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### Developing a model to explain users' ethical perceptions regarding the use of care robots in home care: A cross-sectional study in Ireland, Finland, and Japan

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#### HIGHLIGHTS

- Surveys for home-care robots were conducted in Japan, Ireland, and Finland.
- The study built a model of ethical perceptions regarding the use of home-care robots.
- Our final model had explanatory power across countries with different backgrounds.
- This model can also be applied to explain ethical perceptions by attributes.

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#### ABSTRACT

To date, research on ethical issues regarding care robots for older adults, family caregivers, and care workers has not progressed sufficiently. This study aimed to build a model that universally explains the relationship between the use of care robots and ethical awareness, such as regarding personal information and privacy protection in home care. We examined data obtained from cross-sectional surveys conducted in Japan (n=528), Ireland (n=296), and Finland (n=180). We performed a confirmatory factor analysis by using responses to 11 items related to the ethical use of care robots. We evaluated the model based on the chi-square to degrees of freedom ratio, the comparative fit index, and the root mean square error of approximation. Subsequently, we compared the model with the Akaike's information criterion. Ten items were adopted in the final model. There were 4 factors in the model: 'acquisition of personal information', 'use of personal information for medical and long-term care', 'secondary use of personal information', and 'participation in research and development'. All factor loadings of the final model ranged between 0.63 and 0.92, which were greater than 0.6, showing that the factors had a high influence on the model. The final model was applied to each country; the fit was relatively good in Finland and poor in Ireland. Although the three countries have different geographics, cultures, demographics, and systems, this study showed that the impact of ethical issues regarding the use of care robots in home care can be universally explained by the same model.

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