RWD292

# Preferences for virtual reality exergame in weight control setting among young adults: a discrete choice experiment

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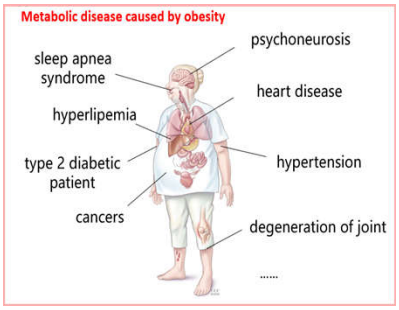
## INTRODUCTION

Obesity has the potential to adversely affect individuals' health, increasing the risk of various severe chronic conditions and premature mortality. Young adults, particularly susceptible due to increasingly unhealthy lifestyles, represent a high-risk population. Conventional exercise interventions often face limitations in sustaining long-term adherence. Virtual reality exergames have emerged as a novel, interactive approach to promote physical activity and support weight management. Virtual reality exergames have shown potential to enhance exercise enjoyment and adherence; however, young adults' preferences remain inadequately understood.

## OBJECTIVE

This study aimed to investigate their preferences and willingness to pay for virtual reality exergames in weight control setting.




## METHOD

This discrete choice experiment combined with a cross-sectional survey was conducted in Guangdong Province, China. 382 young adults aged 18-25 years were recruited via online platform from April 14 to May 10, 2025. Mixed logit models were used to estimate stated preferences. Subgroup analyses were conducted based on gender, body mass index (BMI), location, and employment status to explore variations in preferences and willingness-to-pay.

## RESULTS

Participants exhibited the strongest preference for moderate-intensity exercise (β=1.093, P<0.001), significantly superior to high-intensity and low-intensity. Basic feedback had the highest selection probability (β=0.648, P<0.001), while artificial intelligence coach was strongly rejected (β=-0.923, P<0.001). The willingness-to-pay for fantasy scenario reached ¥ 201.799, compared to ¥ 122.154 for an arena-like virtual environment. Subgroup analyses revealed: individuals with underweight had a willingness-to-pay for moderate-intensity games exceeding that of individuals with obesity by 27%; males' willingness-to-pay for the arena-style game scenes was ¥ 275.75, compared to only ¥ 99.16 for females.

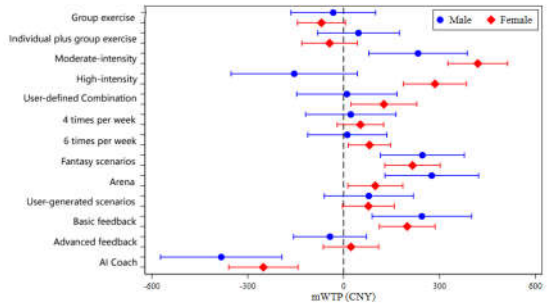



Table 1. Mixed Logistic Regression Models of Patient Preferences [a]

| Variable | B(95%CI) | SE | P value | SD | P value |
|---|---|---|---|---|---|
| Out of pocket cost | -.00299 (-.00340 to .00259) | 0.00021 | 0.000 | NA | NA |
| Exercise modality | | | | | |
| Individual exercise | 1 [Reference] | NA | NA | NA | NA |
| Group exercise | -0.159(-0.361 to 0.043) | 0.103 | 0.123 | 0.785 | 0.000 |
| Individual plus group exercise | -0.025(-0.238 to 0.188) | 0.109 | 0.818 | 0.997 | 0.000 |
| Exercise type | | | | | |
| Low-intensity | 1 [Reference] | NA | NA | NA | NA |
| Moderate-intensity | 1.093(0.816 to 1.369) | 0.141 | 0.000 | -0.619 | 0.000 |
| High-intensity | 0.452(0.162 to 0.741) | 0.148 | 0.002 | 1.166 | 0.000 |
| User-defined combination | 0.2617(0.000 to 0.523) | 0.1335342 | 0.050 | 1.032 | 0.000 |
| Frequency | | | | | |
| 2 times per week | 1 [Reference] | NA | NA | NA | NA |
| 4 times per week | 0.155(-0.044 to 0.354) | 0.1013 | 0.126 | 0.708 | 0.000 |
| 6 times per week | 0.163(-0.014 to 0.340) | 0.090 | 0.071 | 0.418 | 0.045 |
| Game environment | | | | | |
| Real-world settings | 1 [Reference] | NA | NA | NA | NA |
| Fantasy scenarios | 0.604(0.397 to 0.811) | 0.106 | 0.000 | 0.830 | 0.000 |
| Arena | 0.366(0.158 to 0.574) | 0.106 | 0.001 | 0.636 | 0.003 |
| User-generated scenarios | 0.178(-0.027 to 0.383) | 0.105 | 0.090 | 0.515 | 0.012 |
| Feedback | | | | | |
| No feedback | 1 [Reference] | NA | NA | NA | NA |
| Basic feedback | 0.648(0.396 to 0.900) | 0.129 | 0.000 | 0.773 | 0.000 |
| Advanced feedback | 0.022(-0.187 to 0.231) | 0.107 | 0.834 | 0.765 | 0.000 |
| Artificial intelligence coach | -0.923(-1.198 to -0.648) | 0.140 | 0.000 | 1.231 | 0.000 |

[a] Model fit data: 10314 observations; 382 respondents; probability, $x^2$=0.000; likelihood ratio, $x^2(15)$ = 486.96; Akaike information criterion, 5363.2992; Bayesian information criterion, 5472.2992.

## CONCLUSIONS

Young adults demonstrated clear preferences for moderate-intensity virtual reality exergames with basic feedback in fantasy environment, with gender- and BMI-based variations in willingness-to-pay. These evidence-based preference patterns provide crucial design guidelines for developing engaging virtual reality weight management interventions while highlighting the need for personalized approaches to maximize user adherence.

References:
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3. Seo EY, Kim YS, Lee YJ, Hur MH. Virtual reality exercise program effects on body mass index, depression, exercise fun and exercise immersion in overweight middle-aged women: a randomized controlled trial. Int J Environ Res Public Health 2023-01-04;20(2):900. [doi:10.3390/ijerph20020900]
4. Kracht CL, Joseph ED, Staiano AE. Video games, obesity, and children. Curr Obes Rep 2020-03-01;9(1):1-14. [doi:10.1007/s13679-020-00368-z]