T-L. SUN, C-H. HUANG, C. PEI, T-M. HUNG. ***Comparison of Somatosensory Gaming (SG)-based rehabilitation exercise programs at elderly nursing homes.*** *Gerontechnology 2014; 13(2):284;* doi:10.4017/gt.2014.13.02.248.00 **Purpose** Rehabilitation exercise is important for residents of elderly nursing homes to maintain motor ability. But the adherence rate is usually low due to the boredom experienced by prospective participants. The recent emergence of somatosensory gaming (SG) allows players to undertake physical exercises while playing in a pleasant digital world, which increases enjoyment, engagement, and adherence[1]. Many researchers employ SG to address health issues that contribute to reduced independence in older adults[2]. This paper compares three types of SG-based rehabilitation exercise programs at elderly nursing homes. **Method** A Kinect game for upper limb exercise was developed based on Burke et al.'s work[2], as shown in *Figure 1*. The game was introduced into three nursing homes using different playing strategies. At the first nursing home, game play was encouraged and accompanied by social workers. At the second nursing home, game play was monitored by the head nurse. At the third nursing home, the elderly played by themselves. The number of elderly who participated in our program at the three nursing homes is *n*=9, 10, and 7, respectively. The game was played 2 times per week for 6 weeks. The game is designed to stop every 1 minute to let the elderly take a rest. The elderly can then choose to continue to play or to quit. The elderly can play as many times as they want at each play session. The game play metrics collected to analyze game play behaviors include: TT (Total Times of 1-minute play during 6 weeks), RT (average Reaction Time), and game score improvement (final score minus base score). **Results & Discussion** Participants from all three nursing homes show no statistical differences in age (p=0.08), Bathel Index (p=0.341), Postural Control Assessment Scale (p=0.204), and Berg Balance Scale (p=0.272). Significant differences are observed between groups in TT (p=0.012) and RT (p=0.014). The first group, i.e., encouraged and accompanied by social workers, has the highest TT (mean=107.44 or 9 times of 1-minute play at each play session). In contrast, the second group, i.e., monitored by the head nurse, has the lowest TT (mean=20.00 or 1.6 times of 1-minute play at each play session), while the third group has an average TT=67.57. The first two groups have similar RT (mean=0.69) whereas the third group has the highest RT (mean=0.86), indicating that the elderly in the first two groups played with more focus. Finally, all 26 participants showed significant score improvement (p<0.01).

References

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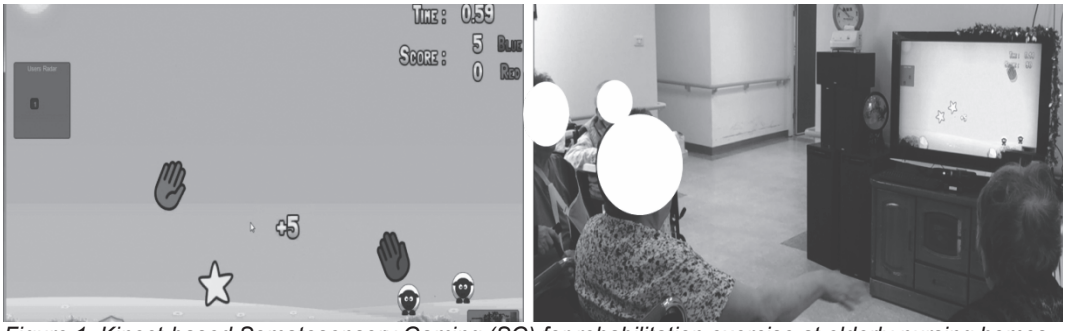

Figure 1. Kinect-based Somatosensory Gaming (SG) for rehabilitation exercise at elderly nursing homes