Improving Quality of Life for people 65 and over living with dementia using a personalized memory game application

Scholl Academic Centre

Hospice Isle of Man

MEMORY LANE GAMES

Isle of Man (IOM)

The memory game application

Memory Lane Games

– An Isle of Man company who developed an App to be beneficial to those with mild/moderate dementia

- hunch and experience with family members
- initial positive feedback

Memory Lane Games App

– A simple game of identifying pictures

– Can be personalised with own photographs and questions
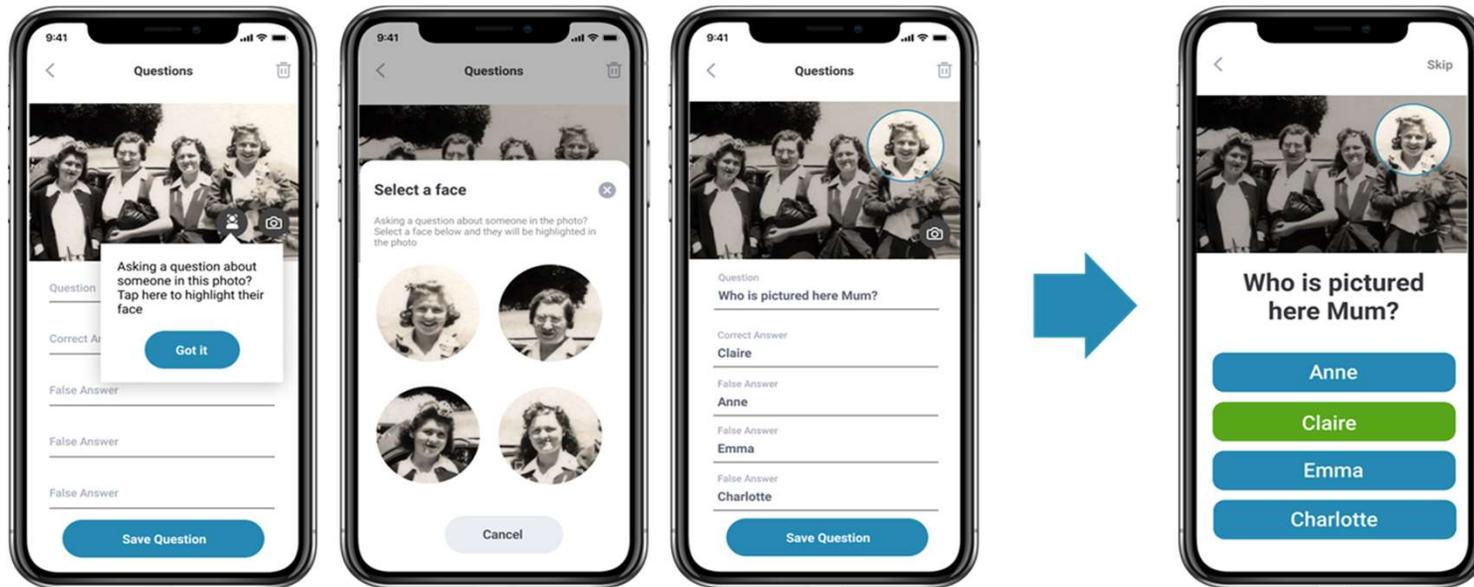
The generic App

The personalized App

Creating your own games

The memory game

Theoretical basis

– Tapping into memories may prompt discussion and improve communication with carers and visitors

– Photographs can trigger memories e.g. places, people
  - the generic App has photo-based games but they are not specific to the individual
  - the personalized App allows family photos to be added – e.g. which one is Uncle Tom? What is this building? May prompt memories about people and places

– The simple nature of the games – no score, repeated tries to get the correct answer - allows for stress-free entertainment

Study concept and objectives

Concept

– Randomly allocate people to the personalized App and compare impact against a limited generic App

– Examine impact on quality of life (QoL) and communication

– Use any evidence of positive effect & information to design larger trial

Primary question

– Is the use of a personalized app associated with changes in QoL of the person with dementia and/or their carer?

Secondary questions /objective

– Any unanticipated effects of using the personalized App?

– Are the study instruments feasible and acceptable?

Study design - 1

Subjects

- Single site, randomised, controlled study
- Pairs comprising person with dementia (PWD) + main informal carer
- Allocation ratio: 2 intervention to 1 control

Intervention group

- App with 1,000+ generic memory games plus the option to construct games with personalized content

Control group

- App with 12 generic memory games only

Study design - 2

Timeline

- 26 week study with 3 data collection points
  - baseline, 13 weeks, 26 weeks

Data collection

- Screening: SMMSE (mild/moderate dementia), PHQ-2, capacity assessment
- CDR to standardise dementia description
- Outcome measures: DemQol, C-Demqol, Holden Communication Scale (HCS)

Other data

- App activity
- Interviews

Approved by Hospice and Isle of Man Research Ethics Committees

Recruitment plan

Aim
- Recruit people with diagnosis of dementia

Publicised by
- Social media, print media, and radio
- Flyers and put up posters in shops, community centres
- Contacted other NGOs

Other data
- Excluded nursing homes
  – COVID access
  – Likely to have severe dementia
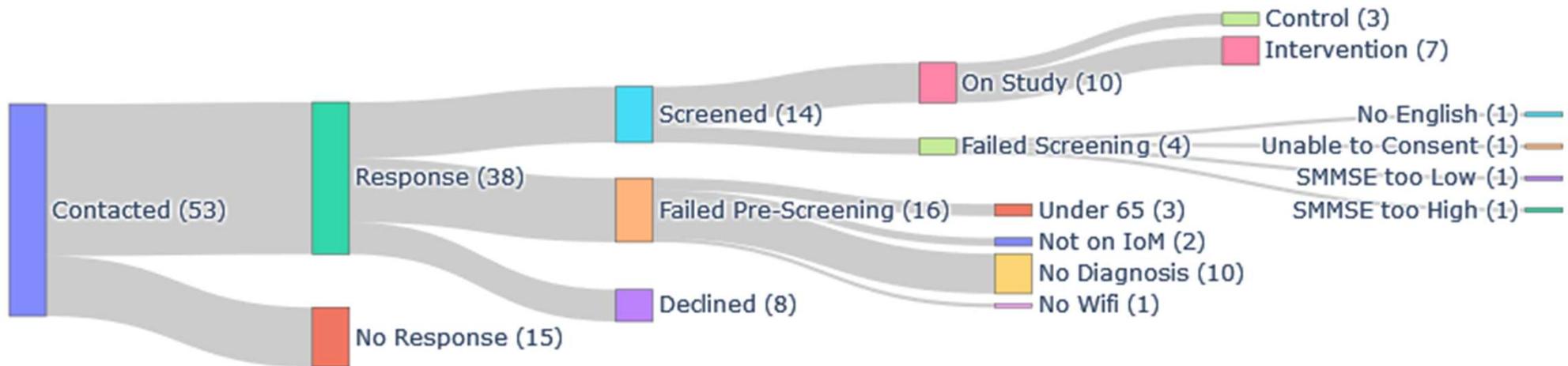 – May not have a main carer

Recruitment results

- We got 53 initial contacts

- Facebook ad was most successful (20)

- Posters took a lot of effort and not much attention paid

- Media not as successful as we hoped

  - we couldn't control the messages they sent e.g. dementia 'sufferers'

- Limited response from other organisations

Recruitment result - 2

Sankey Chart

4 contact attempts via phone/email before we destroyed
contact data and classed as 'No Response'

Characteristics of the sample

		PWD	Carer
Age (years)	≤ 60	0	4
	61 - 70	1	3
	71 - 80	5	2
	≥ 81	4	1
Sex	Female	4	8
	Male	6	2
Dementia type	Dementia	3	
	Vascular dementia	4	
	Lewy body dementia	1	
	Alzheimer's disease	2	
Time since	< 5	8	
diagnosis (years)	≥ 5	2	
Cohabit?	Yes	5	
	No	5	

Comparison between CDR and SMMSE

| CDR	SMMSE
mild	mild
moderate	moderate
questionable	mild
moderate	moderate
mild	moderate
mild	moderate
mild	mild
questionable	mild
questionable	mild
mild	moderate

Separate assessments totally agreed in 40% cases

Where they differed CDR assessment always conferred milder status than SMMSE

DemQol for PWD at baseline

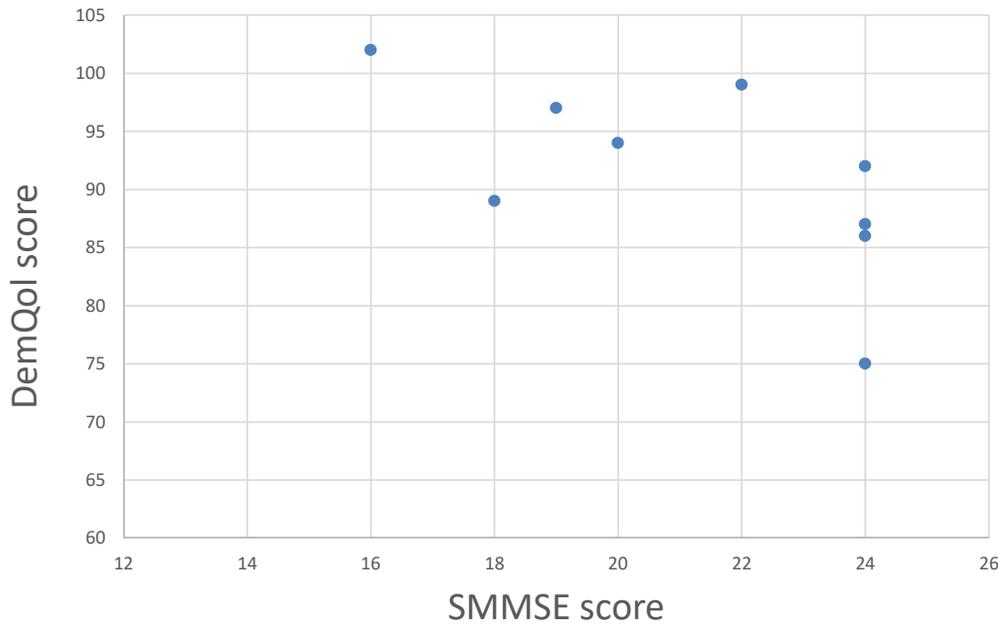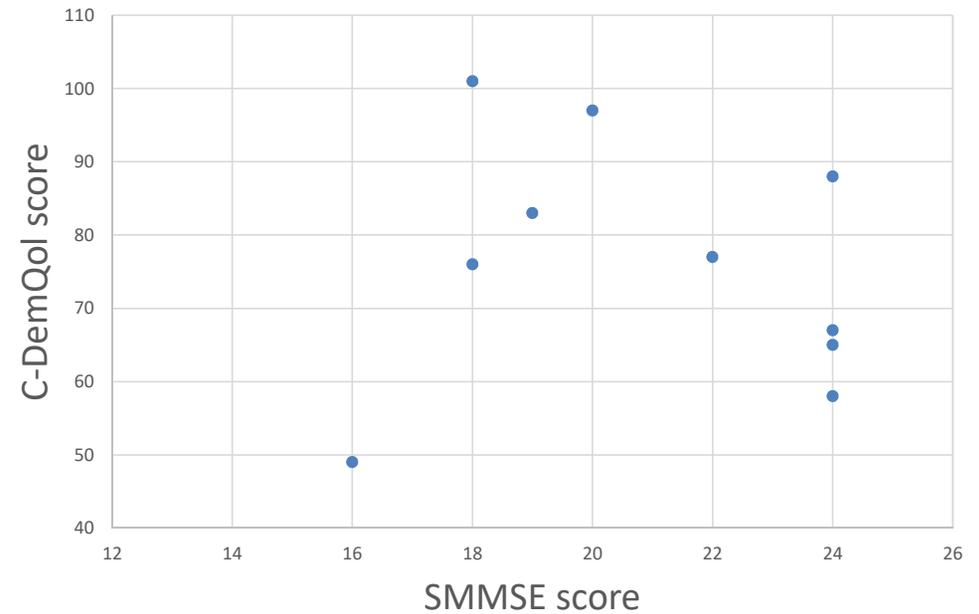7 pairs randomised to intervention, 3 to control

PWD 2 unwilling to complete DemQol
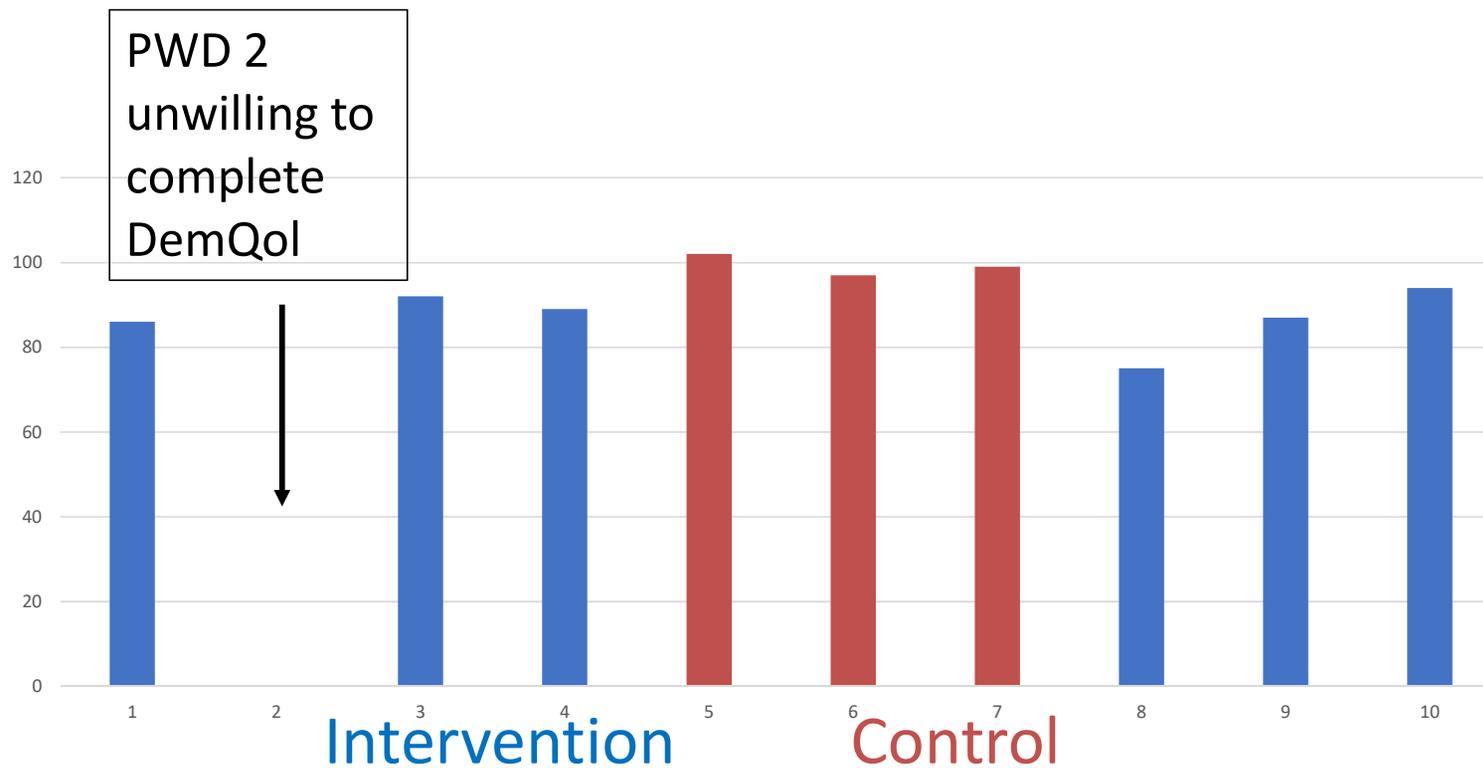
Higher score indicates better QoL
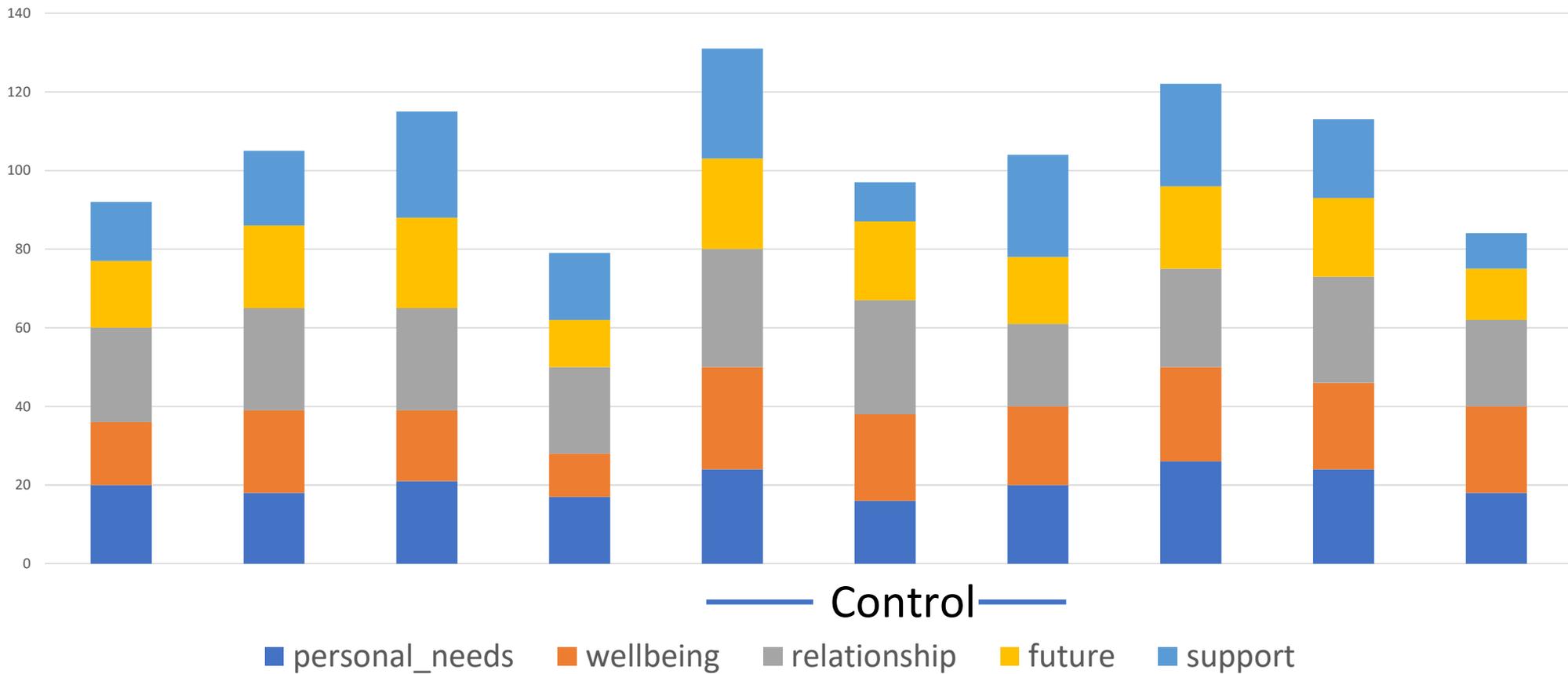
Intervention   Control

SMMSE vs DemQol and C-DemQol at baseline

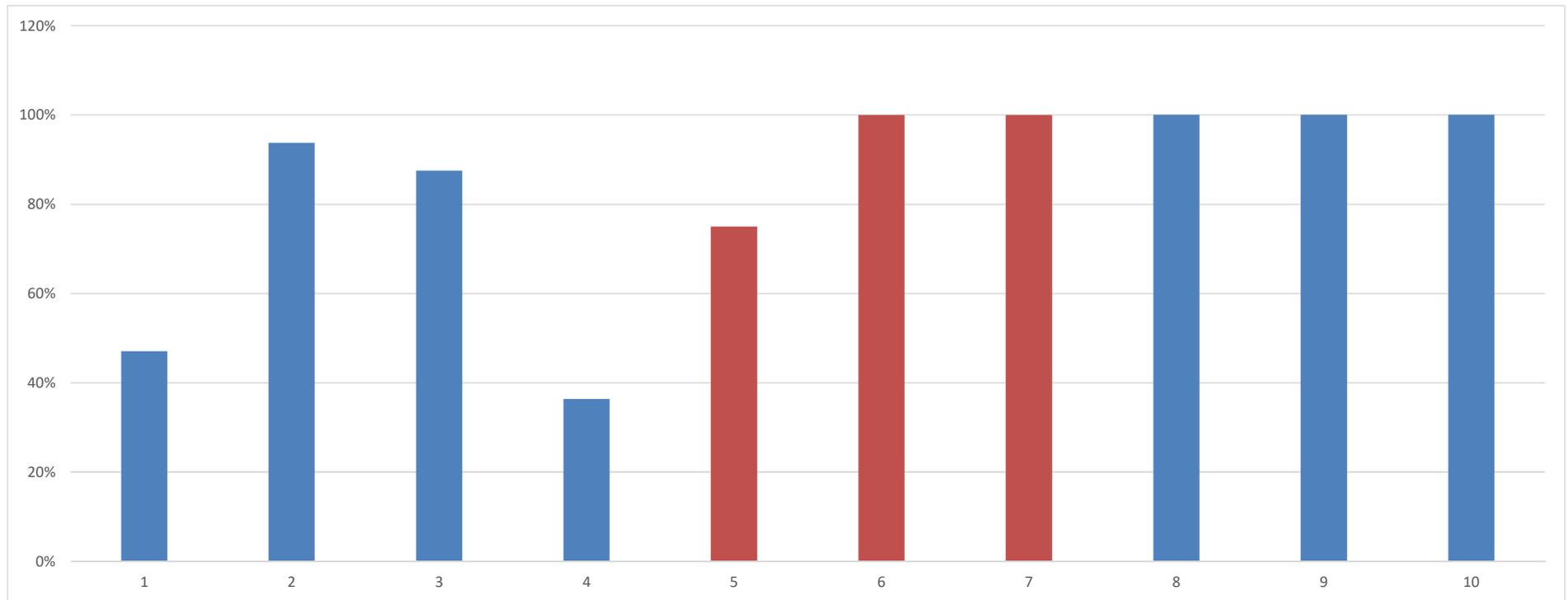Inverse association between SMMSE and DemQol?

Carer DemQol at baseline

Holden Communication Scale at baseline

Higher score = more communication problems

Control

- conversation
- awareness and knowledge
- communication
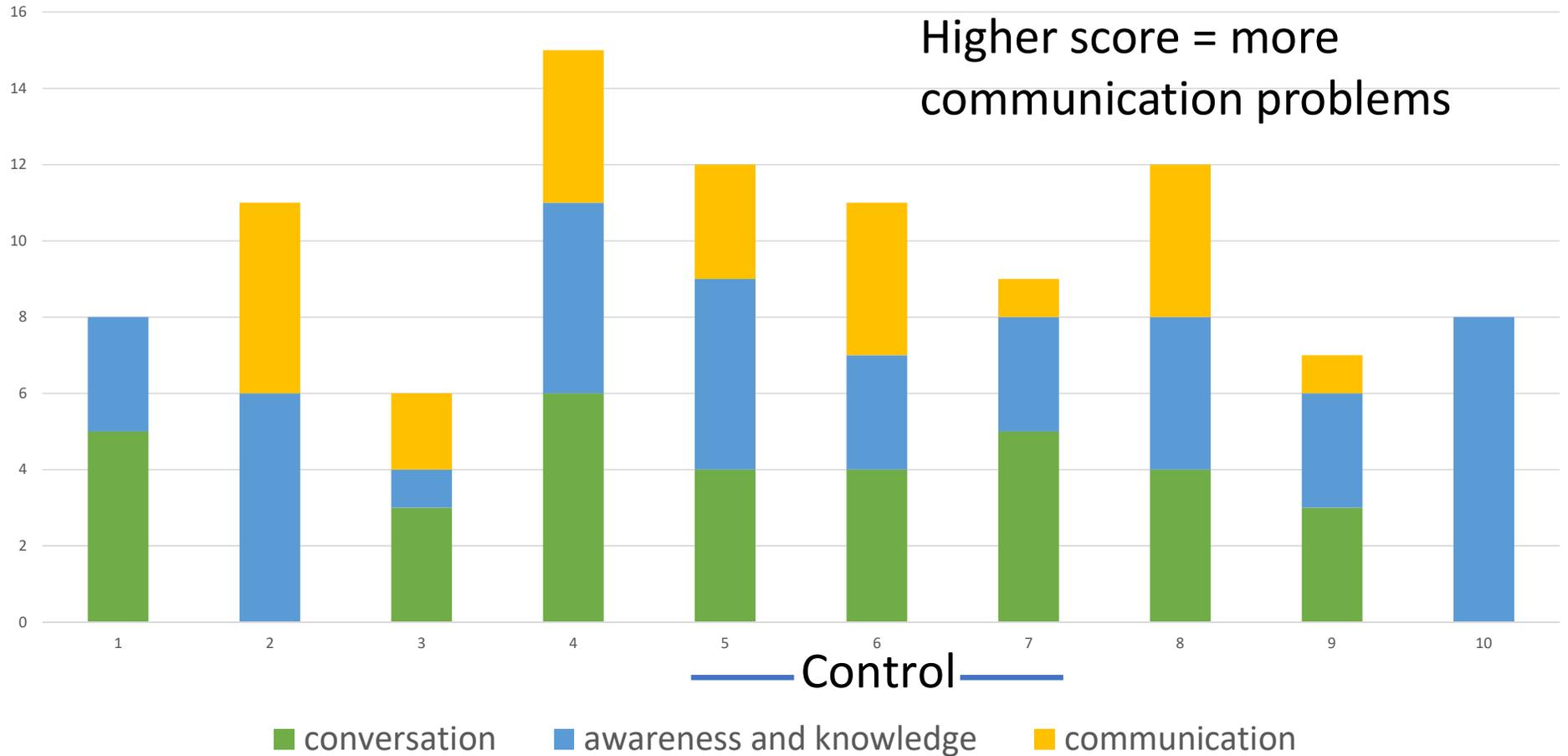
% weeks in which games played
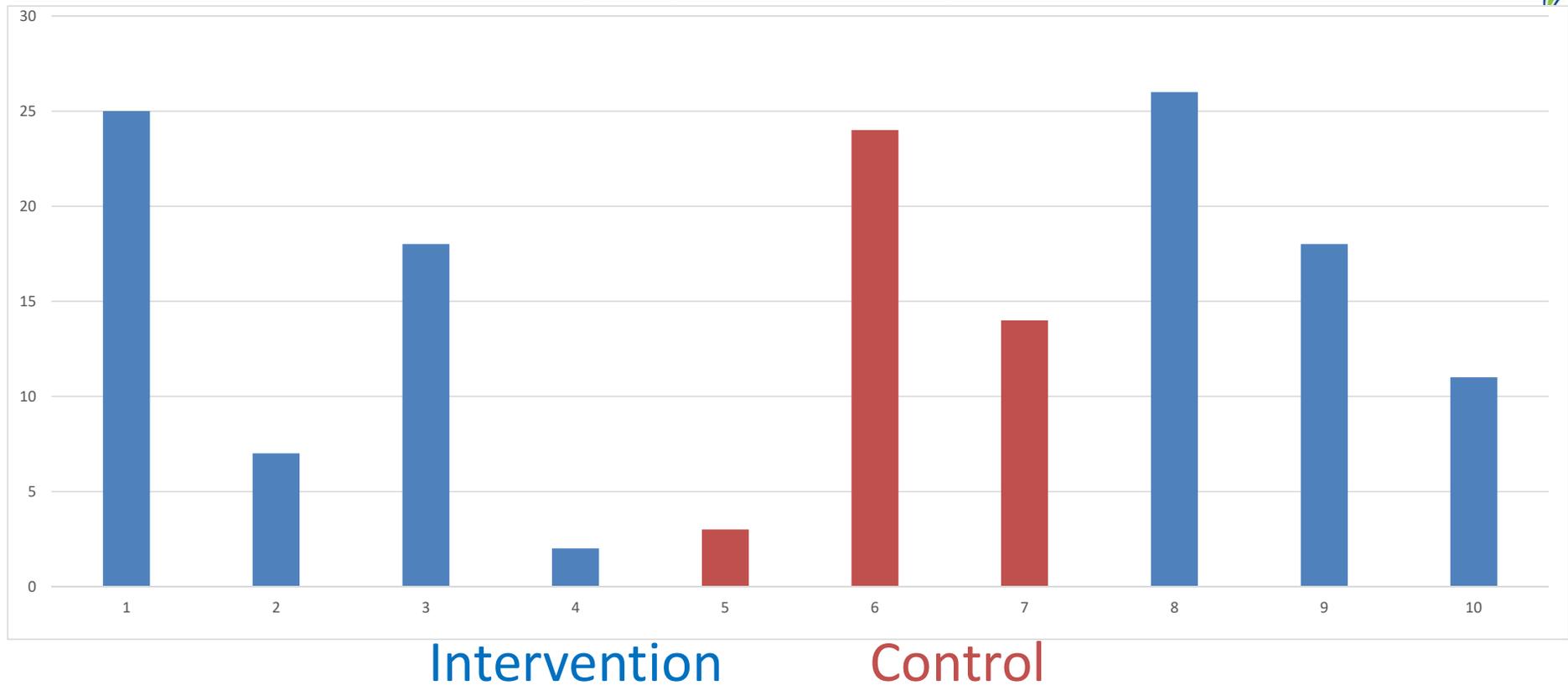
average games played/week

Average time spent playing/week = 53 minutes (7 to 134 minutes)

Comments from interviews

- motivating when get correct answers (I), reassurance (I)

- excitement when answer is correct and nice for carer (C); felt good to get right answers (C)

- pleasure in realising I can remember song lyrics (C)

- interesting (I)

- learned a lot e.g. Asian food (I)

- had laughs together, prompted memories to discuss (I)

- having App is a good thing – we were struggling to find things to play, when others were watching TV (C)

- 2 PWD played it by themselves (I) (C), others only with carers

Potential impacts and suggestions

- helps stimulate memory (I)

- doing same game over and over has enabled remembering answers (C)

- goes at a slow pace and so eases communication, which tends to deteriorate when in a hurry to get words out (C)

- 2 carers perceived it improved communication by giving topics to discuss (I); others no impact so far

- Personalized App: helps because start with those questions and move on to the others

- Controls: more options for games would be good

Having App is: very good 17%   good 67%   fine 17%

Conclusions so far

App is entertaining and good for prompting memories

Some perception that it enhances communication

Everyone likes it

No negative impacts identified

Seems to meet a need for simple entertainment

Some users

- learned new things

- were reassured they could remember

- appeared to improve memory by repeating games

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