

Supplementary Table S1. Descriptions of physical frailty parameters and cognitive components in cognitively frail and non-cognitively frail groups.

Parameters/Components		<i>n</i> (%), 95%CI		<i>P</i> -value	
		Total (<i>n</i> = 408)	Cognitive frailty status CF (<i>n</i> = 164) NCF (<i>n</i> = 244)		
Physical frailty	Self-reported exhaustion	170 (41.7), 37.0 to 46.0	113 (68.9), 62.0 to 76.0	57 (23.4), 18.0 to 29.0	< 0.001**
	Unintended weight loss	122 (29.9), 25.4 to 34.4	86 (52.4), 44.7 to 60.1	36 (14.8), 10.3 to 19.4	< 0.001**
	Weakness	253 (62.0), 57.3 to 66.7	140 (85.4), 79.9 to 90.8	113 (46.3), 40.0 to 52.6	< 0.001**
	Slow walking speed	268 (65.7), 61.1 to 70.3	148 (90.2), 85.6 to 94.98	120 (49.2), 42.9 to 55.5	< 0.001**
	Low physical activity	84 (20.6), 16.6 to 24.5	60 (36.6), 29.1 to 44.0	24 (9.8), 6.1 to 13.6	< 0.001**
Physical frailty					
Non-frail		(58.6), 53.8 to 63.4			
Pre-frail/frail		(41.4), 36.6 to 46.22			
Cognitive function impairment	Executive function	363 (89.0), 85.9 to 92.0	159 (97.0), 94.3 to 99.6	204 (83.6), 78.9 to 88.3	< 0.001 **
	Fluency	76 (18.6), 14.8 to 22.4	39 (23.8), 17.2 to 30.4	37 (15.2), 10.6 to 19.7	< 0.001**
	Orientation	22 (5.4), 3.2 to 7.6	5 (3.0), 0.4 to 5.7	17 (7.0), 3.8 to 10.2	0.039*
	Calculation	25 (6.1), 3.8 to 8.5	15 (9.1), 4.7 to 13.6	10 (4.1), 1.6 to 6.6	0.004*
	Abstraction	86 (21.1), 17.1 to 25.1	49 (29.9), 22.8 to 37.0	37 (15.2), 10.6 to 19.7	< 0.001**
	Delayed recall	147 (36.0), 31.4 to 40.7	69 (42.1), 34.4 to 49.7	78 (32.0), 26.1 to 37.9	0.052
	Visuoperception	76 (18.6), 14.8 to 22.1	43 (26.2), 19.4 to 33.0	33 (13.5), 9.2 to 17.8	0.643
	Naming	1 (0.2), 0.2 to 0.7	0 (0.0)	1 (0.4), 0.0 to 1.2	0.001**
	Attention	140 (34.3), 29.7 to 38.9	75 (45.7), 38.0 to 53.4	65 (26.6), 21.1 to 32.2	< 0.001**
	Alternative attention	147 (36.0), 21.3 to 40.7	79 (48.2), 40.4 to 55.9	68 (27.9), 22.2 to 33.5	< 0.001**
	Mild cognitive impairment				
No		63 (15.4), 11.9 to 19.0			
Yes		345 (84.6), 81.0 to 88.1			

Abbreviations: CF, Cognitive frailty; NCF, non-cognitive frailty; CI, confidence interval. * Significant association at $p < 0.05$; ** Significant association at $p < 0.001$.

Supplementary Table S2. Comparison of nutritional status using MNA-SF screening in cognitively frail and non-cognitively frail groups.

MNA-SF Questions	Total (N= 408)	Cognitive frailty status		P-value
		CF (n = 164)	NCF (n = 244)	
Has food intake declined over the past 3 months due to loss of appetite, digestive problems, chewing or swallowing difficulties?				
Severe decrease in food intake	31 (7.6)	19 (11.6)	12 (4.9)	< 0.001**, a
Moderate decrease in food intake	104 (25.5)	62 (37.8)	42 (17.2)	
No decrease in food intake	273 (66.9)	83 (50.6)	190 (77.9)	
Weight loss during the last 3 months				
Weight loss greater than 3 kg (6.6 lbs)	31 (7.6)	19 (11.6)	12 (4.9)	< 0.001**, a
Does not know	13 (3.2)	9 (5.5)	4 (1.6)	
Weight loss between 1 and 3 kg (2.2 and 6.6 lbs)	93 (22.8)	49 (29.9)	44 (18.0)	
No weight loss	271 (66.4)	87 (32.1)	184 (75.4)	
Mobility				
Bed or chair bound	1 (0.2)	0 (0.0)	1 (0.4)	0.161 ^b
Able to get out of bed/ chair but does not go out	2 (0.5)	2 (1.2)	0 (0.0)	
Goes out	405 (99.3)	162 (98.8)	243 (99.6)	
Has suffered psychological stress or acute disease in the past 3 months?				
Yes	42 (10.3)	25 (15.2)	17 (7.0)	0.008*, a
No	366 (89.7)	139 (84.8)	227 (93.0)	
Neuropsychological problems				
Severe dementia or depression	238 (58.3)	86 (52.4)	152 (62.3)	0.083 ^b
Mild dementia	162 (39.7)	73 (44.5)	89 (36.5)	
No psychological problems	8 (2.0)	5 (3.0)	3 (1.2)	
Body Mass Index (BMI) (kg/m ²)				
Less than 19	48 (11.9)	21 (13.3)	27 (11.1)	0.785 ^a
19 to less than 21	79 (19.7)	31 (19.6)	48 (19.7)	
21 to less than 23	88 (21.9)	31 (19.6)	57 (23.4)	
23 or greater	187 (46.5)	75 (47.5)	112 (45.9)	

Abbreviations: CF, Cognitive frailty; NCF, non-cognitive frailty; MNA-SF, Mini Nutritional Assessment (Short form); Statistical analysis was performed by ^a Chi-square test and ^b Fisher's Exact test. * Significant association at $p < 0.05$; ** Significant association at $p < 0.001$.

Supplementary Table S3. Comparison of the percentage of TGDS-15 questions between cognitively frail and non-cognitively frail groups.

TGDS-15 Questions	Response answer [#]	Total (N= 408)	Cognitive frailty status		P-value
			CF (n = 164)	NCF (n = 244)	
1. Are you basically satisfied with your life?	No	15 (3.7)	5 (3.0)	10 (4.1)	0.581 ^a
2. Have you dropped many of your activities or interests?	Yes	112 (27.5)	60 (36.6)	52 (21.3)	0.001 ^{**} , ^a
3. Do you feel that your life is empty?	Yes	58 (14.2)	37 (22.6)	21 (8.6)	< 0.001 ^{**} , ^a
4. Do you often feel bored?	Yes	68 (16.7)	48 (29.3)	20 (8.2)	< 0.001 ^{**} , ^a
5. Are you in good spirits most of the time?	No	12 (2.9)	8 (4.9)	4 (1.6)	0.074 ^b
6. Are you afraid that something bad is going to happen to you?	Yes	87 (21.3)	46 (28.0)	41 (16.8)	0.007 [*] , ^a
7. Do you feel happy most of the time?	No	9 (2.2)	5 (3.0)	4 (1.6)	0.494 ^b
8. Do you often feel helpless?	Yes	31 (7.6)	21 (12.8)	10 (4.1)	0.001 ^{**} , ^a
9. Do you prefer to stay at home, rather than going out and doing new things?	Yes	265 (65.0)	111 (67.7)	154 (63.1)	0.343 ^a
10. Do you feel you have more problems with your memory than most?	Yes	122 (29.9)	62 (37.8)	60 (24.6)	0.004 [*] , ^a
11. Do you think it is wonderful to be alive?	No	33 (8.1)	21 (12.8)	12 (4.9)	0.004 ^{**} , ^a
12. Do you feel pretty worthless the way you are now?	Yes	17 (4.2)	13 (7.9)	4 (1.6)	0.002 [*] , ^a
13. Do you feel full of energy?	No	46 (11.3)	25 (15.2)	21 (8.6)	0.038 [*] , ^a
14. Do you feel that your situation is hopeless?	Yes	25 (6.1)	19 (11.6)	6 (1.5)	< 0.001 ^{**} , ^a
15. Do you think that most people are better off than you are?	Yes	52 (12.7)	34 (20.7)	18 (7.4)	< 0.001 ^{**} , ^a

[#] problems (response answers in bold) indicate depression; Statistical analysis was performed by ^a Chi-square test and

^b Fisher's Exact test; Abbreviations: CF, Cognitive frailty; NCF, non-cognitive frailty; TGDS, Thai Geriatric Depression Scores. * Significant association at $p < 0.05$; ** Significant association at $p < 0.001$.

Supplementary Table S4. Descriptives of PSQI components in cognitively frail and non-cognitively frail groups.

PSQI components, n (%)	Total (n = 408)	Cognitive frailty		P-value
		CF (n = 164)	NCF (n = 244)	
1. Subjective sleep quality				
Very good (0 score)	336 (82.4)	126 (76.8)	210 (86.1)	0.043 ^{*, a}
Fairly good (1 score)	50 (12.3)	24 (14.6)	26 (10.7)	
Fairly bad (2 scores)	18 (4.4)	12 (7.3)	6 (2.5)	
Very bad (3 scores)	4 (1.0)	2 (1.2)	2 (0.8)	
2. Sleep latency				
0 (score)	188 (46.1)	65 (39.6)	123 (50.4)	0.042 ^{*, b}
1 – 2 (1 score)	114 (27.9)	46 (28.0)	68 (27.9)	
3 – 4 (2 scores)	64 (15.7)	29 (17.7)	35 (14.3)	
5 – 6 (scores)	42 (10.3)	24 (14.6)	18 (7.4)	
3. Sleep duration				
> 7 (0 score)	266 (65.2)	107 (65.2)	159 (65.2)	0.177 ^b
6 – 7 (1 score)	59 (14.5)	25 (15.2)	34 (13.9)	
5 – 6 (2 scores)	67 (16.4)	22 (13.4)	45 (18.4)	
< 5 (3 scores)	16 (3.9)	10 (6.1)	6 (2.5)	
4. Sleep efficiency (%)				
> 85 (0 score)	335 (82.1)	128 (78.0)	207 (84.8)	0.058 ^b
75 – 84 (1 score)	26 (6.4)	11 (6.7)	15 (6.1)	
65 – 74 (2 scores)	19 (4.7)	7 (4.3)	12 (4.9)	
< 65 (3 scores)	28 (6.9)	18 (11.0)	10 (4.1)	
5. Sleep disturbance (scores)				
0 (0 score)	12 (2.9)	7 (4.3)	5 (2.0)	0.202 ^a
1 – 9 (1 score)	300 (73.5)	112 (68.3)	188 (77.0)	
10 – 18 (2 scores)	90 (22.1)	42 (25.6)	48 (19.7)	
19 – 27 (3 scores)	6 (1.5)	3 (1.8)	3 (1.2)	
6. Use of sleep medication				
Not during past month (0 score)	17 (4.2)	7 (4.3)	10 (4.1)	0.637 ^b
Less than once a week (1 score)	18 (4.4)	8 (4.9)	10 (4.1)	
Once or twice a week (2 scores)	119 (29.2)	53 (32.3)	66 (27.0)	
Three or more than times a week (3 scores)	254 (62.3)	96 (23.5)	158 (64.8)	
7. Daytime dysfunction (scores)				
0 (0 score)	286 (70.1)	102 (62.2)	184 (75.4)	0.024 ^{*, a}
1 – 2 (1 score)	99 (24.3)	49 (29.9)	50 (20.5)	
3 – 4 (2 scores)	19 (4.7)	11 (6.7)	8 (3.3)	
5 – 6 (3 scores)	4 (1.0)	2 (1.2)	2 (0.8)	

Abbreviations: CF, Cognitive frailty; NCF, non-cognitive frailty; PSQI, Pittsburgh Sleep Quality Index; Statistical analysis was performed by ^a Fisher's Exact test and ^b Chi-square test. * Significant association at $p < 0.05$.

Supplementary Table S5. Comparison of sleeping quality scores and its components in cognitively frail and non-cognitively frail groups.

Sleep Quality	Mean SD, median [IQR]			P-value
	Total (n = 408)	Cognitive frailty status		
		CF	NCF	
		(n = 164)	(n = 244)	
Subjective sleep quality (scores)	0.0 [0.0]	0.0 [0.0]	0.0 [0.0]	0.013 *
Sleep latency (scores)	1.0 [2.0]	1.0 [2.0]	0.0 [1.0]	0.008 *
Sleep duration (scores)	0.0 [1.0]	0.0 [1.0]	0.0 [0.0]	0.960
Sleep efficiency (scores)	0.0 [0.0]	0.0 [0.0]	0.0 [0.0]	0.055 *
Sleep disturbance (scores)	1.0 [0.0]	1.0 [1.0]	1.0 [0.0]	0.296
Use of sleep medication (scores)	3.0 [1.0]	3.0 [1.0]	3.0 [1.0]	0.229
Daytime dysfunction (scores)	0.0 [1.0]	0.0 [1.0]	0.0 [0.0]	0.004 *

Abbreviations: CF, Cognitive frailty; NCF, non-cognitive frailty; SD, Standard deviation; IQR, Interquartile range; Statistical analysis was performed by the Mann-Whitney U test. * Significant association at $p < 0.05$.