Prosthetics, Orthotics and Spiritual Care: A Literature Scoping Review

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PREFACE

Purpose and Report Focus:

This literature scoping review was prepared for the Discipline of Prosthetics and Orthotics, La Trobe University, Melbourne, Australia. Support for this research was provided by the Palliative Care Unit (PCU), La Trobe University, Department of Public Health, School of Psychology and Public Health, La Trobe University (Melbourne, Victoria) as part of the PCU’s focus upon enhanced holistic care.

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A Literature Scoping Review

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Abstract

Purpose: This project sought to consider the literature regarding a holistic-care approach in rehabilitation, with a particular focus on the use of spiritual care in prosthetic and orthotic care. Method: A basic scoping review was conducted with the objective to identify literature and other research related to the topic of prosthetics, orthotics and spiritual care. Results: A total of 694 articles were found relating to the topic. There was found to be a limited range of articles focusing predominantly on prosthetic, orthotic and spiritual care. Fifteen (n=15) papers were considered relevant to the topic which all commonly focused on the client’s experience and overall quality of life. However, a gap in research relating to holistic care, spirituality and religion/beliefs was found. Conclusion: There was minimal literature specifically relating to prosthetic, orthotic and spiritual care. The main themes found within identified articles related to individuals using a prosthetic, orthotic or loss of limb and the broad aspect of holistic care. While there is evidence found within the literature that individuals with a prosthetic or orthotic experienced holistic care, there is a gap within this care as spirituality was often overlooked or excluded. It is recommended that future research is warranted and all key aspects of holistic care — including spirituality — need to be considered to accurately assess prosthetic and orthotic patients.

Introduction

Spiritual care’s impact and the role it plays within prosthetics and orthotics is rarely seen in the literature. The majority of related articles claim to address holistic care — which is defined as “...a behavior that recognizes a person as a whole and acknowledges the interdependence among one’s biological, social, psychological, and spiritual aspects” (Zamanzadeh, et al, 2015). However often the key aspects within holistic care are disregarded, with a predominate focus on physical care and barely or no mention of spirituality which is defined as ‘the aspect of humanity that refers to the way individuals seek and express meaning and purpose and the way they experience
their connectedness to the moment, to self, to others, to nature, and to the significant or sacred’ (Puchalski et al, 2009, p.887).

**Purpose & Method**

This project sought to systematically explore the literature to assess whether there was any evidence of possible connections between spirituality and/or spiritual care with the professional practice of prosthetics and orthotics. Arksey and O’Malley’s (2005) scoping review method was applied for searching numerous database (eg. Medline, CINHAL, Google, Google scholar, PubMed and ProQuest) with the objective to identify key literature and evidence with relevance to prosthetic, orthotics and spiritual care. Table 1 identifies the key search terms used to attain literature.

<table>
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<th>Databases</th>
<th>Medline (OVID), CINAHL (Ebsco), Proquest Central, Pub Med, Google Scholar,</th>
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<td><strong>Search terms &amp; synonyms</strong></td>
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<td><strong>Intervention</strong></td>
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<td><strong>Outcome</strong></td>
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Results – Key Themes:

A total of 694 articles were originally found, however a total of 15 articles considered to be relevant to spirituality, prosthetic and orthotics (n=15) (refer to Appendix 1). It was possible to categorise the literature into specific thematic topic areas (refer Table 2).

<table>
<thead>
<tr>
<th>Thematic Codes</th>
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<td>1</td>
<td>Holistic Care</td>
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<td>2</td>
<td>Spiritual Care</td>
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<td>3</td>
<td>Lived Experience</td>
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Results – Literature Overviews

Fifteen articles were found to have relevance to the topic of prosthetics, orthotics and spiritual care. These are each individually summarised below. To see the thematic coding (Table 2) for each of these articles please refer to Appendix 2.

An article by Bakker et al. (2017), “It’s not just physical: a qualitative study regarding the illness experiences of people with facioscapulohumeral muscular dystrophy” intended to provide some understanding of the illness experiences of people with facioscapulohumeral muscular dystrophy (FSHD). Exploring the possibility of individualising rehabilitation programs based on needs and expectations, they conducted interviews with twenty-five participants who all had FSHD exploring intra and extra individual aspects that affect the consequences of diagnosis and symptoms, including the illness experiences, cognitions and
social context. The authors concluded that if they obtain a better understanding of individual’s they can then make improvements to healthcare, there is a clear gap in this study. This study does not address spirituality as a key aspect that could affect an individual, overlooking this completely, however the authors conclude that there is a need for a holistic patient-centred perspective.

A comprehensive literature review titled “Critical review on non-operative management of adolescent idiopathic scoliosis” by Wong and Liu (2003) explored non-operative interventions that intend to control the progression of moderate adolescent idiopathic scoliosis (AIS). The research found that rigid spinal orthoses gave more curve control however in doing so quality of life was compromised through expected factors such as physical constraint, level of acceptance and psychological disturbance. A need to develop effective, acceptable and user friendly interventions was identified. There is a lack of studies to compare interventions, however a recommendation for interventions to be developed using the patient’s active participation, dynamic control mechanism, holistic psychological and psychosocial considerations was affirmed — concluding that there is currently a lack of consideration for holistic interventions and therefore spiritual aspects are excluded.

An article “Principles for fostering the transdisciplinary development of assistive technologies” by Boger et al. (2017), discussed the development of assistive technologies and the challenges requiring multiple disciplines input. It suggested that transdisciplinary collaboration will enable holistic understanding and will foster transdisciplinary assistive technology development. In order to create comprehensive products a holistic vision is required. Identified were seven principles used to evaluate workings of transdisciplinary teams, first was variability of goals; second variability of criteria and indicators; third leveraging of integration; fourth, interaction of social and cognitive factors in collaboration; fifth management, leadership and coaching; sixth iteration in a comprehensive and transparent
system and seventh effectiveness and impact. These help transfer knowledge from the research stage through development and onward to socio-economic impact. Therefore, suggesting that in order to achieve a holistic approach during development of prosthetics, orthotics and other assistive technologies, a transdisciplinary collaboration will work best in achieving this.

The next study “Moving Forward After Upper Limb Loss” written by Bollinger (2016) looks at occupational and physical therapists who work with people suffering life-altering diagnoses of amputations. It studies their transition to daily life, functional level/abilities, environmental adaptation and personal goals post amputation. Through analysing the psychosocial aspects addressed it is clear that there is a heavy focus on treating the physical issues while overlooking the mental and social health. Case studies found that faith and spirituality had a positive impact in motivation during rehabilitation. It found that the psychological burden needs to be addressed and is a critical component of achieving positive and long-lasting rehabilitation outcomes, not just the physical components.

An article by Thakkar et al. (2012) “Custom Ocular Prosthesis: A Palliative Approach” addresses how to best achieve quality of life for patients and their families. It looked at the traumatic event of loss of an eye and the psychology of patients who face this loss. Ocular prosthesis can be fabricated to restore the structure, function, and cosmetics of the defects, and suggests that by fabricating a custom ocular prosthesis psychological, physical, social, functional, emotional and spiritual needs are addressed and achieved. While not providing sight and restoring the physical function it does return self-esteem and confidence. This article did not mention however any spiritual needs further than the abstract. Leaving a gap in addressing and researching whether this prosthesis does accomplish the full quality of life that a patient deserves.
“Adults with diabetes and their experiences of wearing prescribed orthotic devices” a study conducted by Burton (2007) investigated a number of diabetic patients attending vascular orthotic clinics who were choosing not to wear their prescribed orthotic device. Although having extreme health implications the study found that the majority made this choice as a result of past experiences, footwear associated problems, compliance, coping strategies and the most interesting point beliefs and motivations. These themes were identified through the use of semi-structured interviews — concluding that there is a need to assess and treat patients holistically and to use this strategy to help patients adapt – but again there was no mention of spiritual care or other related issues.

An article by Schroer, Stormont and Pietrzak (2013), “Seven-Year Survivorship and Functional Outcomes of the High-Flexion Vanguard Complete Knee System”, explored the concept that certain recreational, cultural, occupational, and religious practices may require knee flexion exceeding typical daily living activity needs. Some total knee prostheses mechanically accommodate high flexion to help meet such demands however the majority do not. Extremely device focused studies like this identify and highlight the need for a holistic person-centred approach, through examples of culture, faith and religion requiring a physical action (such as kneeling) where a prosthesis or orthosis may interfere or may need to be altered in order to comply.

An article titled “Measuring quality of life in prosthetic practice: benefits and challenges” written by Gallagher and Desmond (2007) explored the inclusion of quality of life as a measure for outcomes to guarantee a client centred holistic assessment and outlined the benefits that it has in the prosthesis field post amputation. A co-ordinated approach will ensure spiritually and beliefs to be address and standardised as a values measure of quality of life. The authors argued that the central component in rehabilitation and assessing is the patient’s
perspective — concluding how important individual’s prosthetics is to ensure quality of life of a patient.

Ennion and Rhoda (2016) conducted a study titled “Roles and challenges of the multidisciplinary team involved in prosthetic rehabilitation, in a rural district in South Africa”. In this article, the roles within a multidisciplinary team during rehabilitation after major lower limb amputations is explored. The authors state that in order for a patient to receive a holistic patient-centred prosthetic rehabilitation, input from a team of health care professionals compared to a single health care professional is crucial. This team assists with reintegration of the patient into the community and providing psychological support after limb loss, due to amputee’s often experiencing a sense of loss, psychological stress, decrease in function and overall quality of life. It has been proven that multi and inter-disciplinary rehabilitation is more successful than individual therapists in multiple populations. To explore this the authors studied a rural community in South Africa, conducting semi-structured interviews and focus group discussions with nine prosthetic users, three surgeons, three traditional healers, seventeen therapists, four prosthetists, and four community health workers — concluding that due to a lack of multidisciplinary rehabilitation teams, there is a negative impact upon patient education, resources, beliefs and overall rehabilitation. Implementing these teams is recommended to achieve holistic rehabilitation allowing a focus on the impact beliefs and cultures have on shaping rehabilitation.

The article “Spirituality and Quality of Life in Limb Amputees” by Peirano, Randall and Franz (2012) discussed how life-changing limb amputation is, in terms of the long-term physical, social, psychological and environmental changes. The objective of this study was to describe the role of spirituality in amputees and determine its relationship to a patient’s quality of life. The authors stated that spiritual well-being plays a significant role in coping and affects outcomes of patient’s rehabilitation. Study participants with a limb amputation were recruited
and completed questionnaires encompassing measures of satisfaction with life, general health, level of mobility and social integration. The study examined the relationship between existential spirituality and quality of life — the findings of the study confirmed that amputees do use spirituality to cope and that it was a significant predictor of satisfaction with life, general health and social integration.

A study conducted by Gallagher and Maclachlan (2001) titled “Adjustment to an Artificial Limb: A Qualitative Perspective” examined the factors considered to be important during the adjustment period of an amputation and use of prosthetic limbs, from the perspective of young adults with lower limb amputations. Through a focus group methodology several themes were revealed that all played a vital role in the adjustment process including self-image, social, physical and practical concerns, level of acceptance of the amputation and level of support. Providing a direction for future research, the authors place an emphasis upon the gap in research with regard to spirituality and beliefs.

A study by Jarl and Ramstrand (2017) titled, “A model to facilitate implementation of the International Classification of Functioning, Disability and Health into prosthetics and orthotics” explored the suitability of the international classification of functioning, disability and health in the construction of defining the clinical prosthetics and orthotics (P&O) process. The authors proposed a Prosthetic and Orthotic Process (POP) model that is comprised of four key steps. The first is a patient assessment of medical history and a physical examination, second is patient goals specified on four levels including participation, activity, body functions and structures and technical requirements of the device, third the intervention/action is determined based on the specified goal and evidence-based practice, the fourth is the evaluation of outcomes and comparison to the corresponding goals. This process was used to accurately predict patient’s satisfaction with the outcomes and the P&O process — concluding that facilitating communication with other rehabilitation professionals would encourage a holistic
and patient-centred approach in clinical practice – however there was no mention of spirituality.

Kelly and Dowling’s (2008) article titled “Patient rehabilitation following lower limb amputation” examined patient rehabilitation following lower limb amputation. They authors argued that rehabilitation is essential to provide optimum patient outcomes and to improve the amputee’s quality of life. The age of the patient and the stump length or level of amputation emerge as dominant factors affecting the outcome of rehabilitation. This article focuses on the factors affecting rehabilitation, outcome measures to assess rehabilitative potential and the nurse’s role in providing care for patients following lower limb amputation. This study had a heavy focus on patient’s physical health, and the nurse’s role in the rehabilitation, indicating a gap in research about the impact of spiritual care in rehabilitation.

“Biopsychosocial Approach to Orthotic Intervention” by McKee and Rivard (2011) stated that orthotic intervention should be individualized and patient/client centred. The authors found that the best outcomes were achieved when the orthotic interventions were designed with patient involvement and holistic consideration. Including the individual’s distinctive personal attributes, the context, and environment. Discussion of a lived experience demonstrated an approach to orthotic intervention constructed from Engel’s biopsychosocial model and the International Classification of Functioning, Disability and Health (WHO-ICF, 2001) resulting in an orthosis that was thoughtfully designed with patient input. Through careful construction, modifications and monitoring as needed concluded to make remarkable differences in the patient’s life by relieving pain, providing stabilization, protection and enabling activity and participation in turn promoting optimal physical, spiritual and emotional well-being.

Liu et al.’s (2010) article titled “The lived experience of persons with lower extremity amputation” intended to describe and understand the lived experience of 22 people who have
lower extremity amputations. It explored using semi-structured interviews the physical, psychological and social disturbances as a result of the loss of a body part. It found the lived experience of patients with lower extremity amputation could be categorised into four themes; ‘lost in the dark woods’, ‘emotional collapse’, ‘difficulty in passing through the shadow’ and ‘igniting a gleam of hope’. It identified the need to appreciate the cultural context and to develop the peer-based support programme for patients in order to achieve optimal rehabilitation. The authors recommended that health professionals expand the range of services beyond a physical and prosthetic focus — concluding supportive psychological and social interventions such as formal support groups and peer support programmes will offer an influential and reasonable addition to predictable prosthetic care – however there was no mention of spiritual care support or community programs provided by spiritual/religious organisations/communities.

Conclusion

The literature identified for this review predominantly focussed on a patient’s lived experience and generally mentioned how a holistic and patient centred care approach is important for rehabilitation. While some evidence within the findings suggest that spirituality can be significant and can affect the outcome of a patient’s rehabilitation, there was no in-depth exploration or assessment with regard to spirituality among prosthetic and orthotic patients. Frequently reiterated within the literature was the need to develop a holistic approach — but most articles did not explore spirituality as a significant factor — therefore signifying a gap within the prosthetic/orthotic literature with regard to holistic care and spirituality.

As presented in Appendix 2, each of the given articles were summarised and categorised into selected themes. The most common themes related to lived experience, quality of life and a gap in the provision of holistic care. With the limited amount of evidence relating
specifically to spirituality within prosthetic and orthotics, further research is warranted in this area to consider and explore the provision of spirituality in relation to prosthetic and orthotics. It is recommended that future research is directed to assess the benefit, if any, that spirituality may have in aiding the patient care provided by prosthetists/orthotists.

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Appendix 1

Literature review selection process

Electronic databases utilising keywords and search terms listed in Appendix 1
Medline (OVID), CINAHL (Ebsco), Proquest Central, Google/Google Scholar, Pubmed

694 papers retrieved; articles screened by two authors

Rejected after abstract appraisal
694; n=30

Rejected after full papers read.
Articles that did not specifically address the impact of spiritual care in prosthetics and orthotics; n=15

15 Key Literature Articles
# Appendix 2

Literature and thematic coding

<table>
<thead>
<tr>
<th>Title</th>
<th>Author</th>
<th>Summary</th>
<th>Thematic Coding</th>
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| It’s not just physical: a qualitative study regarding the illness   | Minne Bakker, Karen Schipper, Alexander C. Geurts and Tineke A. Abma (2017) | - Explores illness experiences of people with FSHD to adapt rehabilitation programs to individual needs and expectations.  
- Explored that the combination of the consequences of the diagnosis and symptoms, intra-individual aspects such as coping with heredity and progeny, adjusting to a decreasing independence, and changing relationship with one’s partner. Extra-individual factors are the responses of the social environment, assistive devices, and upholding or ceasing work. | 3,4,5           |
| experiences of people with facioscapulohumeral muscular dystrophy   |                                                                          |                                                                                                                                                                                                         |                 |
| Critical review on non-operative management of adolescent idiopathic | M. S. WONG and W. C. LIU (2003)                                        | - The study addresses all modern non-operative interventions and claimed that rigid spinal orthoses give more curve control. Though, it compromises the patient's quality of life through those inevitable factors of physical restriction, poor acceptance and psychological disruption.  
- Concluding a need to develop more effective, acceptable and user friendly interventions. Using indicators/predictors, patient's active participation, dynamic control mechanism, holistic psychological and psychosocial considerations, and effective outcomes. | 4,5             |
| scoliosis                                                            |                                                                          |                                                                                                                                                                                                         |                 |
| Principles for fostering the transdisciplinary development of        | Jennifer Boger, Piper Jackson, Maurice Mulvenna, Judith Sixsmith, Andrew Sixsmith, Alex Mihailidis, Pia | - Developing useful and practical assistive technologies often are presented with challenges. Transdisciplinary association can enable a holistic understanding of | 1,3,5           |
| assistive technologies                                              |                                                                          |                                                                                                                                                                                                         |                 |
Kontos, Janice Miller Polgar, Alisa Grigorovich and Suzanne Martin (2017)  
challenges that may lead to advanced, impactful and transformative solutions.  
- Presented principles that intend to foster transdisciplinary assistive technology development.  
- These principles for transdisciplinary development of assistive technologies are presented and ambient-assisted living technology for guiding achievement of activities of daily living by older adults.

Moving Forward After Upper Limb Loss  
Christopher Bollinger (2016)  
- Transitioning to daily life after amputations can be challenging for patients. Therapists work to maximize their patients’ functional abilities through environmental adaptation and ADL/IADL retraining, while focusing on each person’s goals.  
- Claiming that treating physical issues is priority while mental and social health are overlooked.  
- Addressing the psychological burden of patients as a critical component of achieving positive rehabilitation outcomes.

Custom Ocular Prosthesis: A Palliative Approach  
Prachi Thakkar, JR Patel, Rajesh Sethuraman, and Narendra Nirmal (2012)  
- Eye loss is a distressing event that has a crippling effect on the patient’s psychological state.  
- An ocular prosthesis is fabricated to restore the structure, function, and cosmetics of the defects.  
- Presented palliative treatment for a patient with a custom ocular prosthesis, shows to improve the patients psychological, physical, social, functional, emotional and spiritual needs.

Adults with diabetes and their experiences of  
Burton (2007)  
- Patients with diabetes attending a vascular orthotic clinic were not wearing the
| wearing prescribed orthotic devices | orthotic devices they had been prescribed which had detrimental effects on their health.  
- The experiences of adults with diabetes regarding and wearing their orthotic devices aid to understand other patients chose not wear them.  
- Semi-structured interviews concluded that, past experiences, experiences of the clinic, problems related with their footwear, beliefs and motivations, compliance, and coping strategies all contributed to not wearing devices.  
- Concluding that there is a need to assess and treat patients holistically, develop trusting and open patient-practitioner relationships, and assist patients in adapting to their circumstances. |  

- Recreational, cultural, occupational, and religious practices may require knee flexion exceeding typical daily living activity needs. Some knee prostheses mechanically accommodate high flexion to help meet such strains.  
- Recommended, more research is required to confirm whether high flexion knees provide functional rather than conventional knee designs. | 4,5,6 |  

- Key concepts and challenges in the definition and assessment of quality of life post-amputation. Includes the relative advantages and disadvantages of adopting individualized measures of quality of life.  
- It defines and recommends issues and guidelines for consideration when undertaking quality of life research and assessment. | 1,4,5,6 |
| Roles and challenges of the multidisciplinary team involved in prosthetic rehabilitation, in a rural district in South Africa | Liezel Ennion, Anthea Rhoda (2016) | - Major lower limb amputations result in a significant sense of loss, psychological stress, and decrease in function and overall quality of life.  
- The holistic, patient centred prosthetic rehabilitation of an amputee is considered crucial in the restoration of the amputee into the community and for providing psychological support after limb loss.  
- Aiming to address the limited resources available to health care professionals, improving communication and interdisciplinary rehabilitation. | 3,4,5 |
- Spiritual well-being in patients is significant when coping and may affect a patient’s outcome.  
- Explores the role of spirituality in individuals with limb amputation and to determine if it is related to the quality of life (QOL)in this sample.  
- Spirituality is a significant predictor of satisfaction with life, general health, and social integration. | 2,4,6 |
| Adjustment to an Artificial Limb: A Qualitative Perspective. | Pamela Gallagher & Malcolm Maclachlan (2001) | - Focus group methodology was active as a means of obtaining perspectives within a population of young adults who had a lower limb amputation.  
- Thematic analysis exposed that factors such as self-image, social, physical and practical concerns, attributed to and the acceptance of the amputation and support. | 3,5 |
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| A model to facilitate implementation of the International Classification of Functioning, Disability and Health into prosthetics and orthotics. | Gustav Jarl and Nerrolyn Ramstrand (2017)                                                            | - The Prosthetic and Orthotic Process model.  
- This Process model is based on the concepts of the International Classification of Functioning, Disability and Health and comprises four steps in a cycle. This evaluation will determine if the process should be ended or if another cycle in the process should be initiated.  
- The Prosthetic and Orthotic Process model can provide a common understanding of the P&O process. Concepts of International Classification of Functioning, Disability and Health have been incorporated into the model to facilitate communication with other rehabilitation professionals and encourage a holistic and patient-centred approach in clinical practice. | 1,3,5   |
| Patient rehabilitation following lower limb amputation.                | Kelly, M., Dowling, M. (2008)                                                                          | - Patient rehabilitation following lower limb amputation is essential to provide optimum patient outcomes and to improve the amputee’s quality of life.  
- A variety of outcome measures are available to assess the patient’s rehabilitative potential to maximise functional ability.  
- Factors affecting rehabilitation, outcome measures to assess rehabilitative potential and the nurse’s role in providing care for patients following lower limb amputation. | 3,5     |
| Biopsychosocial Approach to Orthotic Intervention.                     | McKee, Pat R. Rivard, Annette, (2011)                                                                | - The best outcomes occur when orthotic interventions are designed with patient involvement and holistic consideration of the individual’s unique personal attributes. | 1,3,5   |
- Orthoses that are thoughtfully designed with patient input and modified as needed, can make a difference in a person’s life by relieving pain, providing joint stabilization, protecting vulnerable tissues and enabling valued activity and participation.  
- Describes and understands the lived experience of people with lower extremity amputation.  
- The loss of a body part can cause physical, psychological and social disturbances. The majority of previous studies in this area focus on the impact of amputation or the effectiveness of rehabilitation programmes.  
- Health professionals need to acknowledge the real needs of people with lower extremity amputation and provide them a clear explanation regarding the short-term and long-term health issues associated with amputation. |

**Codes:**
1= Holistic Care; 2= Spiritual Care; 3= Lived Experience; 4= Quality of life; 5= Gap in care; 6 =Religion/Beliefs
References


