

POSTER

Health and Self-Esteem

Y. LEE, W. SHIM. A usability evaluation of a posture transducer without back pressure. *Gerontechnology* 2018;17(Suppl):165s; <https://doi.org/10.4017/gt.2018.17.s.160.00>

Purpose A number of devices for raising or lowering a seat back have been developed as a nursing bed or posture transducer, but it's difficult to find devices that completely reduce back region, hip region, and head contact pressure when raising the upper body. Particularly, a posture transducer with a simple structure and low cost that removes pressure and provides comfortable support during movement is a challenge. To solve these problems, a newly designed posture transducer was developed fixing the mattress to the frame, that can be used anywhere - on the floor, on the low wood frame, on the bed, etc. As a result of the functional test of this product, it has been confirmed that additional back pressure did not occur when raising the upper body. In this study, a usability evaluation is performed on actual users. It evaluates the functionality, convenience, and safety for use, and aimed to understand the usefulness of the device in the process of achieving the goal of movement.

Method By considering participants and the use of the posture transducer, usability evaluation indicators (total 48 questions) were developed, and the survey reflecting the elderly's recognition and response levels was used. The first survey was conducted on 16 elderly people (7 males, 9 females; mean age: 80.9 years) experiencing difficulty or reluctance to use a nursing bed from July 4th until July 20th 2016, and 16 questions were selected including 3 general questions, 1 question on health, 7 safety questions, 2 device operation questions, 2 questions on functional satisfaction, and 1 question about other opinions. The second survey was carried out from January 2nd to January 10th 2018. The posture transducer, column-type handle, and mobile support device were placed from bed to bathroom, and the duty of going to the bathroom was performed. Four elderly people (3 male, 7 female; mean age 83.7 years) who had problems sitting up were interviewed. Interviews asked how helpful and convenient the mobile support device was in performing their movement mission.

Results & Discussion According to the first survey, 6 elderly people were unable to raise themselves and 10 were normal or experienced difficult sitting. Among them, 12 had experience in using a nursing bed, but 4 did not. In the usability evaluation, inconvenience caused by head, back, and abdominal pressure while raising the upper body was 1.1 points out of 5 points. Ratings were 3.9 points when asked about ease of use of the device, and the motion speed of raising the upper body was satisfying with a rating of 3.0 points. The reasons for reluctance to use a nursing bed was that they felt dizzy getting up and it was cold and difficult to sleep on the bed. The second survey showed that all 10 people were satisfied with the raising of the upper body when performing movement duties. The width of the device was satisfactory by 9 out of 10 people. One person complained of difficulty in sitting up after raising the back, but this problem was solved by testing the device on the low wood bed frame. In conclusion, it was shown that this posture transducer with simple design and low cost helped raise the upper body. In addition, mobility can be secured in various houses in case of combining the mobile support device. If this device is used in accordance with the circumstance of users with difficulty moving, it will be able to provide convenience and safety in daily life.

References

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Keywords: Head of Bed (HOB), sliding pressure, back region contact pressure

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Figure 1. Upper Body Support Device