



# A Survey on AR/VR Games for Mental and Physical Public Health

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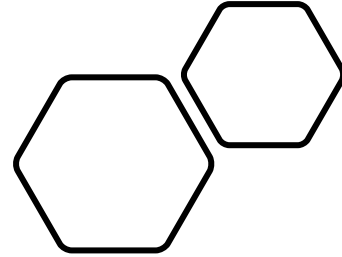
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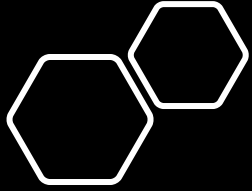
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# CONTENT



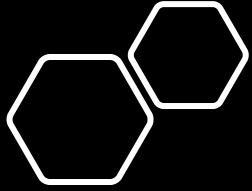
- Problem definition and research aim
- Research questions
- Background concepts
- Method
- Results
- Discussion
- Conclusion



# PROBLEM AND AIM

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- Increasing AR/VR games in public daily life
- Aim: usage
- benefits and problems
- future feature



# RESEARCH QUESTIONS

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- RQ1: What is the usage experience of AR/VR games of the public?
- RQ2: What are the publics' perceived benefits and problems of AR/VR games for mental and physical health?
- RQ3: What features would the public like to see in future AR/VR games for mental and physical health?

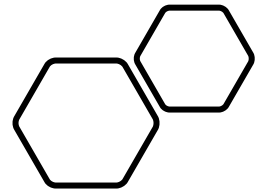


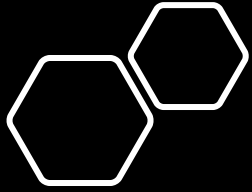
AR technique



VR technique

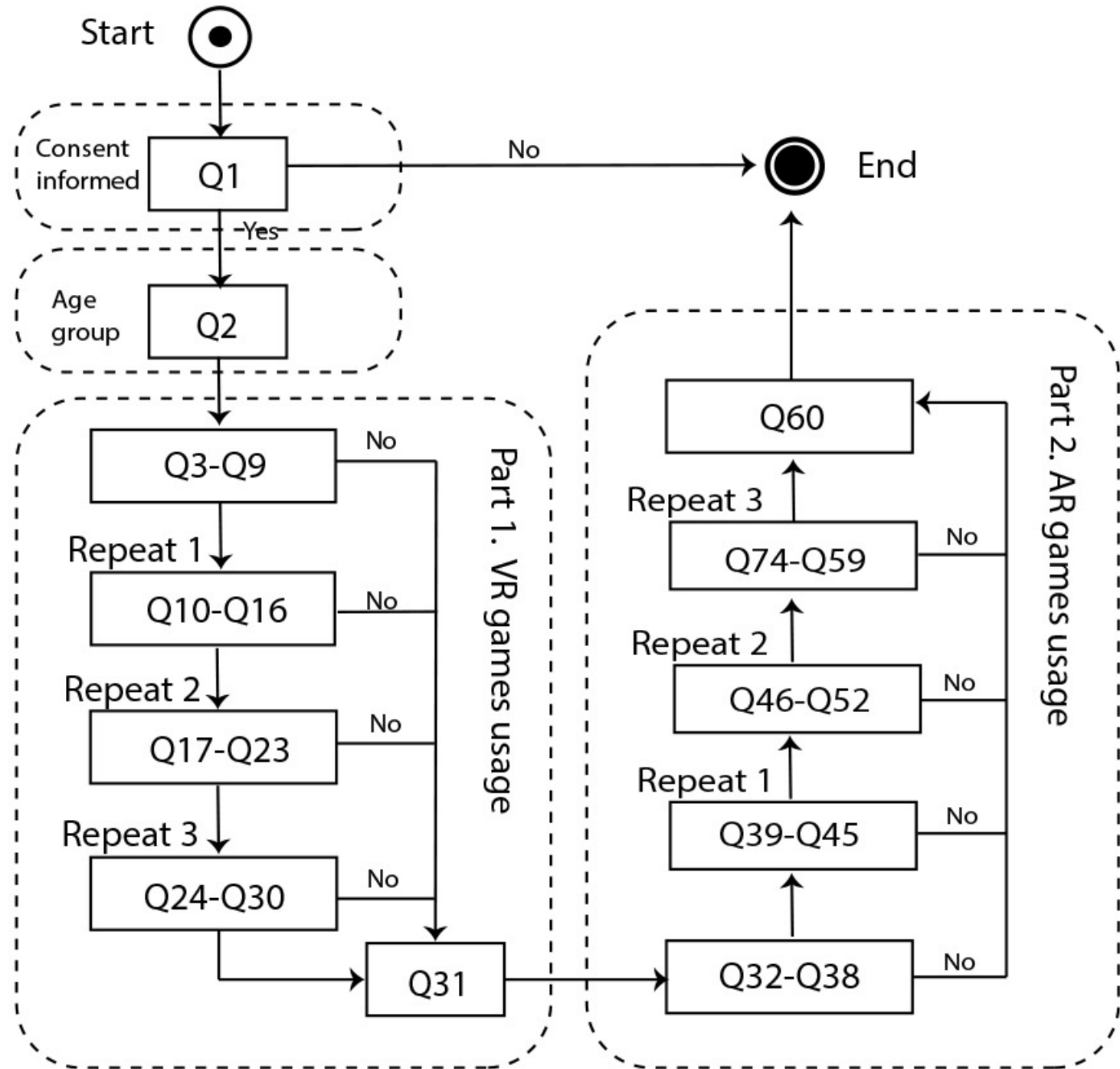
# Background concepts

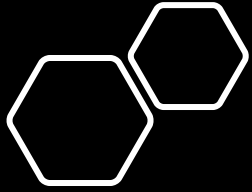




# METHODS

- Online questionnaire
- Email, LinkedIn, Twitter
- General information
- Topic-related questions





# RESULTS

- 74 answers
  - 18-24 year-old: 17, 25-30 year-old: 52
  - 35-44 year-old: 4, Over 45 year-old: 1

## Usage situation

TABLE I

THE AR/VR GAME USAGE SITUATION OUT OF POSSIBLE FOUR OPTIONS.

	Q3/Q32	Q10/Q39	Q17/Q46	Q24/Q53
<b>VR</b>	38	6	4	2
<b>AR</b>	21	2	1	1

TABLE II

THE USAGE FREQUENCY OF THE MENTIONED AR/VR GAMES.

(a week)	VR				AR			
	Q4	Q11	Q18	Q25	Q33	Q40	Q47	Q54
<b>Less than once</b>	35	4	4	1	16	1	0	0
<b>2-3 times</b>	3	1	0	1	2	0	0	0
<b>Over 3 times</b>	0	1	0	0	2	1	1	1

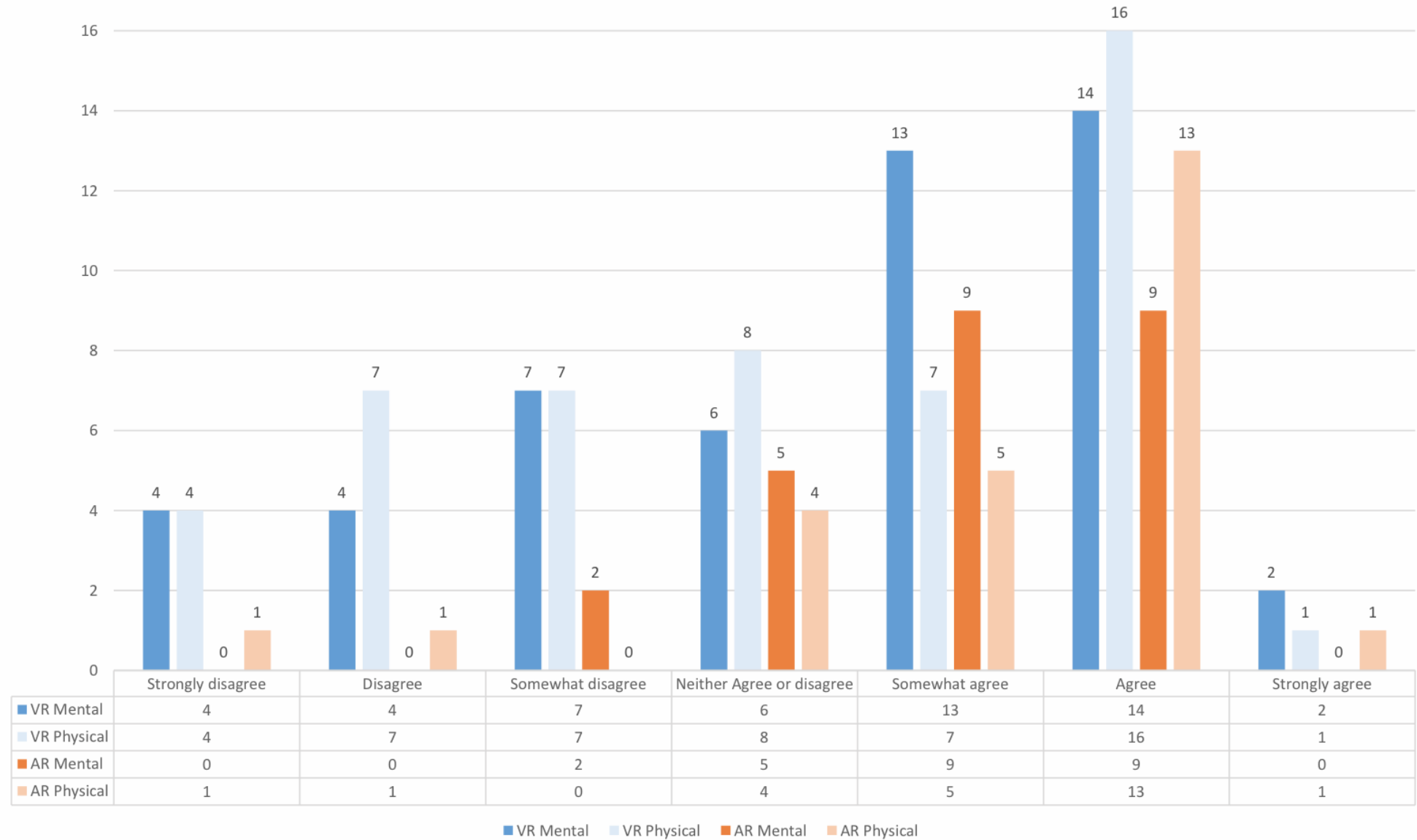


TABLE III  
OVERALL AMOUNT STATISTICS OF THE MENTIONED VR/AR GENRES AND GAMES.

	VR			AR		
	<i>Genres</i>	<i>Games</i>	<i>Name/Feature</i>	<i>Genres</i>	<i>Games</i>	<i>Name/Feature</i>
Action game	1	1	<i>Sword battle</i>	1	1	<i>Alipay's Ant Manor</i> AR hand exercises [1]
Shooter game	11	6	<i>Beat saber</i> [3], Shooting zombie [2], Shooting game [1], First-person shooter game [3], <i>Fruit Ninja</i> [1], <i>Gunfight</i> [1]	1	1	Dead lands [1]
Rhythm game	1	1	Dance game	0	0	null
Adventure game	4	4	<i>Moss</i> [1], Discovery game [1], Sword and magic [1], <i>Mage guard: the last grimoire</i> [1]	10	1	<i>Pokémon Go</i> [10]
Role-playing game	1	1	<i>Perfect World</i> [1]	0	0	null
Simulation game	5	4	Car racing game [2], Fire fighting simulation [1], <i>Roller Coaster</i> [1], Flight training [1]	0	0	null
Strategy game	0	0	null	2	1	<i>Onmyoji</i> [1]
Casual game	0	0	null	2	2	Take picture with dinosaur [1], Collecting "Fu" card [1]

*Note: In the "Name/Feature" columns, the italic names are real games, whereas the other ones are only a type of game feature. The number in "[ ]" means the total number of participants mentioning such games.*

# Benefits



# Benefits of AR games

- Motivating the player to go outdoors
- Do not need additional equipment
- Good visual experience
- More novel and immersive

# Benefits of AR games

- Exercise
- New and improved game experience
- Reduce the limitation of entertainment
- Avoid real danger of experience in a danger-like situation
- Online social community

## Problems

- AR games

- Addiction

- Not as much fun as VR games

- Device problems

- Risk of traffic accidents

- VR games

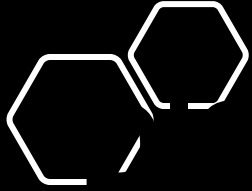
- Physical discomfort

- Device problems

- Impact on real world

# Future features

	AR	VR
Purpose	<ol style="list-style-type: none"> <li>1) Training and treatment for mental and physical health (depression, stress relief, avoid sitting long time, eye protection, fitness/sport/exercise)</li> <li>2) Education and communication in health and telemedicine.</li> </ol>	<ol style="list-style-type: none"> <li>1) Train and treatment for mental and physical health (social barriers, autism, Alzheimer, release pressure, promote/improve sleep, help disable people, recover muscle activation).</li> <li>2) Extreme games, sport, and exercise (skydiving, VR gyms, live football).</li> <li>3) Education and learning in health ( )</li> </ol>
Function	<ol style="list-style-type: none"> <li>1) Better realism and immersion</li> <li>2) Better sensory experience with tactile feedback</li> </ol>	<ol style="list-style-type: none"> <li>1) Biofeedback.</li> <li>2) More freedom and interaction, and less distance between non-player characters.</li> <li>3) Multi-users</li> </ol>
Device	Light AR glasses	<ol style="list-style-type: none"> <li>1) Multi-senses.</li> <li>2) Unlimited location of use (break sitting/standing playing mode).</li> <li>3) Wireless/naked eye VR</li> </ol>



# DISCUSSION AND CONCLUSION

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- The opportunities of AR/VR games in healthy
- The challenges of AR/VR games in healthy
- Limitation: participants age

# **THANK YOU FOR YOUR ATTENTION!**

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