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# PREDICTORS OF INSTITUTIONALIZATION AMONG DEMENTIA PATIENTS IN MALAYSIA

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# Background



- Care management is prioritized in the absence of treatment and medication to **cure** dementia.
- In Malaysia - responsibility and a cultural/religious obligation of the children.
- Causes of transition : disease progression, modernization or changes in cultural values.

# Research Questions



- How does socio-demographic of dementia patients in nursing homes differ from dementia patients in the community (received care at home)?
- What factors predict institutionalization among dementia patients in Malaysia?

# Methodology



- A cross sectional, quasi experimental study design
- Dementia patients from government hospitals (home care) and nursing homes – random sampling
- Inclusion criteria: aged 60 and above, sufficient command of the Malay or English language, score  $<11$  in SMMSE



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- Exclusion criteria: aged <60 years old, cannot speak or poor understanding of Malay or English language, score 11 and above in SMMSE, physically challenged patients (eg; blind, stroke)
- Measures: Demographic, Short Mini Mental State Examination (SMMSE), Cornell Scale for Depression (CSDD), Barthel Index (BI) and Friendship Scale (FS) respectively.

# Response rate (Lynn et. al, 2001)

Site	Age screened	Consented	SMMSE screened	In scope	Completed	Participation rate
Home care	166	142	139	109	109	0.66
Nursing homes	149	129	127	110	110	0.74
Total	315	271	266	219	219	0.70

No significant difference in response rates between study cohorts ( $\chi^2=2.47$ ,  $df=1$ ,  $p=0.12$ ).

#### Notes:

Discrepancies in the number of participant consented and screened by SMMSE were due to the presence of psychotic symptoms during the interview (2), communication problem (1), being bed ridden (1) and defaulted appointment (1).

SMMSE = Short Mini Mental State Examination



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# Socio demographic comparison

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Variables		Study cohort		Statistics (a)
		Home care N (%)	Nursing home N (%)	
Age	Mean (SD)	73.66 (7.68)	71.56 (7.79)	t=2.00, df=217, p=0.05
Gender	Male	56 (51.40)	55 (50.00)	$\chi^2=0.04$ , df=1, p=0.84
	Female	53 (48.60)	55 (50.00)	
<b>Ethnicity</b>	Malay	34(31.20)	<b>76 (69.10)</b>	<b><math>\chi^2=34.71</math>, df=2, p&lt;0.01</b>
	Chinese	<b>48 (44.00)</b>	15 (13.60)	
	Indian	<b>27 (24.80)</b>	19 (17.30)	
Education	Non-formal	26 (23.90)	36 (32.70)	$\chi^2=2.40$ , df=2, p=0.30
	Primary school	72(66.10)	62 (56.40)	
	Higher	11 (10.10)	12 (10.90)	
<b>Marital status</b>	Single/separated	<b>3 (2.80)</b>	<b>64 (58.20)</b>	<b><math>\chi^2=92.93</math>, df=2, p&lt;0.01</b>
	Partnered	53 (48.60)	7 (6.40)	
	Widowed	53 (48.60)	39 (35.50)	
<b>Availability of caregiver</b>	No partner/child	<b>3 (2.80)</b>	<b>62 (56.40)</b>	<b><math>\chi^2=75.40</math>, df=1, p&lt;0.01</b>
	Either partner or child	106 (97.20)	48 (43.60)	
<b>Relationship satisfaction</b>	Satisfied	95 (90.50)	4 (8.70)	<b><math>\chi^2=94.75</math>, df=1, p&lt;0.01</b>
	Dissatisfied	<b>10 (9.50)</b>	<b>42 (91.30)</b>	
<b>Financial status</b>	Average	88 (80.70)	12 (10.90)	<b><math>\chi^2=107.58</math>, df=1, p&lt;0.01</b>
	Below average	<b>21 (19.30)</b>	<b>98 (89.10)</b>	
Months of stay in nursing home	Mean (SD)		56.50 (54.84)	

Notes: a = t: student t-test,  $\chi^2$  : Chi-square, Mann-W: Mann-Whitney test





# Health comparison

Variables		Study cohort		Statistics
		Home care	Nursing home	
Months since diagnosis	Mean (SD)	38.18 (40.50)	31.20 (35.81)	t=1.34, 215, p=0.18
Health condition	Not healthy	53 (52.50)	48 (47.50)	$\chi^2=0.55$ , df=1, p=0.46
	Healthy	56 (47.50)	62 (52.50)	
Co-morbidities	Mean rank (SR)	114.86 (12519.50) 77.06	105.19 (11570.50)	Mann-W=5465.50, p=0.25
BI	Mean (SD)	(20.66)	77.45 (17.81)	t=-1.50, 217, p=0.88
<b>SMMSE</b>	Mean (SD)	<b>5.93 (2.51)</b>	<b>5.11 (2.42)</b>	<b>t=2.45, 217, p=0.02</b>
CSDD	Mean (SD)	8.60 (3.76)	9.0 (4.04)	t=0.77, 217, p=0.45
<b>FS</b>	Mean (SD)	<b>14.11 (3.85)</b>	<b>8.47 (3.35)</b>	<b>t=11.55, 217, p&lt;0.01</b>

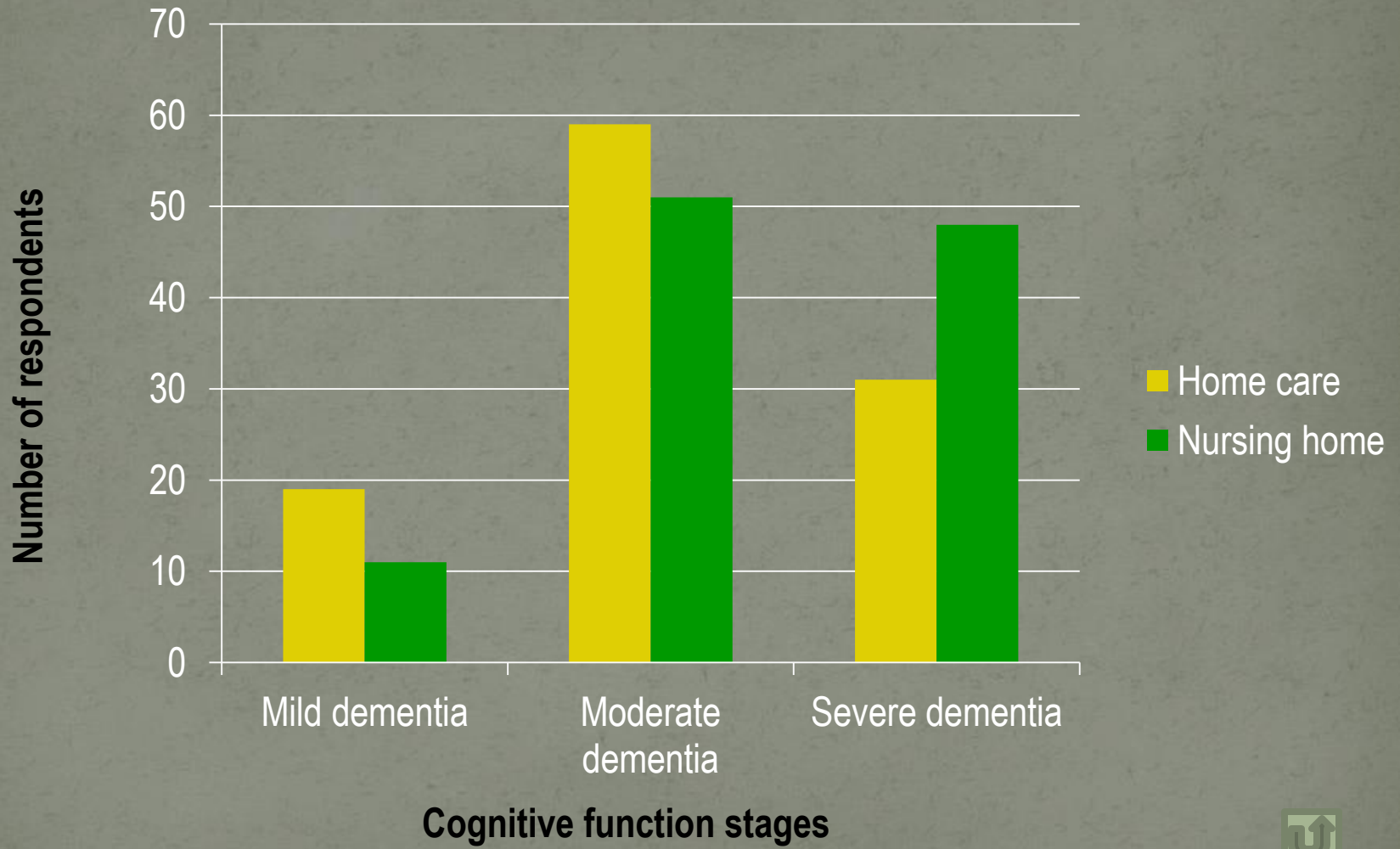
Notes: BI = Barthel Index, t: student t-test ,  $\chi^2$  : Chi-square, Mann-W : Mann-Whitney test



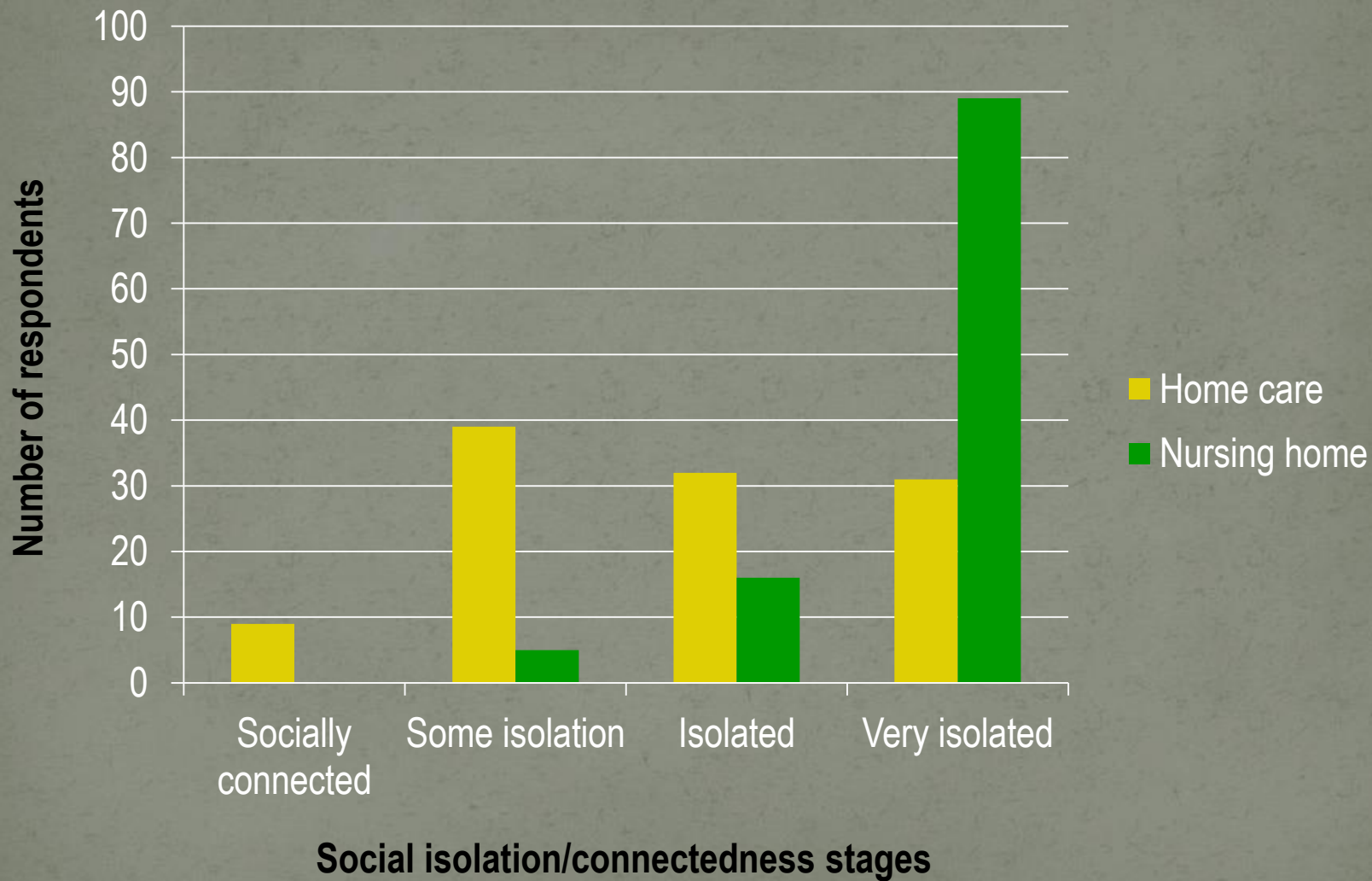
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- Dementia patients in the nursing homes had significantly lower cognitive function (mean=5.93, SD=2.51) compared to those in home care (mean=5.11, SD=2.42) ( $t=2.45$ , 217,  $p=0.02$ ) 
- Dementia patients in home care also had significantly better social connectedness (mean=14.11, SD=3.85) compared to those in the nursing homes (mean=8.47, SD=3.35). 

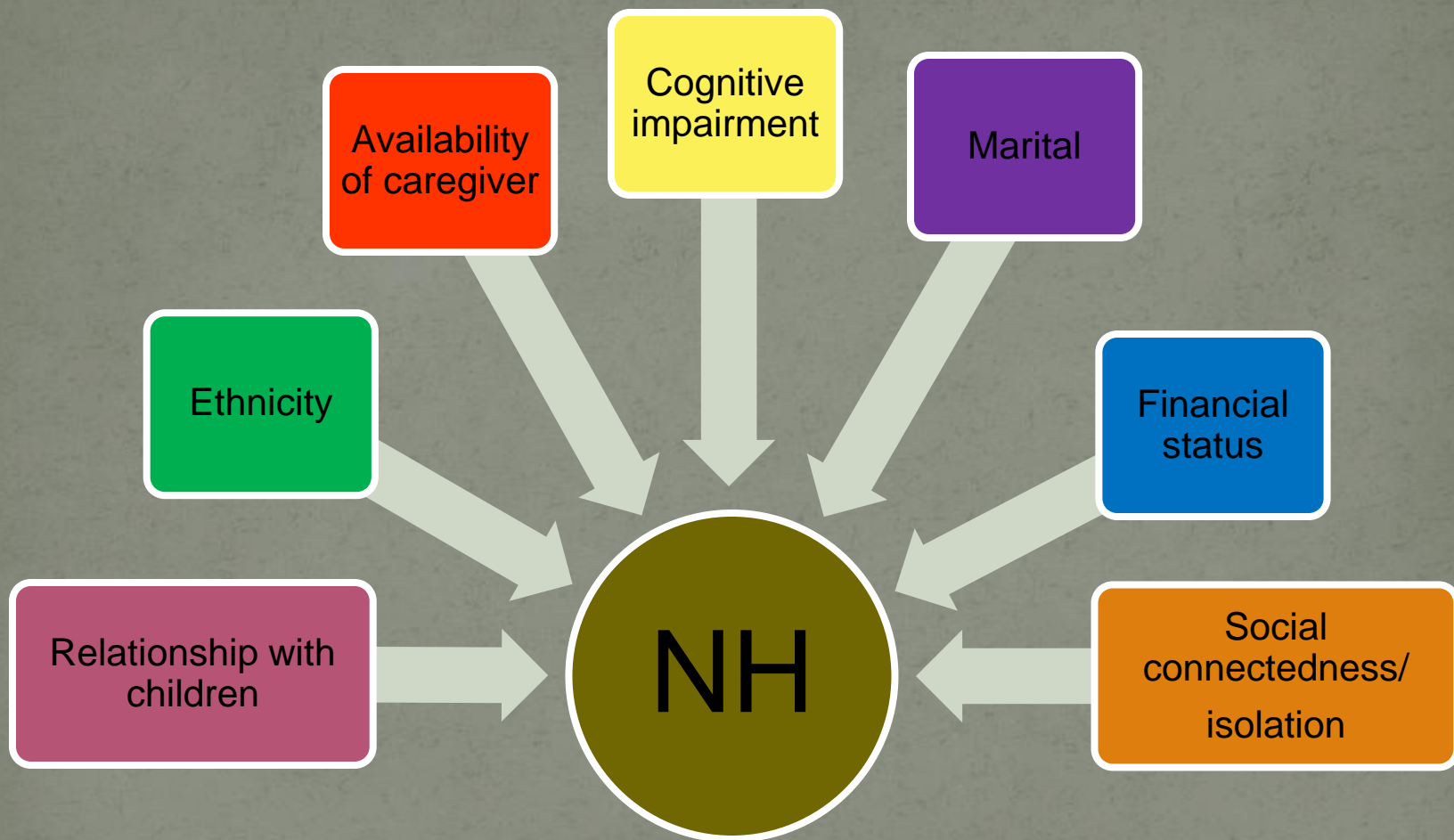
## Severity of cognitive functions in dementia patients



## Social isolation/connectedness in dementia patients



# Predictors of institutionalization





# Logistic regression

Variables	Base Level	Comparator Level	B	OR	95% C.I.	Model statistics	
						% correct	-2LL
Family	Having partner or child	No partner and child	4.103	60.51	10.92-335.45		
Ethnicity	Non-Malay	Malay	2.115	8.29	2.89-23.77		
Financial status	Average	Below average	2.819	16.76	5.86-47.95		
Friendship Scale	Socially connected	Very socially isolated	2.257	9.55	2.49-36.59		
		Isolated	0.637	1.89	0.42-8.49		
Constant			-4.771	0.01		90	108.31

Cox & Snell R<sup>2</sup>= 59%, Nagelkerke R<sup>2</sup>=78%

Hosmer & Lemeshow test = X<sup>2</sup>(8) of 3.33, p=0.91

Notes:

C.I = confidence interval

# Discussion



- Unmarried (single/widowed/divorced)
  - moderate to weak predictors for institutionalization (Luppa et. al, 2010).
- The finding concerning financial situation are consistent with other study (Bond & Clark, 2002, Yaffe et. al, 2002).
- Older people who are lonely are more likely to be admitted to a nursing home, especially those with a high level of loneliness (Russell et al., 1997, Luppa et. al, 2010).

- It is also consistent with studies reporting that older people living in nursing homes are lonelier compared to those living in the community (Hawthorne, 2006, Holmen et al., 2000).
- Malays
  - 63% do not have a caregiver ( $X^2=7.59$ ,  $df=2$ ,  $p=0.02$ ).
  - 63% had below average income ( $X^2=21.54$ ,  $df=2$ ,  $p<0.01$ ).

# Conclusion



- Availability of a caregiver was the key predictor for the transition of dementia patients to nursing home.
- However, other factors such as financial status, ethnicity and social isolation also played a role in determining the institutionalization of dementia patients.

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