

Institution: Swansea University		
Unit of Assessment: 4		
Title of case study: Improving treatment compliance for female pelvic dysfunction through psychological support		
Period when the underpinning research was undertaken: 2009-2019		
Details of staff conducting the underpinning research from the submitting unit:		
Names:	Roles (e.g., job title):	Period employed by submitting HEI:
Professor Phil Reed	Lead; Professor of Psychology	2003-present
Dr. Lisa A. Osborne	Psychotherapeutic Counsellor, Swansea Bay University Health Board	2003-2020 (counting secondments from the NHS)
Period when the claimed impact occurred: August 2013-present		
Is this case study continued from a case study submitted in 2014? No		
1. Summary of the impact		
<p>Novel psychological support programmes and a screening tool arose from Swansea University research aimed at promoting compliance with effective physiotherapy treatment for pelvic floor dysfunction (PFD), a disorder affecting 25% of UK women. Our intervention strategies have been adopted by the 700-member strong Pelvic, Obstetric, and Gynaecological Physiotherapy (POGP) section of the Chartered Society of Physiotherapy (CSP) and referenced in draft NICE guidelines. Private health providers, and thirty UK health boards (HBs), have been trained in the interventions. Treatment adherence and attendance has increased by 60% following the implementation of our strategies, and a 50% clinical improvement in pelvic floor functioning has reduced surgery needs, and resulted in NHS savings of approximately GBP1,000 per patient across 400,000 patients a year.</p>		
2. Underpinning research		
Context:		
<p>PFD affects 25% of women worldwide at some point in their life. Pelvic Floor Muscle Training (PFMT) is an effective, safe, and cost efficient [~GBP50 per treatment] first-line treatment approved by NICE, yet many women do not complete treatment or even attend initial sessions [R1, R2, R7]. Consequently, they rely on expensive incontinence pads (costing Swansea Bay University Health Board, SBU, GBP1,000,000 in 2015), or undergo operations costing GBP2,000-GBP5,000. In 2009, the SBU (250,000 patients), approached and funded Reed [G1, G2] to investigate psychological reasons for non-attendance and/or treatment non-adherence, with the goals of developing: a) psychological support systems to increase treatment engagement; and b) predictive screening tools to identify patients who would benefit. The fundamental research question, <i>why women do not initially attend, or complete, PFMT treatment</i>, was addressed by our research reported in [R1, R4] the potential widespread implications of which were recognised by funding [G2, G3] for Reed to develop interventions [R1, R6, R8], and ways to predict efficacy [R2, R5]. The subsequent adoption and integration of the interventions and predictive tools impacted patient-centred and financial consequences [C1, C10].</p>		
Key Research Findings Leading to Impact:		
<ul style="list-style-type: none"> ➤ Non-attendance at PFMT sessions was high: 50% of waiting list patients dropped out before treatment, and 50% attending initial PFMT failed to complete treatment [R1, R2, R6]. 		

Impact case study (REF3)

- Key predictors of non-attendance included: being younger; living in a more socio-economically challenged area; having higher levels of depression and anxiety; having lower levels of motivation to change; and holding weaker health values [R2, R4, R5].
- A brief telephone-based support intervention delivered to patients while on the waiting list boosted initial attendance at PFMT sessions by 75% [R1].
- Brief group-based support sessions during PFMT boosted treatment completion by 60% [R6], and enhanced clinical outcomes by 50% [R8].

Research Summary:

We identified that approximately 50% PFD sufferers referred to SBU for PFMT did not attend [R1, R2]. We later confirmed this via POGP funded work [R7], finding similar figures for PFMT across over 160 NHS Physiotherapy UK units. PFD patients with depression and anxiety showed less treatment compliance; 51% of those dropping out had moderate-severe anxiety and depression, 30% had mild anxiety and depression, and only 19% had no symptoms of anxiety and depression. PFD patients with moderate and severe psychological problems who completed treatment had poorer PFMT outcomes than those with no such psychological problems [R2].

We investigated which beliefs and motivations predicted PFMT-attendance by employing the 'stages-of-change' motivational model that classifies individuals' desire to engage with an intervention [R3]. This model has explored adherence to psychological interventions for addiction, but is novel in PFMT (as one Reviewer commented: "*This study broaches a new area for pelvic floor physiotherapy.....opens up new areas for research, and.....produces helpful data for clinicians*" [C10]). We found PFD-patients who had started to change their behaviours ('active' and 'maintenance' stages-of-motivation) attended more PFMT sessions, and had better clinical outcomes, than those who had not yet started to change their behaviours [R3]. We examined further beliefs, like valuing health, work, family, religion, science, etc., as PFMT-attendance predictors, and found **'family', 'work', and 'spirituality', as well as holding strong health values** predicted attendance [R4], but **only those who valued health for themselves** (not for its impact on others) showed clinical benefits from PFMT [R5].

Development of Support Interventions:

This research received national news coverage [C11], the President's Medal for 'Scientific Contribution to Society' in Italy [C12], and praise from POGP Chair [C11] - "*Think of the reduction in your waiting list and how rewarding your work would be if you knew that you've always got an interested willing and complaint list of patients*". Further development-funding [G2, G3] extended our findings to other urogynaecological conditions [G3, S10], produced a predictive screening tool to identify patients likely to attend PFMT [C7], and established the impact of psychological support [G2, R1, R6, R7]. On this basis, we developed and assessed interventions, targeting motivation and values, through RCTs [R1, R6, R8]. A telephone-based intervention targeted motivation for waiting list patients [R1], and a group-based intervention targeted motivation and health values (MIVS) while patients were undergoing PFMT [R6, R8]. The interventions improved attendance and clinical outcomes.

3. References to the research

All papers have been peer reviewed; The research has made important contributions to the discipline internationally and contributes important knowledge to the field likely to have a lasting influence.

R1. Osborne, L.A., Whittall, C.M., Emanuel, R., Emery, S., & **Reed, P.** (2017). Randomised control trial of the impact of a brief tele-support intervention on initial attendance at physiotherapy group sessions for pelvic floor problems. *Archives of Physical Medicine and Rehabilitation*, **98**, 2247-2252. 10.1016/j.apmr.2017.03.033. IF = 2.7; Cited 2 times; 94 views.

R2. Khan, Z.A., Whittall, C., Mansol, S., **Osborne, L.A., Reed, P.,** & Emery, S. (2013). Effect of depression and anxiety on the success of pelvic floor muscle training for pelvic floor dysfunction. *Journal of Obstetrics and Gynaecology*, **33**, 710-714. [10.3109/01443615.2013.813913](https://doi.org/10.3109/01443615.2013.813913). IF = 0.6; Cited 43 times; 457 views.

R3. **Reed, P.,** Whittall, C.M., Emery, S., & **Osborne, L.A.** (2020). A prospective observational study of the impact of patient motivation on compliance and outcomes for physiotherapy treatment for pelvic floor dysfunction. *Physiotherapy*. [10.1016/j.physio.2020.10.003](https://doi.org/10.1016/j.physio.2020.10.003). IF = 2.5; Cited 2 times; 18 views.

R4. **Osborne, L.A.,** Whittall, C.M., Hanratty, H., Emery, S., & **Reed, P.** (2017). Health, work, and spirituality values predict attendance at Pelvic Floor Muscle Training sessions. *Journal of Pelvic, Obstetric and Gynaecological Physiotherapy*, **121**, 45-52.

<https://cronfa.swan.ac.uk/Record/cronfa38866>. IF not available; Cited 2 times; 108 views.

R5. **Reed, P.,** Whittall, C.M., **Osborne, L.A.,** & Emery, S. (2020). Impact of strength and nature of patient health values on compliance and outcomes for physiotherapy treatment for pelvic floor dysfunction. *Urology*, **136**, 95-99. [10.1016/j.urology.2019.11.017](https://doi.org/10.1016/j.urology.2019.11.017). IF = 2.0; Cited 1 times; 19 views.

R6. **Osborne, L.A.,** Whittall, C.M., Edwards, D.J., Emanuel, R., Emery, S., & **Reed, P.** (2016). Randomised control trial of a values-based motivational interview support to promote attendance at pelvic floor muscle training physiotherapy treatment. *Journal of Pelvic, Obstetric and Gynaecological Physiotherapy*, **119**, 38-46. <https://cronfa.swan.ac.uk/Record/cronfa30616>. IF not available; Cited 43 times; 457 views.

R7. **Reed, P.,** Mann, K. & **Osborne, L.A.** (2020). Pelvic floor muscle training services across the UK: a benchmarking survey of POGP members. *Journal of Pelvic, Obstetric and Gynaecological Physiotherapy*, **126**, 1-9. <https://cronfa.swan.ac.uk/Record/cronfa52483>. IF not available; Cited 3 times; 37 views.

R8. **Osborne, L.A.,** Whittall, C.M., Emery, S., & **Reed, P.** (2020). Cluster randomised control trial of the effect on attendance and outcomes of multi-disciplinary teams involving psychologists during pelvic floor muscle training for pelvic floor dysfunction. *Journal of Obstetrics*.

The research was awarded the **2015 Pelvic, Obstetric and Gynaecological Physiotherapy Society Research Prize** (for **R1** and **R6**). The work and team also received the **Medal of the President of Italy for Scientific Contribution to Society in 2016** for helping women.

Grant awardee	Grant title	Sponsor	Dates	Value
G1. Professor Phil Reed.	Psychological support for women's health physiotherapy patients.	NHS R&D Grant.	2014-2015.	£30,000.
G2. Professor Phil Reed.	Interventions to support women's health physiotherapy patients.	NHS R&D Grant.	2015-2016.	£30,000.
G3. Professor Phil Reed.	Factors influencing patient choice of bladder reconstruction following radical cystectomy.	Tenovus Cancer Care.	2015-2016.	£30,000.

4. Details of the impact

Summary: Our research has impacted both the practice of PFMT and policy decisions; impacts that are ongoing and widening in scope. Approximately 7.5 million UK women suffer PFD, with 600,000 presenting for treatment annually. Prior to our work, many patients did not complete their NICE-recommended PFMT (between 25% and 60%). This resulted in sub-optimal patient outcomes, and increased cost to the NHS, as patients later required expensive surgery (PFMT estimated cost GBP50 per treatment versus the then cheapest operation, TVT sling/mesh', costing approximately GBP2,500 per treatment). Based on our research, the screening tool, and novel psychological support interventions, led to increased treatment attendance and completion, as well as improved clinical outcomes. Implementation of our psychological support interventions increased PFMT-attendance nationally by an estimated 20% (corresponding to 60,000 extra women a year treated across the UK [**R7**]). Where our specific procedures are adopted in the NHS this figure increases to 60% [**C2**], and 40% in Ramsay Health Care (RHC) [**C3**]. The Welsh Government (WG) estimated the consequent average annual NHS savings across 400,000

patients to be approximately GBP1,000 per patient [C10]. Consequently, our procedures have been rolled out through a national training programme jointly with POGP to 30 UK HBs, as well as to private health providers [C3, C7], and the findings used to inform draft NICE guidelines [C8].

Development of Impact: Singleton Hospital Physiotherapists (SBU) approached Reed in 2009 to devise a solution to patient non-attendance at PFMT sessions [C2]. Based on our initial research findings [R1-R3], and working with psychologists and patients in SBU, we devised and applied our psychological support interventions and screening tool. Service evaluations conducted at SBU found that attendance at PFMT sessions had increased from 50% to 80% as a result of our procedures. The Lead for Women's Health Physiotherapy at SBU noted: *"The improvement in attendance and compliance has led to 45% more patients completing treatment...over the period we have worked with you, we have treated around 7,000 patients, who have benefited from the implementation of the psychological interventions based on the research conducted."* [C2]

Impact on Practice: Building on the above, meetings with POGP representing Women's Health Physiotherapists, led to national training sessions being organised for NHS staff. These were led by Reed and Osborne in Manchester and London in 2018, in conjunction with POGP [C3, C7]. Training focused on use of the screening tool and psychological support interventions and involved over 40 specialist physiotherapists, representing 30 different HBs across the UK [C1]. The Lead at Bradford Teaching Hospitals NHS Foundation Trust said: *"Thanks so much for doing the training. It was both reassuring and very useful...I'd be very interested in the studies that you mentioned...as we really are about to embark on a significant 'waste reduction' audit."* [C10]. The training sessions were repeated in 2019, for private providers, at the request of RHC.

As a direct result of this training, further NHS HBs (Royal Marsden, Morecambe Bay, Aneurin Bevan, and Hywel Dda) changed their service delivery of PFMT [C4, C7, C10]. In particular, a revised programme of PFMT delivery was adopted, incorporating the psychological support, and use of tele-support during waiting-list periods, for their patients (estimated 1,000 patients per trust). Morecambe NHS Trust said, *"Thank you so very much for a fantastic and really thought provoking and inspiring training, we have already implemented the project to reduce 'Did Not Attend' (DNA) rates."* [C5, C10]. A number of further HBs are trialling the interventions with a view toward the eventual take-up of the psychological support programmes for their PFD patients, once the COVID restrictions lift [C10].

Our screening tool and support interventions have since been promoted further by the 700-member strong POGP. Influenced by our research, POGP have issued updates to suggested PFD treatment pathways (either physiotherapy, surgery, or psychological services) based on the psychological characteristics of the patients identified in the screening tool. The POGP Chair said, *"Your psychological intervention has provided empirical backing and cemented a more holistic aspect to... physiotherapeutic treatment of pelvic floor dysfunction, allow our members to treat the whole patient..."* [C1]. A POGP benchmarking survey of physiotherapy services to examine the scale of the uptake and impact of psychological support interventions across the UK [R7] found that those services offering such support **saw a 20% increase in completion rates among their patients** [C3]. The resources toolkit was uploaded onto the POGP website, and the world-leading Co-Production Wales website that has international reach: *"We posted the information about the implications of your gloriously successful research project on our website in 2019"* [C9].

Private health care providers such as RHC have also adopted these improved procedures. RHC operates 480 facilities, across 11 countries. In an evaluation of one such facility's adoption, a 40% improvement in attendance at PFMT sessions, over a three-month period, was observed in 2019. They say: *"Due to implementing your tele-support waiting list interventions, we saw an improvement in our attendance rates"* [C3]. International recognition of our work to help women was highlighted through the award of the **Medal of the President of Italy for Scientific Contribution to Society** in for our work in helping women [C12]. The International Federation of Gynaecology and Obstetrics has also promoted our work to its members in 2019 [C11].

Impacts on Policy and Policy Making: Our successful NHS interventions have been the subject of WG meetings since 2015 [C9, C10, C11]. Consequently, our evidence-based support programmes were adopted into the Wales co-production health tools resources site in 2019 [C9]. This is **the first time that pelvic floor physiotherapists have formally recognised that psychological attributes of their patients may dictate treatment pathways [C1, C6]** and led to consideration of its inclusion in NICE guidelines. Reed was invited to join the NICE guideline committee on 'Pelvic floor dysfunction: prevention and non-surgical management' in 2019. The full guideline will appear in 2021 (delayed due to COVID), but our research appears as part of the evidence in the current draft NICE guidelines [C8].

5. Sources to corroborate the impact

C1: Letter from the Chair of Pelvic Obstetric and Gynaecological Physiotherapy Society regarding impact on national training and practice.

C2: Letter from the Head of Women's Physiotherapy Services, Swansea Bay Health Board indicating impact on service provision in the SBU based on research.

C3: Testimonial from Ramsay Health about how the psychological support intervention changed their practices.

C4: Testimonial from The Royal Marsden NHS Trust about practice change indicating impact on service provision in the SBU based on research.

C5: Testimonial from Morecambe Bay NHS Trust about practice change indicating impact on service provision in the SBU based on research.

C6: Testimonial from Hywel Dda University Health Board about practice change indicating impact on service provision in the SBU based on research.

C7: Testimonial from Aneurin Bevan Health Board about practice change indicating impact on service provision in the SBU based on research.

C8 NICE draft guidelines and letter indicating impact of research on planning for the next guidelines.

C9: Letter from Co-production Wales health tools resource link.

C10: Comments on clinical usefulness of research from Reviewers and e-mails from NHS Trusts/Boards about the usefulness of our work.

C11: Link to most powerful news about PFMT indicating scope of impact on professionals in women's health and on policy planning committees.

C12: Letter from Professor X on impact in Italy indicating impact of research in Italy and concerning Medal of the President of Italy.