the new non-medical Clinical Academic role in the Trust. Journal clubs, critical appraised topic groups and a bespoke training plan will be facilitated/developed as vehicles to drive learning and enhance staff knowledge, aiming to expedite neurological research and evidence-based practice in the Trust.

Impact: The planned initiatives to facilitate staff knowledge base, neurological research and evidence-based practice within the RWT have the potential to improve staff confidence relating to research and, more importantly, enhance care for neurological patients within the RWT.

Paper 9 –Rida Wahba

Title: Do neurological physiotherapists consider executive dysfunctions post-stroke: A UK survey

Introduction: People with stroke can experience deficits in executive functions (EF), such as working memory and attention. Such problems can affect stroke survivors' rehabilitation process, treatment outcomes and quality of life. Interventions, such as cardiorespiratory and resistance training, can improve EF in healthy older people but the effect on people with stroke is less clear. Cardiorespiratory and resistance training are commonly used in physiotherapy practice to address movement problems and tolerance for activity, but it is not known if physiotherapists are evaluating the impact of this training on EF. The aims of this study were to investigate physiotherapists', working in neurology: awareness of EF and its impact on rehabilitation; how they identify and use assessment findings on EF with their patients; and if they are evaluating the effect of cardiorespiratory and resistance training on EF.

Methods: Data was collected via an online cross-sectional survey that was circulated to neurological physiotherapist members (n=825) with the Association of Chartered Physiotherapists in Neurology (ACPIN) based on their expert knowledge in working with people who have had a stroke.

Results: Seventy-three participants answered the survey. EF deficits assessment varies between physiotherapists and depends on how they work with other team members. Preliminary analysis suggested that physiotherapists did not use standardised outcome measures to assess EF; nonetheless, they use occupational therapists' assessment data to help design treatment plans. Other physiotherapists did not assess EF and only observed patients' responses to instructions to identify any EF deficits. Finally, cardiorespiratory and resistance training were found to be the main interventions with stroke patients, but EF outcomes not measured.

Conclusions: Attention and working memory have clinical impact on functional recovery in stroke survivors and are important for physiotherapists to consider. Moreover, EF deficits were less considered compared to physical impairments in intervention programmes as treatment outcomes.

Physiotherapy helps stroke survivors to be physically independent which is important, but more importantly is helping them to be mentally independent. This can be done by examining the efficacy of cardiorespiratory and resistance training in improving executive dysfunctions after stroke and start assessing and considering executive functions in treatment plans.

Paper 10 – Gemma Stanford

Title: Investigating outcome measures for physiotherapy trials of airway clearance in adults with cystic fibrosis (CF)

Introduction – The best outcome measure (OM) for airway clearance (AC) in CF is unknown. Our NIHR funded RCT compares standard OMs (sputum weight, FEV1) to new OMs (electronic impedance tomography (EIT), lung clearance index (LCI), impulse oscillometry (IOS)) to determine the most effective measure of AC. We describe our ongoing trial, present baseline characteristics and OM reproducibility.

Methods – Subjects complete OMs of LCI, IOS and FEV1 then are randomised to either supervised AC or rest for 30 minutes. LCI, IOS and FEV1 are repeated straight afterwards. EIT, oxygen saturations and sputum are collected during rest/AC period. At a subsequent visit the OMs are completed with the other intervention. The research team are blinded to sequence allocation. Primary endpoint is difference in change in OMs pre- and post- AC/rest. Target sample 64, calculated with 80% power and significance of 5% for each OM.

Results – Recruitment to date (after 36m): 537 patients pre-screened, 2 enrolled, 50 completed (89% of target to date (TTD)). Completed subjects' demographics: 30male; median age 48yrs (IQR 17.5); 50% F508del/F508del; median FEV1 70%pred (IQR 42.5). Completed visits are 96% of TTD, but scheduled visits are 201% of TTD. Primary cause of cancellations is patient illness. Median visit length 209 minutes (IQR 50.5). LCI has the longest duration; ICCs of pre-intervention OMs are good between visits (table).

Conclusion – Completion of study visits is challenging, due to inclusion & exclusion criteria and requiring patient stability. Recruitment improved with enhanced communication and strategic overbooking. Trial closure due to the COVID-19 pandemic has inhibited completion of recruitment to date. The newer OMs of LCI, IOS and EIT are reproducible and feasible; however, the long duration of LCI may inhibit future use in this cohort. We believe this RCT is the first to evaluate these OMs for use in CF AC trials.

Impact: Identification of a robust outcome measure for AC effect is paramount for future scientific research and for the application of personalized therapy not only for CF but for other chest diseases. Being able to assess effect of AC interventions will help to optimize management and reduce healthcare utilisation.

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Figure:

Outcome Measure (n=50)	Pre-AC visit 1 median (IQR)	Pre-AC visit 2 median (IQR)	Intraclass Correlation Coefficient (ICC)	Median test time (IQR) (mins)
Forced Expiratory Volume (FEV1) (litres)	2.29 (1.2)	2.26 (1.3)	0.99	5 (4)
Lung Clearance Index (LCI)*	16.9 (7.0)	17.84 (8.59)	0.95	55 (27)
R5-R20 from Impulse Oscillometry (IOS)	0.08 (0.1)	0.09 (0.1)	0.94	6 (3)
Δ EELI from Electronic Impedance Tomography (EIT)	8733.55 (2193135)	6417.20 (2113548)	0.87	4 (2)
*n = 48 due to 2 participants only having 1 acceptable LCI test at visit 1				

Paper 11 – Karen Hambly

Title: Exercise participation in people with antiphospholipid syndrome: Associations with exercise self-efficacy and illness perception

Introduction: Antiphospholipid syndrome (APS) is a systemic autoimmune disease that is associated with increased cardiovascular risk. Exercise has been a cost-effective strategy in the management of other autoimmune conditions with significant physiological and psychological benefits. People with APS could derive substantial health benefits by increasing physical activity but an understanding of the factors that people perceive to be associated with exercise participation has not been elucidated in this population. The aim of this project was to evaluate the associations between exercise participation and exercise self-efficacy and illness perceptions.

Methods: Cross-sectional online survey, 268 participants (mean age 46.9 ± 11.0 years, 85% female) with antiphospholipid syndrome were recruited. Participants self-reported their frequency of exercising. The Exercise Self-Efficacy subscale of the Chronic Disease Self-Efficacy Scale and the Brief Illness Perception Questionnaire were used to measure exercise self-efficacy and illness perception respectively.

Results: Thirty-one percent of participants reported regular exercise three times a week or more. There were no significant differences in gender or age of participants between the regular exercisers and irregular/non-exercisers. The internal consistency of the Exercise Self-Efficacy Scale was high ($\alpha=0.86$). Regular exercisers had significantly higher levels of exercise self-efficacy, greater belief that their actions could make a difference to their APS outcome, lower perceived influence of APS on their life and lower expectations of severe symptoms as a result of APS compared with the irregular/non-exercisers.

Conclusions: This study clearly demonstrated that there are relationships between participation in regular exercise, components of illness perception and exercise self-efficacy. Research is needed to further examine and understand these relationships in order to improve illness outcomes for people with APS.

Impact: This research has developed into a project exploring service user current beliefs on exercise participation and their views and perspectives on interventions/strategies aimed at increasing exercise participation. This will provide a rationale for the development of clinical physiotherapy interventions/strategies to increase exercise participation for the benefit of people with APS.

RAPID 5 POSTER PRESENTATIONS

Poster 1 – Umer Ilyas

Title: Physical Therapy Students' Attitudes towards Older People and Willingness to Consider Career in Geriatric Physical Therapy.

Introduction: World is now experiencing a rapid increase in their elderly population. Which in turn demands skilled and experienced health care provider for elderly people. But there is deficiency of geriatrics specialized health care providers. Physical therapist as an integral part of health care team, have important role in older people care. The purpose of this study was to assess the attitude towards older people and their willingness to consider career in geriatrics physical therapy. Current study is relevant to today's world population situation.

Methods: It was a cross sectional survey. 239 Physical Therapy students of third and fourth year using non-probability convenience sampling technique were included. The response rate was 98%. UCLA Geriatrics Attitudes Scale was used. An additional question added to ask student's willingness to consider Geriatric Physical Therapy as a career. Study was approved by SCPT ethics committee wide Ref No: IRB-SCPT-DPT-110-2017dated 10-01-2017.

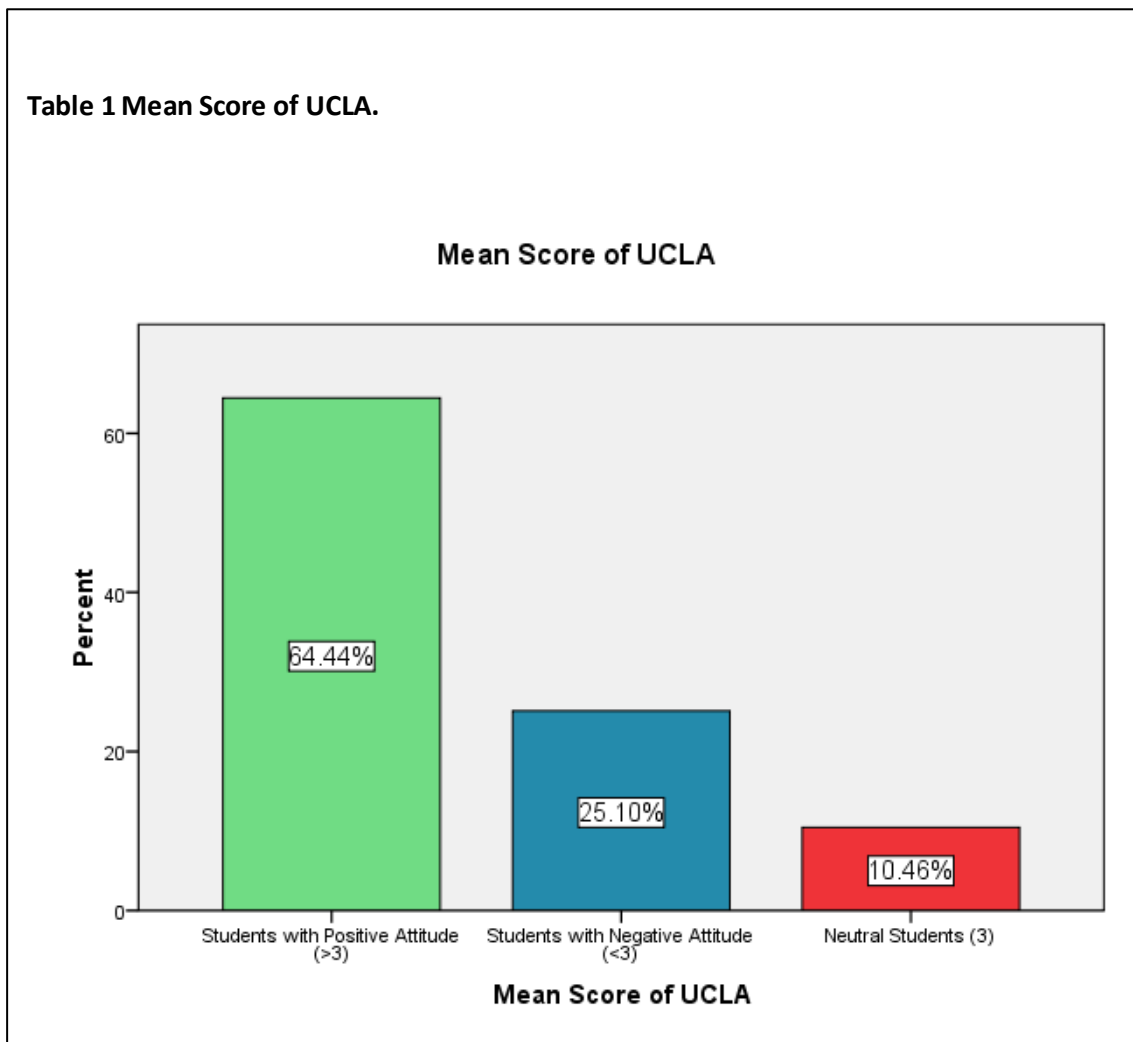
Results: Study sample consisted of 239 physical therapy students with 194 (81%) females and 45(19%) males. Majority of respondents (64.44%) showed positive attitude, mean UCLA attitude score (3.22 ± 0.346), while one fourth of students (25.1%) found with negative attitude and rest were neutral. Association of UCLA Geriatrics Attitude Scale with gender showed that female students 127(65.4%) had positive attitude, while males with positive attitude were 27 (60%). However, no significant difference existed ($p=2.43$). Middle class (58.5% respondents) showed more positive attitude towards elderly. In total 62.34% students showed their willingness in considering geriatrics as a career.

Conclusion: Majority of physical therapy students found with positive attitude towards elderly and almost equal proportion showed their willingness in considering geriatrics as a speciality in future career and majority of them belonged to Middle socioeconomic status. Male and female students presented no significant difference in their attitudes.

Impact: It is important to promote knowledge and positive attitude among students towards elderly. Geriatric physical therapy can be a good initiative as a specialized field for physical therapy. Negative attitude and lack of knowledge can impact quality of care and measures should be taken to address these issues.

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Poster 2 – Laura Hemmings

Title: Physiotherapist and Healthcare Professionals' Perceptions of Treating Patients with Mental Health Illness: A Systematic Review

Introduction: Service-users with severe and persistent mental illness (SPMI) are at increased risk of physical health co-morbidity, many of which require physiotherapeutic input. However, it is suggested that physiotherapists are unprepared for working with those with SPMI. Although mental health physiotherapy is a speciality in itself, the treatment of those with SPMI is not isolated to within this environment. With one in four people suffering from psychiatric illness and the risk of co-morbid physical health complaints such as pain, arthritis, respiratory disease multiplied for these patients, physiotherapists in all areas are likely to treat, with potential regularity, patients with mental health complaints and must therefore be competent in this.

This study aimed to explore physiotherapist attitudes to working with those with mental illness and explore barriers and facilitators to treating service users within this population.

Methods: AMED, Cinahl, Medline and Psychinfo were searched for papers published between 2009 and 2019, using the search terms '*physiotherapist or physical therapist AND perceptions or attitudes or opinions or experience or view or reflection or beliefs AND mental health or mental disorder or psychiatric illness*'.

Studies with specific focus on physiotherapists were limited therefore criteria for inclusion was expanded to include studies exploring perceptions of healthcare professionals and physiotherapy students (n=8). Thematic analysis identified the following themes; Strategies for Care [1], Regularity and Familiarity[2] and Stigma and the unknown [3].

Results: Studies identified a direct positive relationship between number of hours of education or experience in mental health and positive attitudes towards working with this population. Healthcare professionals believed they lacked time, creativity and adaptability to optimise care for those with psychiatric complaints.

Conclusions: Exploration of physiotherapist perceptions of working with service users with SPMI is identified. Training and experience of student physiotherapists must be improved and standardised to prepare them for working with patients with SPMI.

Impact: Access to physiotherapy for minority groups such as those with mental health illness is a current James Lind Alliance research priority. It is therefore important to understand factors impacting upon this access. This study identifies the importance of increased and standardised training and education for student and qualified physiotherapists.

Poster 3 – Mohammad Darabseh

Title: Does Virtual Reality Physiotherapy Interventions Change Cardiopulmonary Function and Breathing-Control in Cystic Fibrosis? A Systematic Review

Introduction: The main factors that limit participation in physiotherapy exercise interventions and airway clearance techniques (ACT) in both children and adolescents with cystic fibrosis are motivation and adherence. Virtual reality games are considered one of the newly developed techniques that are used in the exercise sessions for this population. But limited information is known about its effectiveness. Thus, this systematic review aims to evaluate, summarise and revise published literature about the effects of virtual reality exercise on cardiopulmonary function and the use of virtual reality games as a tool for ACT in cystic fibrosis population.

Method: A systematic review with quality assessment and narrative synthesis of relevant published literature was conducted. A systematic search was conducted using PEDro, MEDLINE, AMED, CINHAL Plus, and relevant associated keywords, from January 1970 to December 2020. Inclusion criteria for the studies were: virtual reality aerobic exercise or virtual reality breath-control exercise as part of the intervention. Studies that did not include either exercise testing, spirometry, motivation/adherence assessment, or breathing control exercises were excluded.

Results: In total, 63 citations were identified from the search, of which ten were included in this review. Overall, virtual reality exercise was found to improve cardiac function and increase adherence and motivation towards the exercise sessions in people with cystic fibrosis.

Conclusion: People with cystic fibrosis might benefit from virtual reality exercise as part of their intervention. However, further studies with larger sample size and wider range of disease severity need to be conducted in future.

Impact: This systematic review summarises the effects of virtual reality exercises on cardiopulmonary function and increased adherence for aerobic exercise and breath-control exercise in cystic fibrosis (CF). As reported in a previous study that interviewed physiotherapists regarding including virtual reality in their programmes, virtual reality helped to improve paediatrics motivation towards aerobic exercise, but it is still a challenge for therapists to choose the correct game for each specific case (Levac et al., 2012). Moreover, taken into consideration the current circumstances regarding the Corona-Virus pandemic (COVID-19), and for any potential unexpected circumstances, physiotherapists started to adapt their programmes remotely to continue delivering their programmes and to avoid deteriorations in different populations (Smits, Staal, & van Goor, 2020). Subsequently, this review might give an insight about the importance of further investigating this mode of physiotherapy service delivery in CF considering the limited number of studies.

References:

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Smits, M., Staal, J. B., & van Goor, H. (2020). Could Virtual Reality play a role in the rehabilitation after COVID-19 infection? *BMJ open sport & exercise medicine*, 6(1), e000943.

Poster 4 – Mohammad Darabseh

Title: Impact of Vaping and Smoking on Maximum Respiratory Pressures and Respiratory Function

Introduction: It is well-known that cigarette smoking is harmful to the human body. The effects of electronic-cigarette use (vaping), marketed as a healthier alternative to cigarette smoking, on lung function in particular remain equivocal. Therefore, this study aims to assess and compare the effects of electronic cigarette use and cigarette smoking on maximum respiratory pressures, respiratory function and carboxyhaemoglobin (HbCO) levels.

Methods: Forty-four young healthy participants were recruited: Vapers (n=12; 6 M/6 W) who had used e-cigarettes daily for ≥ 1 year (1.67 ± 1.00 years), Cigarette smokers (n=14; 8 M/6 W) who had smoked daily for 4.86 ± 2.49 years with a smoking history of 2.29 ± 1.88 pack years, and people who had never vaped nor smoked (control) group (n=18; 9 M/9 W). Spirometry, maximum respiratory pressures and carboxyhaemoglobin levels were measured.

Results: Men had a higher Forced expiratory volume in the first second (FEV₁), Forced vital capacity (FVC), Peak expiratory flow (PEF), Forced expiratory flow at 25% of FVC (FEF_{25%}), FEF_{25-75%}, Maximal inspiratory pressure (MIP) and Maximal expiratory pressure (MEP) than woman (p<0.05). Controls had higher FEV₁, PEF, FEV₁/FVC, FEF_{25%}, FEF_{25-75%}, FEF_{25-75pred%} and lower HbCO% than vapers and cigarette smokers (p<0.05). FEV_{1pred%} was lower in smokers than in controls (p<0.01). Vapers and smokers did not differ significantly in FEV₁, FEV_{1pred%}, PEF, FEV₁/FVC, FEF_{25%}, FEF_{75%}, FEF_{25-75%}, FEF_{25-75pred%} and HbCO% (p<0.05). Maximum respiratory pressures did not differ significantly between the three groups.

Conclusion: E-cigarette use has similar detrimental effects as cigarette smoking on pulmonary function and may thus not be a healthier alternative to smoking.

Impact: Electronic cigarette use (vaping) is marketed as a safer alternative to cigarette smoking and is considered more socially acceptable than smoking. However, the perception that vaping is less harmful is not based on a solid scientific evidence.

Our research suggests that vaping causes similar impairments in respiratory function to smoking, suggesting that vaping may not be as safe alternative to smoking as generally thought.

Vaping is a major concern for the public health sector nowadays. The findings of this study might add an evidence to reveal the impact of vaping. Also, to guide patients, clinicians, members of the public and healthcare/public or private services on taking the appropriate decisions and build the suitable protocols and guidelines for vaping and smoking cessation, including rehabilitation, education and support programs.

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