



Contents lists available at ScienceDirect

Journal of Hand Therapy

journal homepage: [www.jhandtherapy.org](http://www.jhandtherapy.org)

Scientific/Clinical Article

## Hand-arm vibration syndrome: Workers' experience with functional impairment and disability

Midori Handford MScPT, BSc<sup>a,\*</sup>, Kiera Lepine MScPT, BHK<sup>a</sup>, Kristina Boccia MScPT, BSc<sup>a</sup>,  
 Francesca Ruddick MScPT, BScH<sup>a</sup>, Darya Alyeksyeyeva MScPT, BHSc, PTS<sup>a</sup>,  
 Aaron Thompson MD, MPH, FRCPC<sup>b,c</sup>, D. Linn Holness MD, MHSc, FRCPC, DTS, HonFFOM<sup>b,c</sup>,  
 Sharon Switzer-McIntyre PhD, MEd, BScPT, BPE<sup>a</sup>

<sup>a</sup> Department of Physical Therapy, Faculty of Medicine, University of Toronto, Rehabilitation Sciences Centre, Toronto, Ontario, Canada

<sup>b</sup> Department of Medicine and Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada

<sup>c</sup> Department of Occupational and Environmental Health, St. Michael's Hospital, Toronto, Ontario, Canada

### ARTICLE INFO

#### Article history:

Received 27 June 2016

Received in revised form

3 October 2016

Accepted 30 October 2016

Available online xxx

#### Keywords:

Hand-arm vibration syndrome

Occupational disease

Quality of life

Perceptions of disability

Functional compromise

International Classification of Functioning,

Disability and Health

### ABSTRACT

*Study Design:* Qualitative and descriptive study.

*Introduction:* Hand-arm vibration syndrome (HAVS) is a prevalent disease in Canada. There is little work on the perspectives of HAVS patients.

*Purpose of the Study:* Explore perceptions of disability and functional compromise in patients with HAVS.  
*Methods:* Semi-structured telephone interviews were conducted with HAVS patients and analysed using content analysis.

*Results:* The 11 participants reported numbness, pain, and reduced dexterity, strength, and sensation. Participants noted that HAVS was an inevitable aspect of their work. They indicated frustration with their condition and viewed it as a disability. To overcome impairments risky strategies are often used. Participants reported lack of support to manage symptoms and overcome work disability.

*Discussion:* HAVS related impairment is disabling. Workers require improved resources and support to address symptom management and safe strategies to minimize work disability.

*Conclusion:* HAVS patients experience functional, social, emotional, and psychological disability.

*Level of Evidence:* Not applicable.

© 2016 Hanley & Belfus, an imprint of Elsevier Inc. All rights reserved.

### Introduction

Hand-arm vibration syndrome (HAVS) is an occupational disease involving the vascular, neurologic, and musculoskeletal systems.<sup>1</sup> The condition results from the use of pneumatic and electric tools, which transmit high-frequency vibration to the hands and arms. Risk of developing the disease depends on vibration magnitude, frequency, and duration of exposure.<sup>2</sup> Based on studies done in countries with similar worker demographics, there are an estimated 72,000–140,000 prevalent cases of HAVS in Canada.<sup>1</sup> In industries such as mining, forestry, construction, and metalworking, up to 50% of workers may be affected.<sup>3</sup>

Symptom history, physical examination, and system-specific testing of the vascular, neurologic, and musculoskeletal systems

are required to confirm the diagnosis and quantify the severity of HAVS in individual cases.<sup>2</sup> The Stockholm Workshop Scale is widely used to classify disease severity for the vascular and neurologic components of HAVS. The musculoskeletal aspects of HAVS may also be a significant source of disability; thus, lack of recognition may create a barrier to appropriate medical management and compensation.<sup>4,5</sup> Early diagnosis and prevention of HAVS is essential because advanced disease results in permanent impairment even after cessation of exposure.<sup>6</sup>

With the high prevalence of HAVS among workers exposed to hand-arm vibration and the dearth of qualitative research on the subject, it is important to explore the perceived effects of HAVS on daily life. HAVS is a multisystem occupational disease, associated with overlapping vascular, neurologic, and musculoskeletal symptoms. To date, research on HAVS has been based on the biomedical perspective,<sup>7–13</sup> often using highly specific outcome measures such as the Disabilities of the Arm, Shoulder and Hand questionnaire.<sup>8,9,11,14,15</sup> The Disabilities of the Arm, Shoulder and Hand questionnaire provides valuable insight, although does not take

\* Corresponding author. Department of Physical Therapy, University of Toronto, 500 University Ave, Toronto, Ontario, M5G 1V7, Canada. Tel.: +1 778 985 4548.

E-mail address: [midori.handford@gmail.com](mailto:midori.handford@gmail.com) (Midori Handford).

into account the lived experience of disability of people with HAVS. An overall perspective on the influence of HAVS on disability and function has not been explored. The only qualitative study<sup>16</sup> uncovered some interesting themes, although it was conducted in a different population and did not focus on impairment or disability. The work by Ayers and Foreshaw<sup>16</sup> suggested pervasive functional and psychological impacts in the HAVS population and highlighted the need for further research from a biopsychosocial perspective to explore the disability experience of patients with HAVS. Our study will not only add to the extant body of literature on HAVS but also provide novel insights into the lived experience of people with HAVS.

### Purpose of the study

The aim of this study was to investigate the disability experience of people with HAVS, examine the nature of functional compromise these patients experience, and consider the influence of contextual factors in patients living with HAVS.

### Methods

This study used a qualitative descriptive design to extract a better understanding of the breadth of the impact of HAVS, how it relates to the workplace, home life and relationships, and workers' perceptions of the effects of the disease.

### Data generation

A purposive sampling process (homogenous sampling of people with moderate to severe HAVS) was used to recruit all possible participants. This process ensured that the participants recruited were most likely to provide information that focuses on the study's questions. Based on the evidence, the plan was to recruit the first 15 eligible<sup>17</sup> and consenting patients who attend the hospital-based Occupational Health Clinic (OHC) in Ontario, Canada, to ensure variety and a more accurate representation of the experiences of people living with HAVS (Fig. 1). This OHC is the largest clinic in Canada specializing in the assessment and diagnosis of HAVS.<sup>2</sup> The recruitment target was 10–15 individuals with HAVS who meet the inclusion criteria and consent to the interview. This is the sample size required to achieve a sufficient variation in responses.<sup>17</sup> Furthermore, a similar qualitative study on the perceptions of health-related issues in human immunodeficiency virus recruited 13 participants.<sup>18</sup> We posited that a sample size of 10–15 participants will be feasible for the given time frame allocated for conducting this study.

The target sample population was English-speaking subjects who were eligible to work and consented to participate in a 30–45 minute telephone interview. Stockholm Workshop Scale vascular stage 2 was chosen as inclusion criterion because the literature suggests at this stage that the likelihood of permanent impairment increases and patients begin to experience significant functional impairment and a lower quality of life.<sup>6,9,19,20</sup>

Data were collected using a series of prearranged and semi-structured telephone interviews. Two researchers were present during an interview. One researcher was responsible for interviewing the participant, whereas the other researcher took field notes. There were 3 researchers in total to interview participants, and these 3 convened after each interview to discuss ways to improve the interview guide to focus on the study's questions.

Interviews consisted of 12 open-ended questions focusing on participants' perceptions and experiences of disability related to HAVS (Fig. 2). The World Health Organization's International Classification of Functioning, Disability and Health (ICF) was used

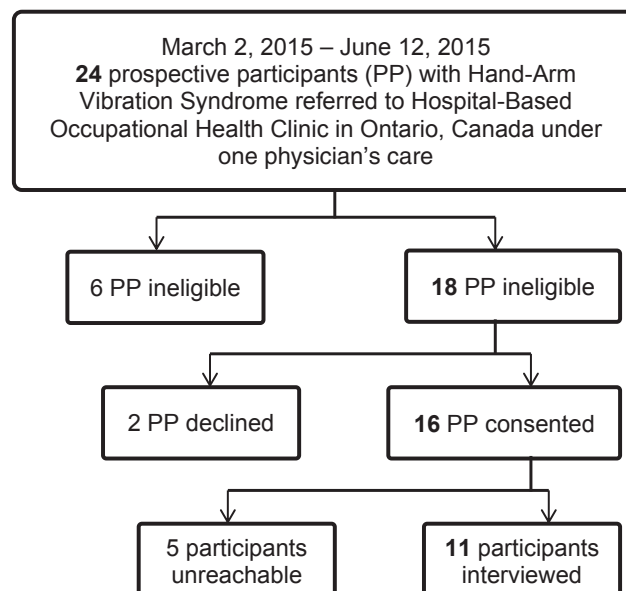


Fig. 1. Participant recruitment.

as a conceptual framework to inform an understanding of disability and frame questions. The ICF provides a biopsychosocial framework that enables conceptualization of disability by capturing the interaction of personal and environmental contextual factors that influence individuals' perceptions of their disability.<sup>21</sup> The ICF scheme assists in the organization of patient information and helps to inform choices related to assessments, outcome measures, and interventions.<sup>22,23</sup> The ICF scheme also provides a framework for the investigation of patients' perceptions about their health conditions<sup>24</sup> and facilitated questions covering participation restrictions, activity limitations, impairments, as well as contextual and environmental factors. Questions relating to demographics and participants' management of their condition were included.

Interviews were audio recorded and transcribed verbatim by an independent transcriptionist after each interview was completed.

### Data analysis

Data were analyzed using conventional content analysis<sup>25</sup> to describe the phenomenon of people living with HAVS on their perceptions of their disability. One researcher reviewed the transcribed interviews for accuracy. Inductive coding was used to thematically code all transcripts. The research team reviewed the first 5 transcripts together to achieve immersion<sup>25</sup> and consistency of a general coding scheme. Themes, patterns, and impressions manifesting from the data were explored and organized into broader categories to generate the coding scheme.<sup>26–28</sup> Margin notes were used to identify recurring emerging impressions and patterns, which were subsequently identified as codes and organized into broader themes and subthemes.<sup>25</sup> These overall codes and themes were inputted into NVivo 10 (QSR International Pty Ltd., Melbourne, Australia).<sup>29</sup> The remaining transcripts were analyzed by a pair of researchers and inputted into NVivo (QSR International Pty Ltd., Melbourne, Australia).

To enhance rigor, a reflexive diary was used to reflect on how the researchers' social positionalities may influence the interview data in unpredictable ways. Data were re-examined by the researchers' multiple times to revise themes and relationships between the themes to ensure emerging concepts were consistent with the data set. Data were also analyzed repeatedly to address irregularities.

Download English Version:

<https://daneshyari.com/en/article/8590080>

Download Persian Version:

<https://daneshyari.com/article/8590080>

[Daneshyari.com](https://daneshyari.com)