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# The Use of the Sensecam to Explore Daily Functioning of Older Adults with Chronic Pain

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## ABSTRACT

Chronic pain often interferes with daily living. This study aimed to explore day-to-day patterns of functioning and experiences of older adults living with chronic pain. Thirteen older adults (65+ years) living with chronic pain (pain lasting >3 months) took part in the study. Four data collection techniques were used to gather information on various aspects of daily living. Participants were asked to wear a Sensecam, a LifeShirt, as well as complete a daily diary for seven days. Participants also took part in a semi-structured interview. Themes were developed, based on the images, to explain the effect of chronic pain on the participants' functioning. The Sensecam allowed novel data to be gathered increasing knowledge of the daily functioning of older adults living with chronic pain.

## AUTHOR KEYWORDS

Sensecam; Older adults; Chronic pain; Functioning

## ACM Classification Keywords

J.3 Life and Medical Sciences: Health

## INTRODUCTION

We live in a population that is increasingly ageing. Our ageing society reflects decreased birth rates and increased longevity with predicted estimates claiming that 4% of Britons will be classed as 'oldest-old' (over 85 years old) by 2032[1]. Furthermore, chronic pain is a widespread problem, specifically within the older population, with studies reporting the prevalence of chronic pain as ranging from 25-76% in older people living in the community [2].

Chronic pain interferes with many aspects of daily functioning and this interference increases with age [3]. Mobility can be affected as individuals with chronic pain walk less than those without chronic pain<sup>4</sup> and chronic pain is also associated with greater risk of falls in the older

population [5]. Furthermore, activities of daily living, such as self-care, domestic tasks, and leisure tasks are often modified, reduced or terminated as a result of chronic pain [6]. Finally, the presence of chronic pain can have a negative social impact as social exclusion and isolation are often experienced [7,8].

## AIM

The aim of the study was to explore a range of day-to-day patterns of functioning and experiences of functioning in older adults suffering from chronic pain.

## METHOD

A mixed-method design was used. Thirteen participants took part in the study due to the idiographic nature of the study. All participants were over 65 years old and living in the community with chronic pain (9 female, 4 male). This study has been reviewed by Teesside University's School of Health & Social Care Research Governance and Ethics Committee. All participants gave informed consent. All participants wore the Sensecam (Vicon, ViconRevue) for 7 continuous days within their own environment, and were instructed to continue with their daily routine as they usually would. The Sensecam acted as a visual diary collecting data on daily functioning. As well as wearing the Sensecam, data was also collected using three other measures; a LifeShirt (Vivometrics Inc) which is an accelerometer worn as a jacket underneath the individual's clothes, a daily diary (based on the Day Reconstruction Method, DRM) and a semi-structured interview. The four data collection strategies allowed information to be gathered from various perspectives. An initial analysis of the Sensecam findings has been conducted.

## RESULTS

Participants wore the Sensecam for an average of 9.52 hours of each day. Twelve days of data over the sample were not recorded. Ethnographic Content Analysis [9] was used to construct preliminary findings based on the Sensecam images. One image per minute was coded manually by one coder. Four elements of the images were

coded; task, body position, location, interaction. The codes were initially developed from codes within the DRM as well as codes developed by other researchers using the Sensecam [10] however, ECA is an iterative process and additional codes were added during the analysis process. Themes were then generated from the tallied codes and the details within the images. Five themes were generated from the images. **Household tasks:** The frequency of cooking, household chores and gardening were low but varied over the sample. One similarity between participants was the use of pacing strategies as individuals often rested in-between household tasks. It was also evident from the Sensecam that many participants used assistive devices whilst completing some tasks, such as devices designed to ease movement or compensate for impaired body movements. It was apparent that some participants relied on others to complete household chores, such as members of the family, or a cleaner. **Down-time:** The participants spent most of their week completing sedentary tasks which mainly consisted of relaxing, watching TV and reading. Participants spent most of their time sitting down but only six participants lay down at any point whilst using the Sensecam. **Travel:** Participants spent most of their time within their own home and most participants did not travel on every day of the study week. However, when travelling most participants travelled by car however both drivers and non-drivers used other methods of transport. Similar to household chores, the Sensecam showed that some participants relied on others whilst travelling, such as for driving, or pushing their wheelchair. **Exercising:** Few participants exercised during the study week, but of those that did, walking was the most common form of exercise. Also, the importance of having a dog for the purpose of walking was prominent for two participants as both participants took a purposeful walk at least once a day in order to walk their dog. Only four individuals used mobility aids whilst walking; two individuals needed a wheelchair to move around outside of their home, and two participants used walking aids. However, the figure may have been higher as walking aids were often difficult to view on the Sensecam. **Time spent with others:** Socialising was common, however, despite this the participants generally spent more time alone than with others. Time socialising was carried out in various locations, such as the home, community centres and the pub. Socialising also took many forms from chatting over coffee to opportunity socialising whilst walking.

## CONCLUSION

Functioning can be affected as a result of chronic pain and the Sensecam allowed an in-depth exploration of the daily functioning of older adults living with chronic pain in a novel way. Preliminary themes demonstrate the various ways that chronic pain has affected functioning for the participants within this study. However, the Sensecam does not tell the whole story and some things were not picked up on the Sensecam, such as the use of walking aids.

Furthermore, information as to why individuals functioned in the way that in which they did, and the specific effect that chronic pain has had upon functioning, is not gathered from the Sensecam, therefore additional data collection methods are needed. The final analysis of this data will integrate the findings from the three other data collection techniques which will contextualize and expand upon all of the data gathered from the Sensecam. Additionally, to further strengthen the results, data from two younger adults (<65 years) with pain and two older adults (65+ years) without pain will also be analysed in order to compare their daily living to the older adults living with chronic pain.

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