Psychoprosthetics: An Introduction

Pamela Gallagher, Deirdre Desmond, and Malcolm MacLachlan

Overview

Psychoprosthetics is the study of psychological aspects of prosthetic use and of rehabilitative processes in those conditions that require the use of prosthetic devices. Central to this definition is an emphasis on the individual experience of the person with limb loss and the inclusion of personal perspectives and preferences across the continuum of care. This demands an exploration of psychological, neurological, social, cultural, and environmental factors inherent in the experience of limb loss, in addition to physical factors. For the past 10 years our focus has been on the ways in which people cope with limb loss, positive adjustment, affective distress, issues around identity, body image, the construction of self, and quality of life. We have also emphasized the development of appropriate assessment tools with a view to establishing quality benchmarks and promoting high-quality care. We are interested in psychoprosthetics for a number of reasons, but most notably because a more comprehensive understanding of the psychological and social realities of limb loss and prosthetic use will contribute to a holistic rehabilitation and limb-fitting experience and the optimization of ongoing care for the person. An interdisciplinary approach—psychoprosthetics—presents exciting challenges, breaking through conventional disciplinary boundaries and calling for imaginative explorations of the interplay between people and the technologies that can enable their psychological, social, and physical functioning. It is often at the boundaries of established knowledge, at the interface of where different disciplines meet, that some of the most exciting and enlightening insights and discoveries occur.

Epidemiology of Limb Loss

People with an amputation, stemming from a multitude of causes, mainly through complications of diabetes mellitus, peripheral vascular disease, trauma, and malignancy, represent a sizable number of people worldwide who require some form of health intervention or service provision, including being supplied with and trained to use prostheses. According to Esquenazi (1), a calculation of the exact number of people who have had amputations worldwide is rendered difficult by the fact that many countries do not keep records. In the United States, the Amputee Coalition of America (2) reports that there are approximately 1.9 million people living with limb loss, and Dillingham et al. (3) estimated that 158,000 persons (or 52.4/100,000 persons) undergo amputations per annum. The Amputee Statistical Database for the United Kingdom (4) reports annually on new referrals to 44 prosthetic service centers throughout the U.K. The latest report indicates that there were 5000 new referrals in their most recent reporting period from April 1, 2005, to March 31, 2006. To give a sense of gender, age, type, and cause of limb loss, females accounted for just over 30% of these new referrals; 54% of all referrals were over 65 years of age, and 25% were over 75. Only 3% of new referrals were younger than 16 years of age. With regard to type, 91% were
referrals following lower limb amputation, 5% were referrals following upper limb amputation, and 3% were referrals for congenital absence cases. Trauma accounted for 53% of upper limb referrals, neoplasia 14%, dysvascularity 12%, and infection 6%. For lower limb referrals, dysvascularity accounted for 67%, trauma 9%, infection 7%, and neoplasia 3%. According to Ephraim et al. (5), limb loss has been internationally acknowledged as a significant public health issue, yet the development of programs and policies aimed at promoting health and well-being among people with limb loss requires a more extensive research knowledge base.

Foregrounding Personal Experience

Limb loss is a human experience. Many aspects, including those related to the limb loss itself, such as type, level, cause, and presence of comorbidities, conspire to give rise to the individual experience of having and wearing a prosthetic limb. We are concerned with the whole person and his or her collection of psychological and social experiences. Psychology is a medium through which subjective lived experiences can be foregrounded. Furthermore, psychology is a medium through which multifactorial explanations for psychological phenomena are sought; psychological explanations for physiological, social, or cultural phenomena are found; and phenomena are described and understood, and their meaning for the person ascertained (6).

Psychologically based issues include not just advocating and developing interventions to bring about change for the person, but also recognizing the changes that often occur within the person, and, crucially, that there is an emotional component to such experiences. Darnall et al. (7), in a sample of community-dwelling individuals with limb loss, found that the prevalence of depressive symptoms was two to four times greater than rates for the general population. Their findings identified the significance of social support in psychological interventions and of sociodemographic variables (e.g., marital status, household poverty level, level of education) as significant predictors of depressive symptomatology. Taking into consideration psychosocial issues can also enhance functional outcome. Fitzpatrick (8) notes that loss of ability to relate psychologically, socially, sexually, and vocationally after amputation might have more impact on quality of life than the loss of the limb itself. As a final exemplar of placing the whole person center stage, Pasquina et al. (9) stipulate that prosthetic prescriptions should be individualized based on the functional capacity and goals of the person with limb loss.

Psychology, Disability, and Rehabilitation

We recognize that in the past, psychology has been linked with a pathogenic or deficit model of disability, and has often paid insufficient attention to a more socially orientated model, one that addresses aspects of the environment—psychological, social, and physical—that disable and oppress some people more than others. Our concern with understanding the psychology of people with limb loss and how they manage prosthetic technology is in no way an attempt to pathologize limb loss, to normalize impairment, or to suggest that a person conforms to a norm. It is also not our intention to subjugate the significance of the physical environment in a person’s experience, but rather we wish to acknowledge that irrespective of the hypothetical presence of an ideal enabling environment, there is an individual who, following an amputation, is living with a new reality, and part of this reality is living with a prosthesis. We acknowledge the importance of the person’s internal experiences, thoughts, and emotional well-being, in addition to their interactions with the environment, as others are increasingly doing (see, for example, Shakespeare and Watson (10)).

Contemporary disability paradigms emphasize the dynamic intersection of environmental factors and individual characteristics and the role this plays in shaping the disability experience (11). The International Classification of Functioning, Disability, and Health (ICF) attempts to integrate the medical and social models of disability, incorporating biological, individual, and societal perspectives in a biopsychosocial approach (12). So, for