Effect of exercise programs on physical frailty in local government

Emina Nishiyama 1, Kai Tanabe, PhD2, Yukihiko Okada, PhD3,4, Akiko Tsukao, 5, Shinya Kuno, PhD2

1. Master's Program in Service Engineering, Univ. of Tsukuba, Japan 2. R&D Center for Smart Wellness City Policies, Univ. of Tsukuba, Japan
3. Institute of Systems and Information Engineering, Univ. of Tsukuba, Japan 4. Center for Artificial Intelligence Research, Univ. of Tsukuba, Japan
5. Tsukuba Wellness Research Co. Ltd., Japan

1.Abstracts

Backgrounds:

・Few retrospective empirical studies for frailty prevention

Objectives:

・To clarify the effect of local government exercise programs on physical frailty

Results:

RQ1 Does use of exercise programs improve frailty ***state***?

→ **YES** **Users are 1.23 times more likely to improve frailty or maintain robustness** than non-users.

RQ2 Does use of exercise programs improve frailty ***score?***

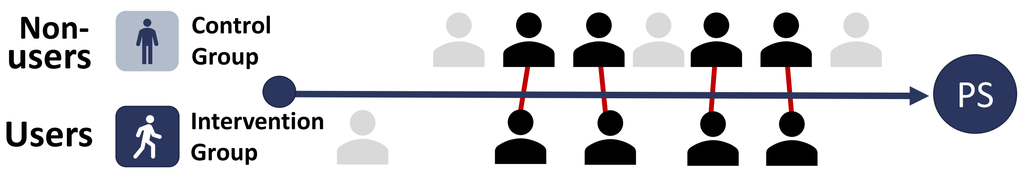
→ **YES** **Users improved by 0.22 out of 5 points** compared to non-users.

Conclusion : Local government exercise programs have been shown to improve physical frailty

2.Methods

①**Calculate the propensity score** (PS) using the covariates in the right table

②**Create pairs** of similar propensity scores between control and intervention groups (**Propensity score matching**[2])→**319**paires



【Table1.Covariates】

	Covariates (14items)	Item overview
X_1	Age	Items that can contribute to frailty
X_2	Gender	
X_3	Medication (blood sugar)	
X_4	Medication(blood pressure)	
X_5	Medication(Lipid)	
X_6	BMI	
X_7	Smoking	
X_8	Drinking	
X_9	Fall experience in the past year	
X_10	Shrinking	Items that measure the current state of frailty
X_11	Exhaustion point	
X_12	Low Activity	
X_13	Slowness	
X_14	Weakness	

Fried et al(2001)[1]

③**Compare changes in frailty state and score** between control and intervention groups

RQ1 Changes in frailty **state**

RQ2 Changes in frailty **score**

3.Results

RQ1 Does use of exercise classes improve frailty ***state***?

・Compare changes in frailty state between control (Non-users) and intervention(Users) groups

Improved state | Who maintained their robustness or improved their frailty

Control Group : **138** people < Intervention Group : **170** people

Worsened state | Who maintained their frailty or worsened their frailty

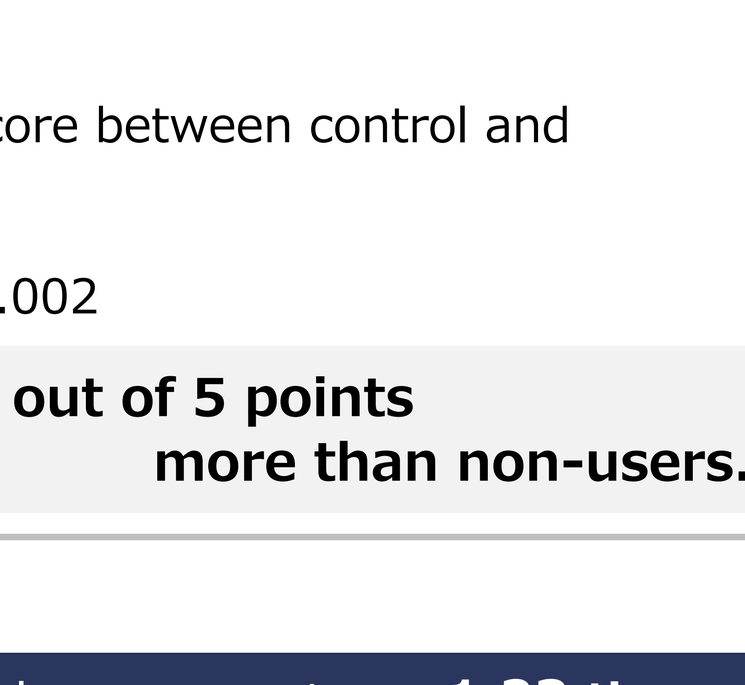
Control Group : 181 people Intervention Group : 149 people

・The chi-square test : p=0.011

Users have 1.23 times people in Improved state than non-users.

1.23times improvement

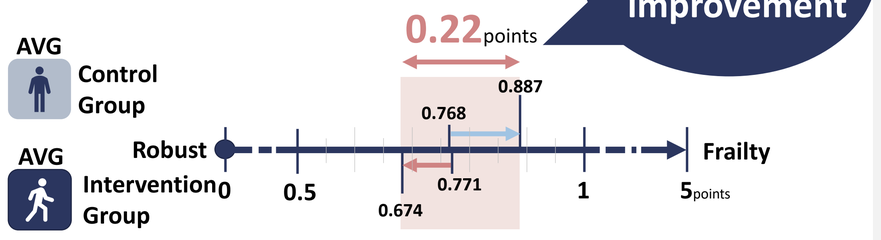
【Changes in frailty state】



RQ2 Does use of exercise classes improve frailty ***score?***

【Changes in frailty score】

0.22points improvement



・Compare changes in frailty score between control and intervention groups

・Student t-test : p=0.002

・Mann-Whitney's U-test : p=0.002

Users improved by 0.22 out of 5 points more than non-users.

4.Conclusion

It was shown that using an exercise program implemented by the local government was **1.23 times** more likely to improve frailty or maintain robustness and improved **frailty score** by **0.22 points** out of 5 points.

References

[1]Fried, L. P., Tangen, C. M., Walston, J., Newman, A. B., Hirsch, C., Gottdiener, J., ... and McBurnie, M. A. 2001. Frailty in older adults: evidence for a phenotype. The Journals of Gerontology Series A: ***Biological Sciences and Medical Sciences*** 56(3):M146-M157.

[2] Rosenbaum, P. R., D. B. Rubin. 1985a. The central role of the propensity score in observational for causal effects. ***Biometrika*** 70:40-55.

Acknowledgments

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