The Design Of A Psycho-Socioeconomic Biobehavioural Framework To Address Barriers To Adherence In Patients With Diabetes-Related Foot Ulceration

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Abstract: Diabetes mellitus is a chronic metabolic condition.[1] Related comorbidities such as peripheral neuropathy and lower extremity ischaemia can significantly increase the likelihood of the occurrence of a diabetes-related foot ulcer (DFU). The International Working Group on the Diabetic Foot (IWGDF) updated its latest guidelines in 2023 to address diabetes-related foot care across the world and champion lower limb preservation.[2,3] Further, with a podiatry workforce 'in crisis' in the United Kingdom and elsewhere, understanding the experiences of patients is important in establishing ways to provide and implement effective self-care regimes for patients in both private and public health practice.[4,5] Therefore, psycho-socioeconomic bio-behavioural barriers (PSB) are important in forming holistic considerations of patient adherence.[6] The Biopsychosocial Model (Engel 1977) and The Health Belief Model (Rosenstock 1988) provide an initial foundation for expansion on these themes.[8,9] The PSB framework is a novel concept which leverages these theories and suggests that motivational interviewing could serve as an initial psychological intervention to filter the key barriers to adherence in patients with a DFU.[10] This conceptual framework allows for the proposal of tailored multi-disciplinary interventions, such as accessible educational programs, to address specific barriers to adherence with the objective of contributing to lower limb preservation.[11-13]

Key words: *diabetes mellitus, diabetic foot ulcer, podiatry, adherence, self-care, psycho-socioeconomic bio-behavioural barriers*

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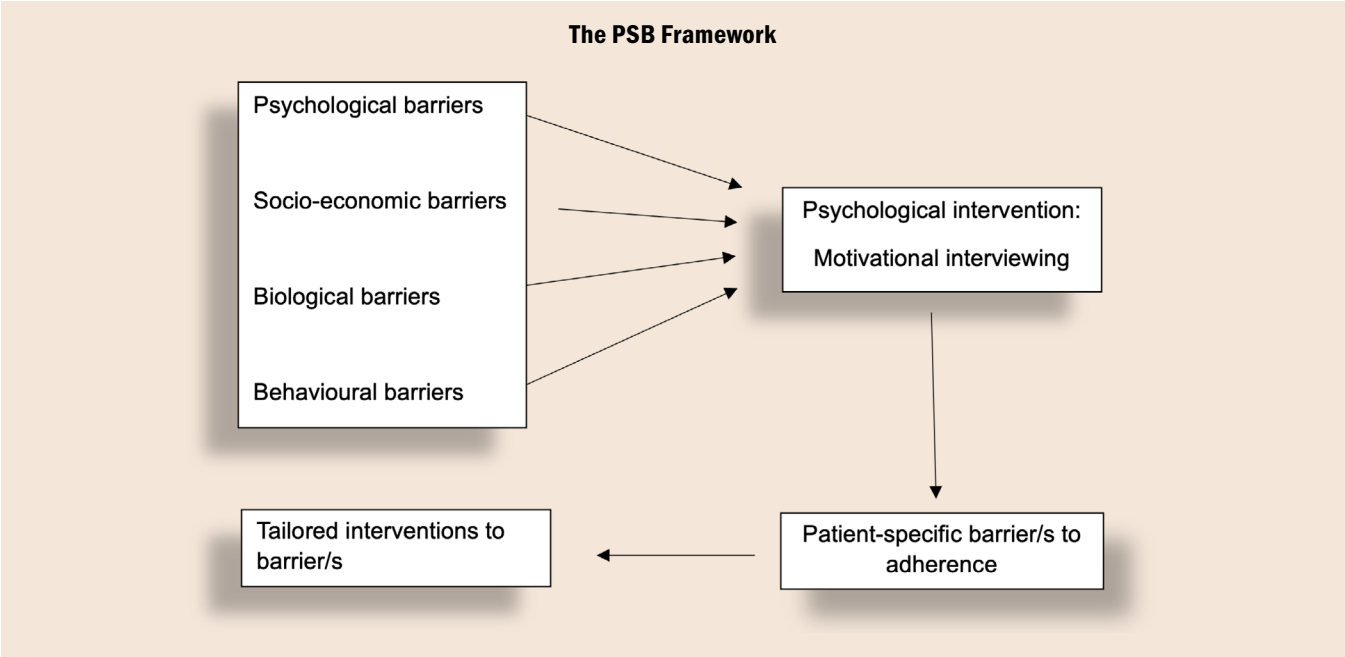
Holistic and compassionate care are synonymous with best practice in podiatry. However, achieving this with financial and resource constraints is a significant challenge to podiatrists both in the National Health Services in the United Kingdom (UK) and across Western Europe, as well as in private practices. For example, there are limited existing models which address barriers to adherence in health care, broadly spotlighting a need to focus on adherence in patients with diabetic foot ulcers (DFUs) to reduce the risk of complications that could lead to lower limb amputation.[14,15]

The International Working Group on the Diabetic Foot (IWGDF) have sought to advocate limb preservation by highlighting the importance of understanding an individual's barriers to adherence, particularly in offloading DFUs. Capturing the complexities of these barriers in a comprehendible format for clinicians is arguably vital in ensuring effective continuity of care and interprofessional communication.[16]

The objective for the innovation of the psycho-socioeconomic bio-behavioural barriers (PSB) framework is to establish barriers to adherence within a realistic and achievable timeframe with the goal of creating a tailored treatment and self-care plan for a patient with a DFU.[17]



Strengths

The PSB framework may be amendable and expandable, incorporating diversity within its demographic reach (i.e., Makaton/sign language) and harnessing cultural inclusivity to curb perceived barriers to adherence in a wide range of communities from remote rural villages to densely populated urban districts.[18] Therefore, socio-economic factors, such as modes of transportation, occupation and type of housing, can be ascertained from a patient within the introductory stages of a health-care appointment to assist a holistic management plan.[19]

Psychological and bio-behavioural factors can also be ascertained throughout an appointment with the use of motivational interviewing to establish the key barriers to adherence.[20] Using the PSB framework, the documentation of these barriers may provide individual clinicians and multi-disciplinary teams with a universally accessible reference point throughout a patient's treatment to support tailored care plans.[21] This increases the responsibility of establishing these barriers in the initial assessment period and may be an important timesaving guide for clinicians at each point across a patient's DFU care.[22]

By addressing barriers with the PSB framework, tailored interventions based on collective barrier identification could potentially provide national health services and systems with cost effective strategies to enhance neo-Weberian principles of citizen-orientated care while upholding the new public management structures across Western Europe and beyond.[6,23,24] By adopting both a neo-Weberian approach within a neo-liberal health-care system, the implementation of patient-orientated policies to the management of DFUs may pave the way for wider management reforms in addition to clinical judgments.[24]

Limitations

Potential drawbacks to using the PSB framework are the limited time and need for training to exercise motivational interviewing (MI) with desired effect. The skill and training required to achieve this leaves most clinicians subject to individual error and thus could limit the validity and reliability of the PSB framework.[25] Moreover, with MI reliant predominantly on face-to-face communication, a tailored approach is required for individuals with visual or audible impairments.[26] However, by prioritising some barriers over others, a progressive use of the PSB framework could be adopted to increase the specificity of the framework.[27] On the other hand, the responsibility of establishing these barriers in

the initial assessment period may not always be realistic within time constraints and is reliant on the rapport built between the clinician and patient, which may not always replicate in instances where there is a deficiency in continuity of care.[28]

Recently published data collated by Giarelli and Saks (2024) in *National Health Services of Western Europe* has suggested that neo-liberal societies, such as the United Kingdom and Sweden, have in recent years shown local variations and indications that, broadly speaking, health-care personnel experience a low degree of participation in strategic decision making.[23] This reveals a potential barrier to clinician-led innovation in response to non-adherence from patients.

Conclusion

In light of this analysis, a PSB-based template could be integrated into the 'Subjective' part of SOAP (Subjective, Objective, Assessment and Plan) notetaking in an initial assessment appointment. Qualitative studies are required to establish the efficacy of such a template in collecting important data pertaining to barriers to adherence.[29] The PSB framework has the potential to enhance tailorized care across all health-care sectors in addition to podiatry, particularly by creating a continuity of conveniently viewable information for the benefit of clinical handovers.[30] Establishing barriers to adherence could be more effective in counselling/psychotherapy appointments, which may account for more time to execute the PSB framework; crucially however, new patient assessment appointments could also incorporate the PSB framework to useful effect.[31] Therefore, future studies are required to establish barriers to adherence in patients with DFUs and establish the validity and reliability of the PSB framework with its potential application in clinical practice.[25] By changing the lens of a clinician, the focus becomes the patient with the objective of achieving lower limb preservation.

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