

Podology and Entrepreneurship: Podiatrist, Preventive Knowledge for Diabetic Toenails and Farmers' and Livestock Farmers' Feet with an Attrition Entrepreneurship Theory Approach of the United Nations Sustainable Development Goals

Tabasom HabibiSharifi¹, Mehdi Farzpourmachiani², Mehrdad Fojlaley³,
Snjezana Baroness Rajacic⁴

¹Ph.D in Entrepreneurship, Technofest Institute of Technology University (TITU), Erquelinnes, Belgium

²Academician of the European Academy of Sciences, Associate Professor in entrepreneurship, department of entrepreneurship, Technofest Institute of Technology University (TITU), Erquelinnes, Belgium

³Academician of the European Academy of Sciences, Professor in entrepreneurship, department of entrepreneurship, Technofest Institute of Technology University (TITU), Erquelinnes, Belgium

⁴Academician & President of the European Academy of Sciences, Professor in entrepreneurship, department of entrepreneurship, Technofest Institute of Technology University (TITU), Erquelinnes, Belgium

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Abstract

Foot care is a critical but often overlooked area of global public health, particularly for people with diabetes and those engaged in physically demanding agricultural labor. This review synthesizes knowledge from podiatric science, preventive practices for diabetic foot complications, and occupational foot risks for farmers and livestock handlers. It uses the attrition entrepreneurship framework, which describes how resource constraints and persistent stressors limit people's ability to maintain innovation and economic activity in resource-poor areas. The review links podiatric science and foot care education to major United Nations Sustainable Development Goals, including good health and well-being, decent work and economic growth, and reduced inequalities. There is evidence that preventive podiatric practice reduces diabetic complications, but there is a large knowledge-practice gap in self-care among rural communities. Farmers are also at high risk of foot trauma because of prolonged working hours, environmental conditions, and poor footwear. The review emphasizes the importance of using entrepreneurial approaches, such as community education initiatives, telemedicine, and small-scale foot care businesses, to improve access to preventive care. A locally informed, interdisciplinary approach that integrates clinical knowledge, education, and sustainable business models is proposed to improve foot health and economic outcomes.

Key words: Podology, Entrepreneurship, Farmers, Sustainable Development Goals

I. Introduction

The United Nations Sustainable Development Goals are very relevant in a wide range of scientific fields and industries, such as agriculture, wildlife, food science, entrepreneurship, as well as health and medical sciences. Foot conditions, such as ingrown toenails and neuropathic ulcers, affect millions of people worldwide and have great personal and economic tolls. Diabetic foot complications are a major cause of hospitalization and lower limb amputation, especially in settings where preventive care is limited. On the other hand, agricultural workers have their own occupational risks, such as repetitive trauma, prolonged weight-bearing, and exposure to damaging environments that make them prone to fungal infections, corns, calluses, and other foot conditions. Yet, podology is still a low-priority area in primary health care, especially in resource-poor rural areas where farmers constitute a vital part of the workforce. Through the application of an attrition entrepreneurship theory framework, which argues that stress and resource depletion can have a negative effect on people's innovation and market activity engagement, this review aims to examine how preventive foot health education and entrepreneurial programs can facilitate health and economic success. Importantly, such integrated efforts align with the United Nations Sustainable Development Goals (UN SDGs), including SDG 3

(ensuring healthy lives), SDG 8 (productive employment and decent work), and SDG 10 (reduced inequalities).

The Burden of Diabetic Foot Complications

Diabetes mellitus is a global health crisis with far-reaching complications. Among these, diabetic foot disorders including ulcers, neuropathy, and infections are both common and preventable with appropriate care. Researchers outline that multidisciplinary teams, led by specialized podiatrists, can significantly reduce incidence rates through risk stratification, regular screening, and education. Similarly, International Working Group on the Diabetic Foot updates emphasize evidence-based preventive strategies such as patient education, appropriate footwear, and regular self-examination to forestall ulceration. These guidelines collectively advocate proactive approaches that integrate clinician expertise with patient engagement.

However, despite these improvements, research shows the existence of a knowledge and practice gap in the diabetic community. Researchers showed that a large number of patients had a poor level of understanding of basic foot care, which was associated with suboptimal self-care practices such as improper nail cutting or irregular examination of the feet. Similarly, researchers showed that while a large number of diabetic patients in rural north India had adequate knowledge of foot care, less than half of them practiced proper preventive practices. This indicates the existence of structural issues, such as the lack of access to podiatrists and educational facilities, that hinder proper self-care practices.

Researchers provided early evidence that structured podiatric care can improve both self-care behavior and functional outcomes among diabetic patients, suggesting that multidisciplinary involvement and repeated professional engagement enhance preventive efficacy. Complementing clinical efforts, group education interventions have shown promise in enhancing patients' risk perception and foot-specific behaviors, though these must be coupled with healthcare provider support for maximal impact. Therefore, expanding access to preventive podiatric care through both formal healthcare systems and community platforms is paramount.

Foot Health Challenges in Farmers and Livestock Workers

Farmers and livestock handlers represent another population at high risk for foot health problems due to the physically demanding nature of their work. Prolonged standing, uneven terrain,

exposure to moisture, and heavy labor contribute to musculoskeletal strain, skin breakdown, and infection susceptibility. Although specific large-scale studies on podological outcomes in these populations are limited, clinical evidence indicates that foot trauma and repetitive stress conditions are prevalent occupational risks in agricultural workers. Moreover, poor footwear especially inadequate protective shoes exacerbates the risk of injury and infection, including ingrown nails and fungal conditions, which can further impair mobility and productivity.

Agricultural workers often lack access to specialized foot care and may perceive podological services as less pertinent than other acute health needs. This is compounded by systemic barriers such as geographic isolation, economic limitations, and cultural factors that deprioritize preventive health in favor of immediate work demands. As No universal foot care guidelines targeting farmers exist, adapting diabetic foot prevention frameworks such as routine inspection and protective footwear recommendations may offer initial models for occupational podological guidance applicable to farming populations.

Attrition Entrepreneurship Theory and Foot Health

Attrition entrepreneurship theory explores how sustained adversity and resource depletion affect individuals' capacity to create, sustain, or grow entrepreneurial ventures. In contexts where health challenges are constant and access to resources is limited, individuals may be less able to partake in economic opportunities or innovative activities. Poor foot health particularly chronic conditions like diabetic neuropathy or recurrent injuries in farmers can contribute to reduced labor capacity, higher healthcare costs, and ultimately, diminished entrepreneurial potential.

Foot care becomes not only a medical concern but also an economic one. For diabetic patients, the limitations in mobility due to ulcers or amputations limit their involvement in educational or economic activities. For farmers, foot pain or injury could directly impact their working hours or production, which in turn affects the economic dynamics of the family and the community. The integration of foot care prevention into entrepreneurial approaches, such as community-based foot health enterprises, mobile podiatry clinics, or social enterprises that manufacture protective footwear at an affordable cost, could potentially provide solutions to both economic and health concerns. Such approaches are well-aligned with the UN SDG goals of inclusive economic

growth (SDG 8) and the reduction of health inequalities (SDG 10).

Entrepreneurial Approaches to Enhance Podology Access

Incorporating entrepreneurial solutions into podology can take several forms:

1. **Community Foot Health Education Ventures:** Small-scale local enterprises or cooperatives offering education, screening, and basic foot care services can help address gaps in the existing healthcare infrastructure. These ventures can be set up in rural markets, agricultural centers, or community health fairs, and they can offer preventive education that enables people to take care of their foot health.
2. **Telepodiatry and Mobile Clinics:** Utilizing digital health technology, telehealth services can be used to connect podiatrists with distant communities. Such services can help overcome geographical constraints to accessing specialty care, and they can also be used by entrepreneurs to offer subscription-based or pay-per-consult services.
3. **Affordable Protective Footwear and Orthotics:** Social enterprises that develop and market affordable protective footwear, designed specifically for diabetics and farmers, can help address common risk factors. This approach is in line with business models that seek to integrate profit-making with health outcomes.
4. **Training and Capacity Building:** Entrepreneurial training initiatives for local health promoters, agricultural extension workers, or community volunteers can help develop a pool of foot health educators. These individuals can then set up micro-enterprises for foot screening and risk counseling. These approaches not only improve foot health outcomes but also stimulate economic activity, supporting sustainable entrepreneurship in communities with high foot health risks.

Linking to United Nations Sustainable Development Goals

Several SDGs interconnect with the nexus of podology and entrepreneurship:

SDG 3: Good Health and Well-being Preventive podiatric care and education specifically contributes to good health by preventing ulcers, infections, and amputations in at-risk groups. Access and awareness efforts further support universal health goals.

SDG 8: Decent Work and Economic Growth Foot health allows people to sustain active participation in economic and entrepreneurial endeavors. In addition, podology-related businesses offer new forms of decent work.

SDG 10: Reduced Inequalities Preventive care is not accessible in rural, low-income, and marginalized communities. Entrepreneurial strategies for such communities help to address inequalities in health and economic opportunities.

In this way, the combination of foot health strategies and entrepreneurial approaches addresses multiple goals in health and development.

II. Discussion

Podology represents an important yet overlooked nexus between health and economic productivity. In the context of diabetes treatment, there is evidence that specialized foot care and education are associated with improved self-management and outcomes, although there are important gaps between knowledge and practice, and particularly in rural areas where healthcare resources and education are limited. For farmers and livestock handlers, who have continuous physical demands, the podological needs of these groups have been overlooked in formal research, although clinical knowledge suggests an important risk of chronic foot disease.

Entrepreneurial approaches focused on foot health, particularly those grounded in community engagement and digital innovation, represent important ways to close gaps in access and education. These approaches are well-aligned with the priorities of the SDGs, and can help to create healthier and more economically productive communities. It is also important to note that entrepreneurial approaches must be context-specific, and that strategies developed in an urban clinical setting may not be directly transferable to a rural agricultural context.

III. Conclusion

Foot care is a basic ingredient of personal health and economic productivity. For diabetic patients, good podiatric care can prevent disabling conditions and maintain patient mobility. For agricultural workers, preventive measures for environmental and occupational risks can lower the incidence of injury and pain. The application of entrepreneurial strategies to promote foot care education, mobile services, and affordable protective measures offers great potential in both health and economic outcomes. Such initiatives align with the UN SDGs and contribute to sustainable development through the reduction of inequalities and improvement of productive work.

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