

# Report on the overall effectiveness of the elderly housing model for various income groups

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# Objectives

## AIP (low-income):

Final report for 4-year study

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- evaluate the overall effectiveness of the AIP scheme in meeting elderly tenants' long-term care needs;
- evaluate its social return on investment (SROI)

## SEN (middle-income):

Final report for 1-year study

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- evaluate the overall effectiveness of the SEN housing model in meeting elderly tenants' long-term care needs;
- evaluate its social return on investment (SROI)

## TTH (high-income):

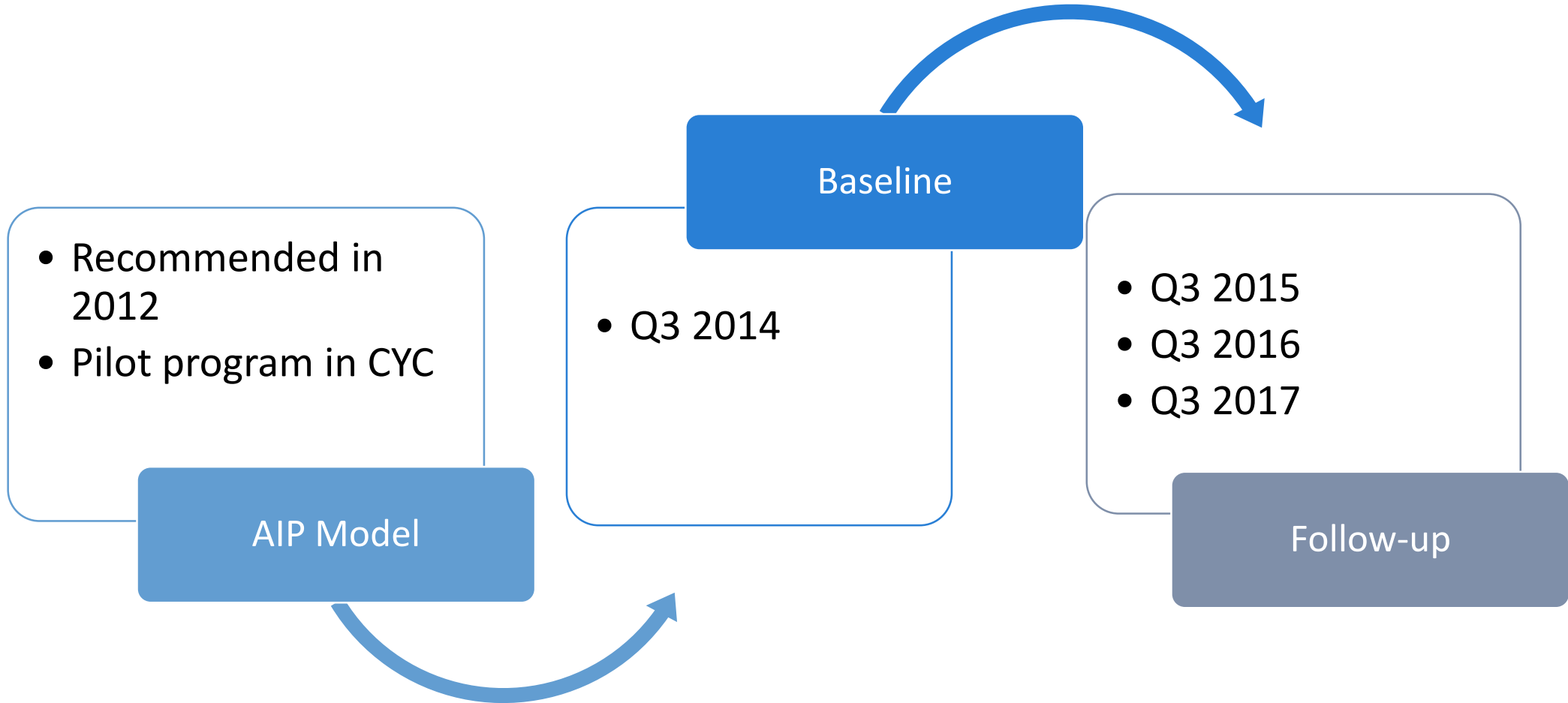
Interim report for 3-year study

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- evaluate the overall effectiveness of the Joyous Living Scheme in meeting elderly tenants' long-term care needs



# AIP Scheme



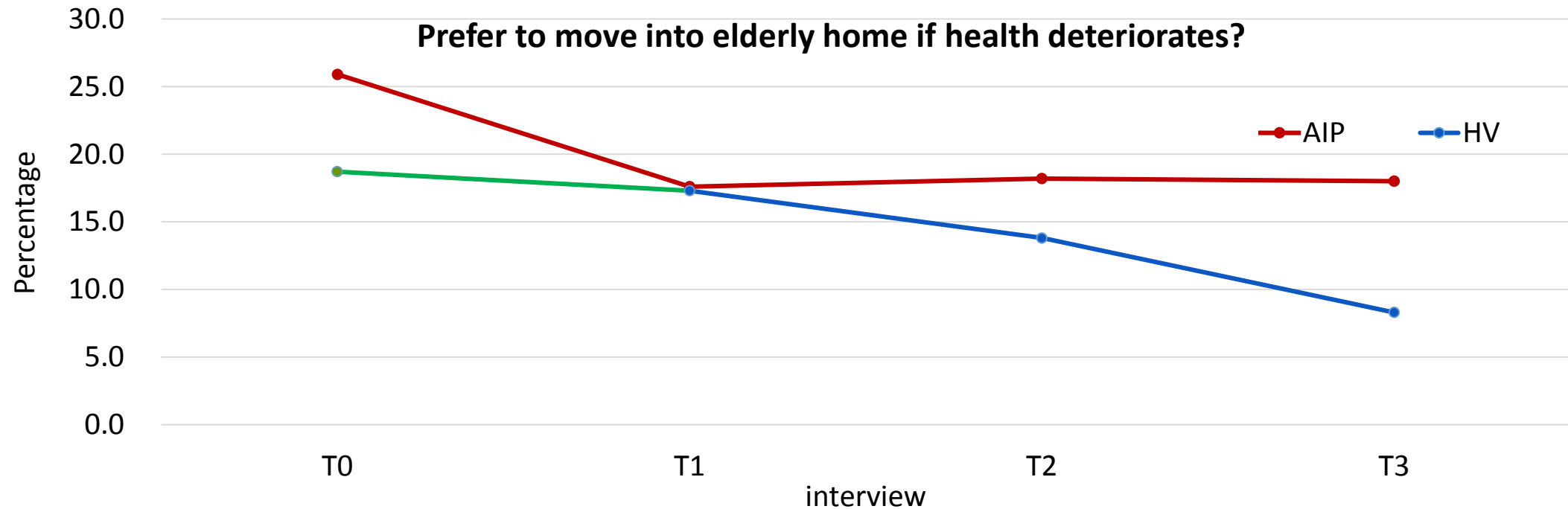


# Participant Characteristics

	2014	2015	2016	2017
<b>Age</b>				
65-74	586 (28%)	464 (29%)	405 (29%)	413 (32%)
75-84	748 (36%)	597 (37%)	543 (39%)	509 (39%)
85+	747 (36%)	557 (34%)	460 (33%)	385 (30%)
<b>Female</b>	1,168 (56%)	915 (57%)	806 (57%)	761 (58%)
<b>Married</b>	1,234 (60%)	967 (61%)	777 (55%)	718 (55%)
<b>No education</b>	994 (48%)	852 (53%)	793 (56%)	732 (56%)
Total	2,081	1,618	1,408	1,307



# Intention for Institutional Care



## Findings:

1. AIP intervention was associated with a significant drop in the intention for institutional care and the effect was sustainable.
2. The same patterns repeated in HV between  $T_1$  and  $T_3$  and the effect was bigger in HV than in AIP estates.



# Five Domains and KPIs

## Home Safety 頤家

- Satisfaction with living environment
- Use of community care service

## Healthiness 頤康

- Use of accident & emergency service

## Autonomy 頤健

- History of fall

## Happiness 頤樂

- Depressive mood
- Subjective social support
- Frequency of active ageing activities

## Abled Brain 頤智

- Cognitive performance



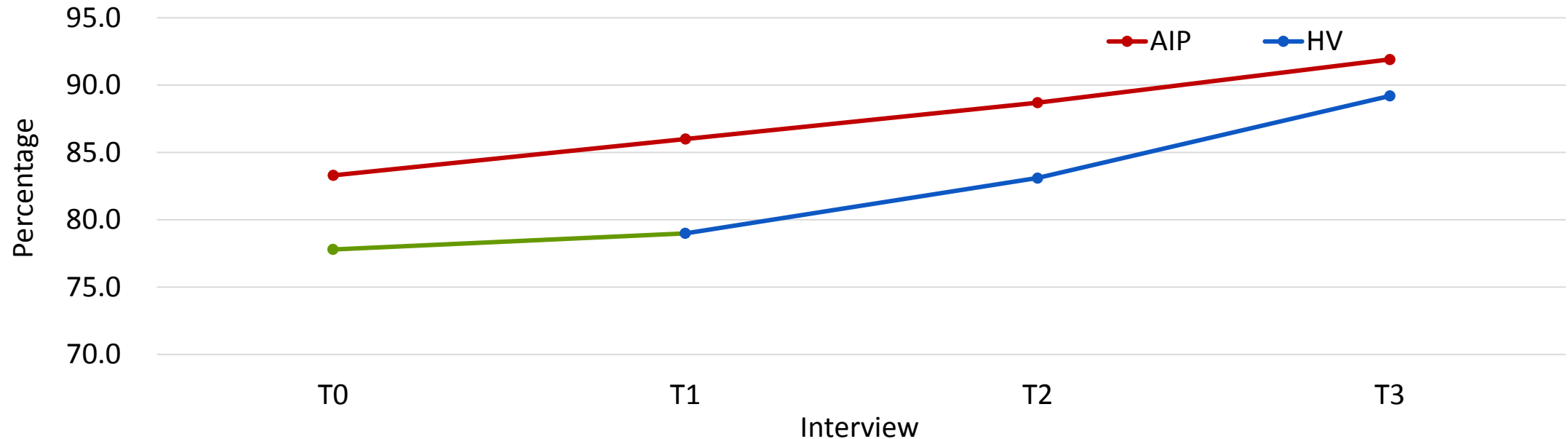
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# HOME SAFETY

## 頤家



# Satisfaction with Living Environment



## % satisfied with living environment (inside)?

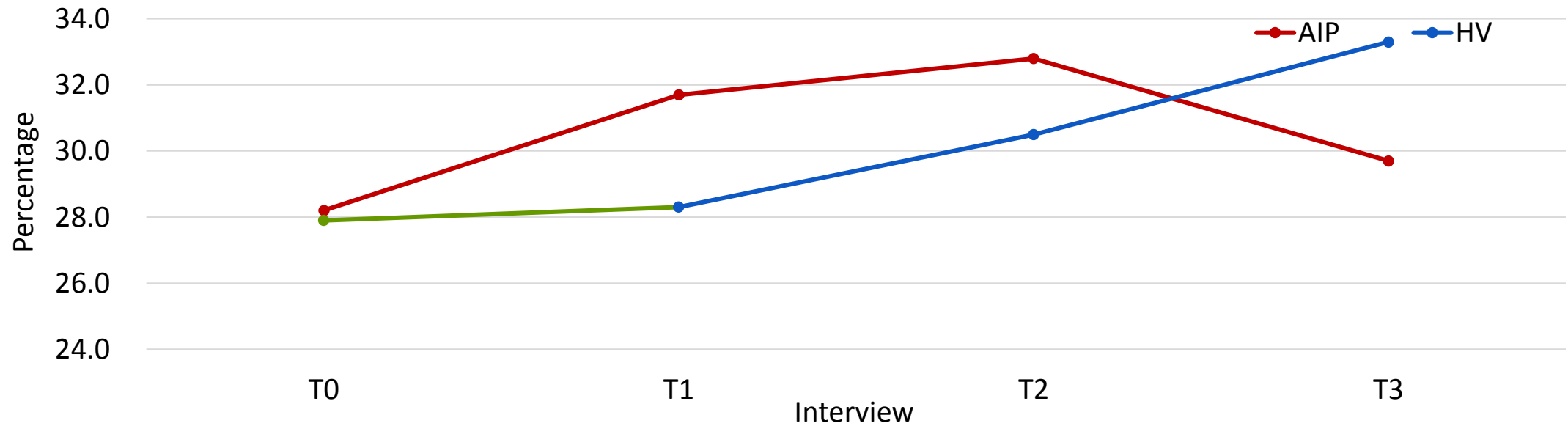
### Findings:

1. The AIP intervention was associated with an increase in satisfaction with living environment and the effect was sustainable.
2. The same patterns repeated in HV between T<sub>1</sub> and T<sub>3</sub> and the effect in HV was slightly bigger than the effect in AIP estates.





# Use of Community Care Services



## Use of community care services (elderly social center, home care, and day care center)

Findings:

1. The AIP intervention was associated with an increase in use of community care services .
2. The same patterns repeated in HV between  $T_1$  and  $T_3$ .



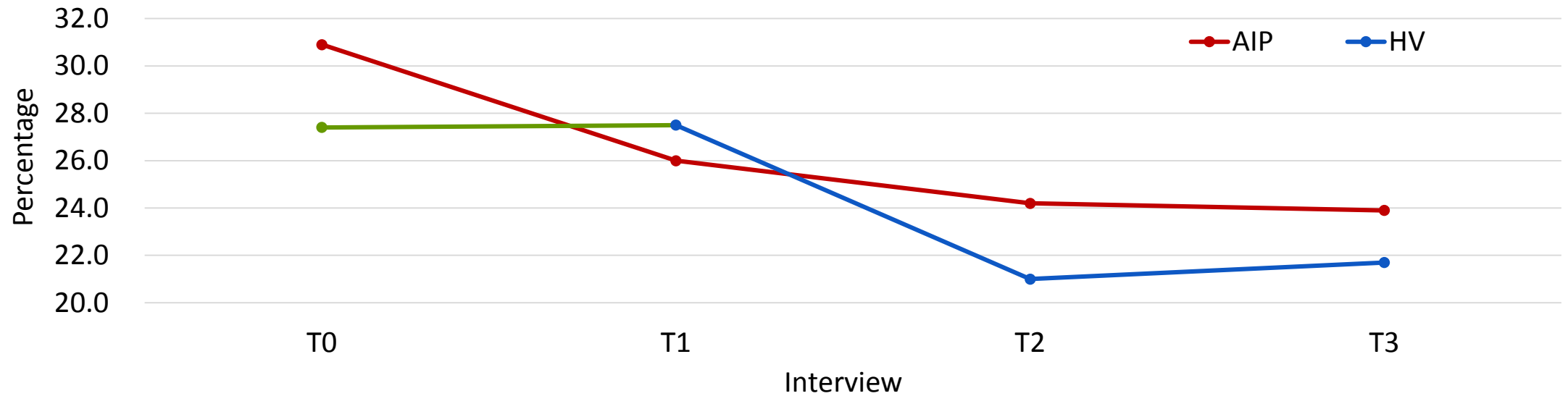
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# HEALTHINESS

# 頤康



# Use of A&E Services



## Use of A&E Services in past year (self-reported)

Findings:

1. The AIP intervention was associated with a significant drop in A&E use.
2. The same patterns repeated in HV between T<sub>1</sub> and T<sub>3</sub>.



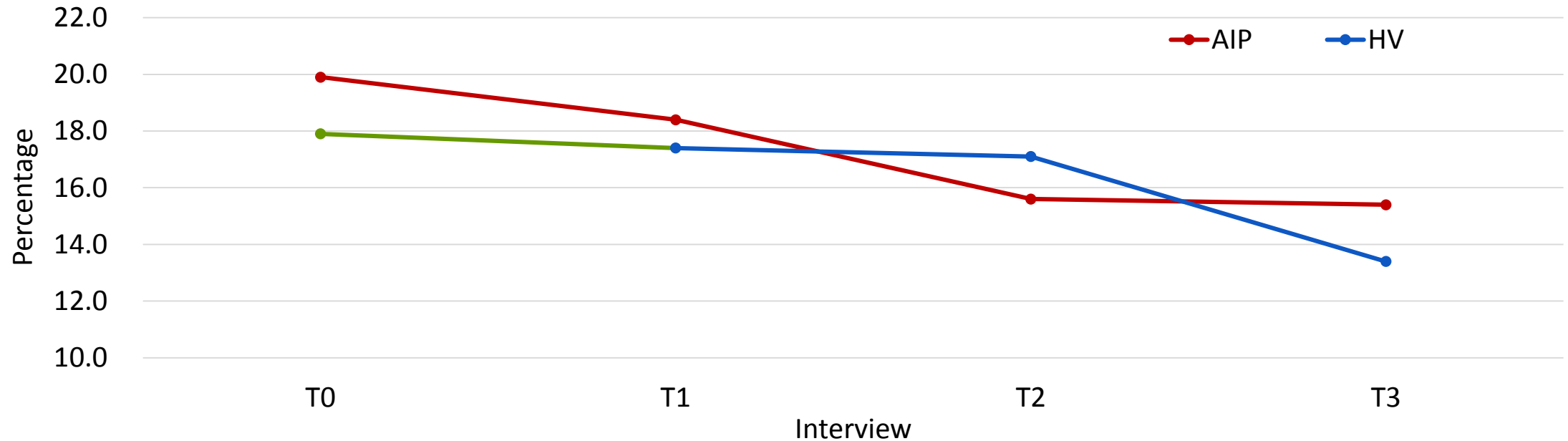
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# AUTONOMY

## 頤健



# History of Falls



## Fell in past year (self-reported)

Findings:

1. The AIP intervention was associated with a significant drop in falls.
2. The same patterns repeated in HV between  $T_2$  and  $T_3$ .



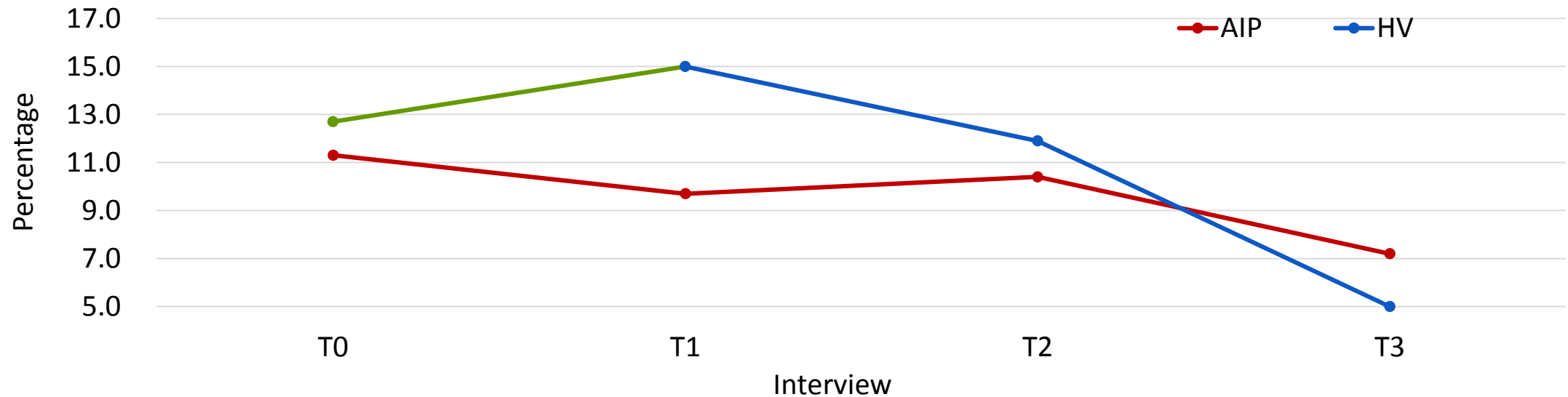
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# HAPPINESS

# 頤樂



# Depressive Mood



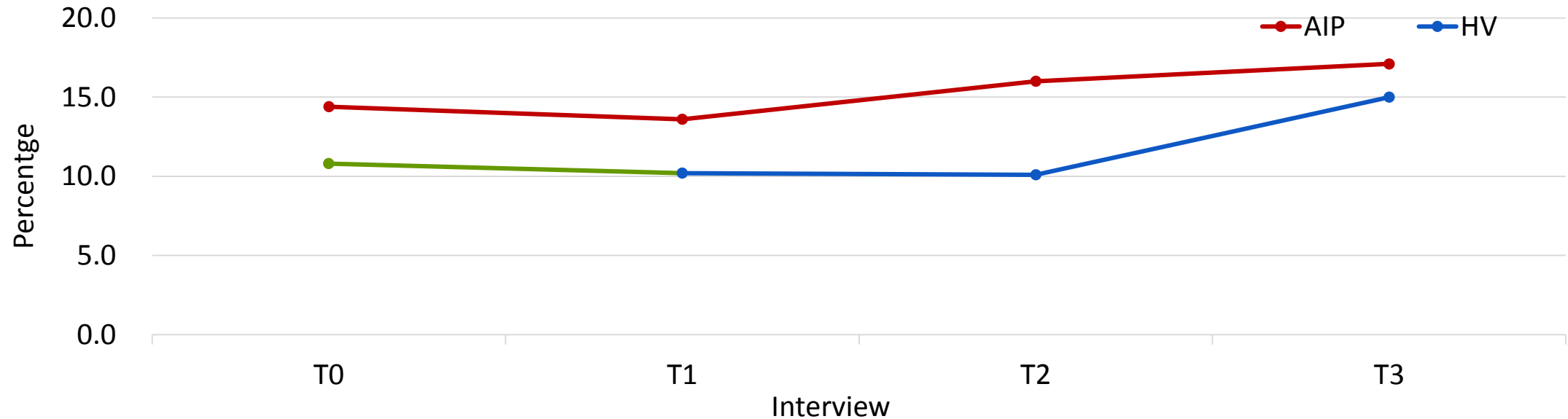
**With clinically significant depressive symptoms, (Score of Geriatric Depression Scale  $\geq 8$ )**

Findings:

- AIP was associated with a significant reduction in percentage of elders with clinically significant depressive symptoms.
- The same patterns repeated in HV between T<sub>1</sub> and T<sub>3</sub> and the effect on HV was bigger than the effect on the AIP estates.



# Active Ageing Activities



## Activity level $\geq$ 5 days per week

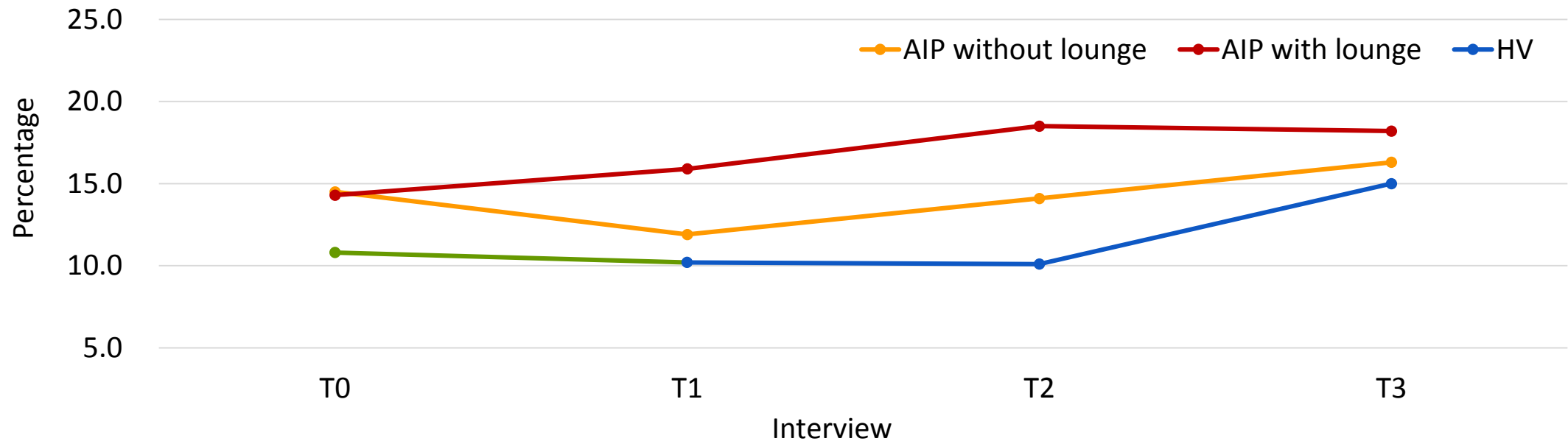
Findings:

1. AIP was associated with an increase in participation in active aging activities.
2. The same patterns repeated in HV between  $T_1$  and  $T_3$  and the intervention had stronger effect on HV than the AIP estates





# Active Ageing Activities (Elderly lounges)



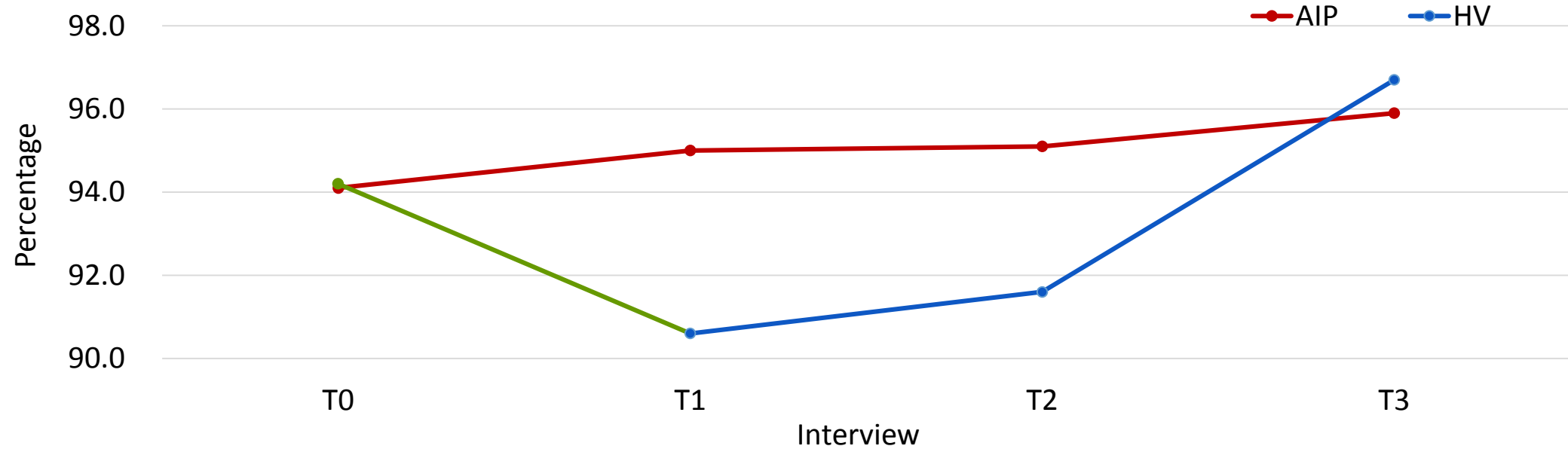
**Activity level  $\geq$  5 days per week**

Findings:

1. The intervention had stronger effect on estates with elderly lounges.



# Subjective Social Support



## Felt there is someone close

Findings:

1. AIP was positively associated with subjective social support.
2. The patterns repeated in HV between  $T_1$  and  $T_3$ .



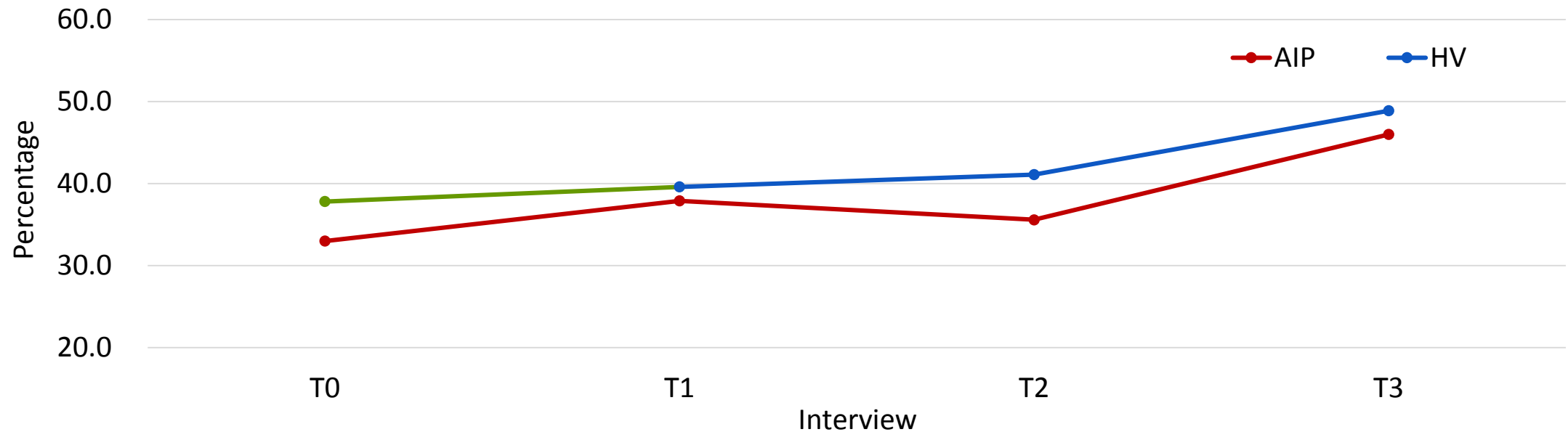
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# ABLED BRAIN

## 頤智



# Cognitive Performance



**With unimpaired cognitive performance (Score MoCA $\geq$ 23)**

Findings:

1. AIP was associated with an increase in elders with unimpaired cognitive function.
2. The patterns repeated in HV between T<sub>1</sub> and T<sub>3</sub>.



# Summary of findings

AIP intervention was associated with

## Reduction

- Intention for institutional care.
- Falls.
- A&E services use.
- Percentage of older people with clinically significant depressive symptoms.

## Increasing

- Satisfaction with living environment.
- CCS utilization.
- Participation in active aging activities.
- Percentage of elders with unimpaired cognitive performance.

## Maintaining

- Subjective social support.



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# Senior Citizen Residences Scheme (SEN) and The Tanner Hill (TTH)



# Participant Characteristics

	SEN	SEN Control	AIP HV Control	Tanner Hill	JL member Control
Age					
60-64	-	5 (21%)	-	15 (15%)	23 (32%)
65-74	41 (24%)	13 (54%)	44 (32%)	35 (34%)	40 (56%)
75-84	90 (53%)	5 (21%)	42 (30%)	41 (40%)	6 (8%)
85 or above	39 (23%)	1 (4%)	52 (38%)	11 (11%)	2 (3%)
Mean age	<b>79.5</b>	<b>69.6</b>	<b>80.7</b>	<b>74.4</b>	<b>67.9</b>
Female	121 (71%)	16 (67%)	73 (53%)	65 (64%)	27 (62%)
Marital Status					
Married	59 (35%)	10 (43%)	76 (56%)	42 (41%)	43 (61%)
Widowed	73 (43%)	3 (13%)	55 (40%)	31 (30%)	7 (10%)
Educational Level					
Senior Secondary	49 (29%)	9 (38%)	13 (10%)	26 (26%)	21 (30%)
Degree or above	22 (13%)	3 (13%)	2 (2%)	31 (31%)	31 (44%)
Total	170	24	138	102	71



# Change in Self-rated Health Status

	T0 (mean)	T1 (mean)	%Chg
SEN	3.3	3.5	6.1%
SEN Control	3.5	3.3	-5.7%
AIP HV Control	3.3	3.2	-3.0%
Tanner Hill	3.5	3.4	-2.9%
JL Member Control	3.8	3.7	-2.6%

- Rated on a 5-point scale (1 = very poor; 5=excellent)

## Finding:

- SEN was associated with a significant increase in self-rated health.
- TTH was associated with a slightly decrease in self-rated health.





# Change in Use of A&E Services

	T0 (%)	T1 (%)	%Chg
SEN	21.2	15.3	-27.8%
SEN Control	8.3	0.0	-100.0%
AIP HV Control	24.8	27.5	10.9%
Tanner Hill	10.8	18.6	72.2%
JL Member Control	9.9	4.2	-57.6%

## Finding:

- SEN was associated with a decrease in A&E service use.
- TTH was associated with a significant increase in use of A&E services

Hospital Authority (2012). Strategic Service Framework for Elderly Patients. In 2010, elderly people aged 65 or above accounted for 53% of all accident and emergency admissions.



# Change in Falls

	T0 (%)	T1 (%)	%Chg
SEN	24.1	18.8	-22.0%
SEN Control	20.8	20.8	0.0%
AIP HV Control	16.8	17.5	4.2%
Tanner Hill	22.6	18.6	-17.7%
JL Member Control	15.5	19.7	27.1%

- % fell in past year.

## Finding:

- SEN was associated with a decrease in falls.
- TTH was associated with a decrease in falls.

About 20% of community-dwelling elders aged 65 or above fall every year (Center for Health Protection, November 2013).



# Change in Frailty Status - Robust

	T0 (%)	T1 (%)	%Chg
SEN	53.3	60.4	13.3%
SEN Control	58.3	70.8	21.4%
AIP HV Control	47.6	46.8	-1.7%
Tanner Hill	62.2	75.6	21.5%
JL Member Control	88.7	95.8	8.0%

## Finding:

- SEN was associated with an increase in robust group.
- TTH was associated with a significant increase in robust group.



# Change in Quality of Life

	T0 (mean)	T1 (mean)	%Chg
SEN	29.9	30.9	3.3%
SEN Control	29.7	28.8	-3.0%
AIP HV Control	28.9	28.0	-3.1%
Tanner Hill	31.9	33.2	4.1%
JL Member Control	32.7	33.7	3.1%

- Using the WHOQoL scale, with score between 8 and 40, a higher score means better quality of life

## Finding:

- SEN was associated with a significant increase in quality of life.
- TTH was associated with a significant increase in the quality of life.



# Change in Social Network

	T0 (mean)	T1 (mean)	%Chg
SEN	15.1	14.5	-4.0%
SEN Control	14.0	14.2	1.4
AIP HV Control		N/A	
Tanner Hill	15.6	16.7	7.1%
JL Member Control	16.8	18.4	9.5%

- Using the LSNS scale, with score between 0 and 30, a higher score means better social network

## Finding:

- SEN was associated with a decrease in social network.
- TTH was associated with a significant increase in the social network.

# Change in Depressive Mood

	T0 (%)	T1 (%)	%Chg
SEN	9.4	8.8	-6.4%
SEN Control	4.3	0.0	-100.0%
AIP HV Control	10.5	15.0	42.9%
Tanner Hill	5.1	5.1	0.0%
JL Member Control	0	1.5	-

- % with clinically significant depressive symptoms, (GDS  $\geq$ 8)

## Finding:

- SEN was associated with a decrease in the percentage of elderly with clinically significant depressive symptoms.
- TTH was associated with a maintenance of clinically significant depressive symptoms.

As a comparison, earlier study found that 9.7% of elders aged 65 above had clinically significant depressive symptoms (Sun et al. 2015).



# Change in Cognitive Performance

	T0 (%)	T1 (%)	%Chg
SEN	53.8	55.0	2.2%
SEN Control	79.2	83.3	5.2%
AIP HV Control	41.3	42.1	1.9%
Tanner Hill	74.7	73.7	-1.3%
JL Member Control	88.7	94.4	6.4%

- % with unimpaired cognitive performance, (MoCA score  $\geq 23$ )

## Finding:

- SEN was associated with a slightly increase in the percentage of elderly without cognitive impairment.
- TTH was associated with the maintenance in the percentage of elderly without cognitive impairment



# AIP SROI Ratio

Time point	HKHS input		Young-olds	Mid-olds	Old-olds	Impact	Ratio
Final year (T2-T3)	\$11,130,450.20	→	\$17,757,518.12	\$24,497,684.13	\$11,459,106.75	\$53,714,309.00	4.83





# SEN SROI Ratio

HKHS input		Young-olds	Mid-olds	Old-olds	Impact	Ratio
\$5,397,000	→	\$2,694,856.55	\$7,843,507.17	\$16,805,701.88	\$27,344,065.59	<b>5.07</b>



# Conclusion

## AIP (low-income):

associated with reduced intention of institutional care and depression symptoms

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- Naturally Occurring Retirement Community (NORC)
- Active case management; screening; needs-based service intervention

## SEN (middle-income):

associated with improved self-rated health and frailty

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- Tailor-built elderly housing model

## TTH (high-income):

associated with improved quality of life and social support

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- Tailor-built elderly housing model



# Implications for future housing policies

## **Low income elders:**

- AIP model in all public rental housing estates, including an elderly lounge.

## **Middle / high income elders:**

- AIP model in large and old private housing estates.
- New purpose built elderly housing, either stand alone or integrated into larger multigenerational housing project.



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Thank  
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