

Physiological And Emotional Contributors To Quality Of Life: A Southeast Asian Population Attributable Fraction Approach

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BACKGROUND

- Quality of life (QoL) is a multidimensional construct that reflect individual’s physical health, emotional state, and overall perception of well-being perception.
- Older adults may experience difficulties in managing everyday activities, maintaining social relationships, and coping with emotional challenges, which can lead to decreased life satisfaction.
- Therefore, our study aims to quantify the contribution of physiological and emotional factors to dementia-related quality of life in Southeast Asian cohort, using population attributable fractions (PAFs).

METHODS

- A total of 1253 community-dwelling participants (mean age 60.07± 9.16years; 62% females) were recruited and analysed as part of BIOCIS study.
- QoL status was stratified using a mean split (High vs Low).
- PAFs were estimated for overall and individual factors (Figure 1).
- PAFs were derived using Poisson regression models with a log link, incorporating bootstrap resampling to obtain robust 95% confidence intervals, and were adjusted for age, gender, years of education, and cognitive symptoms

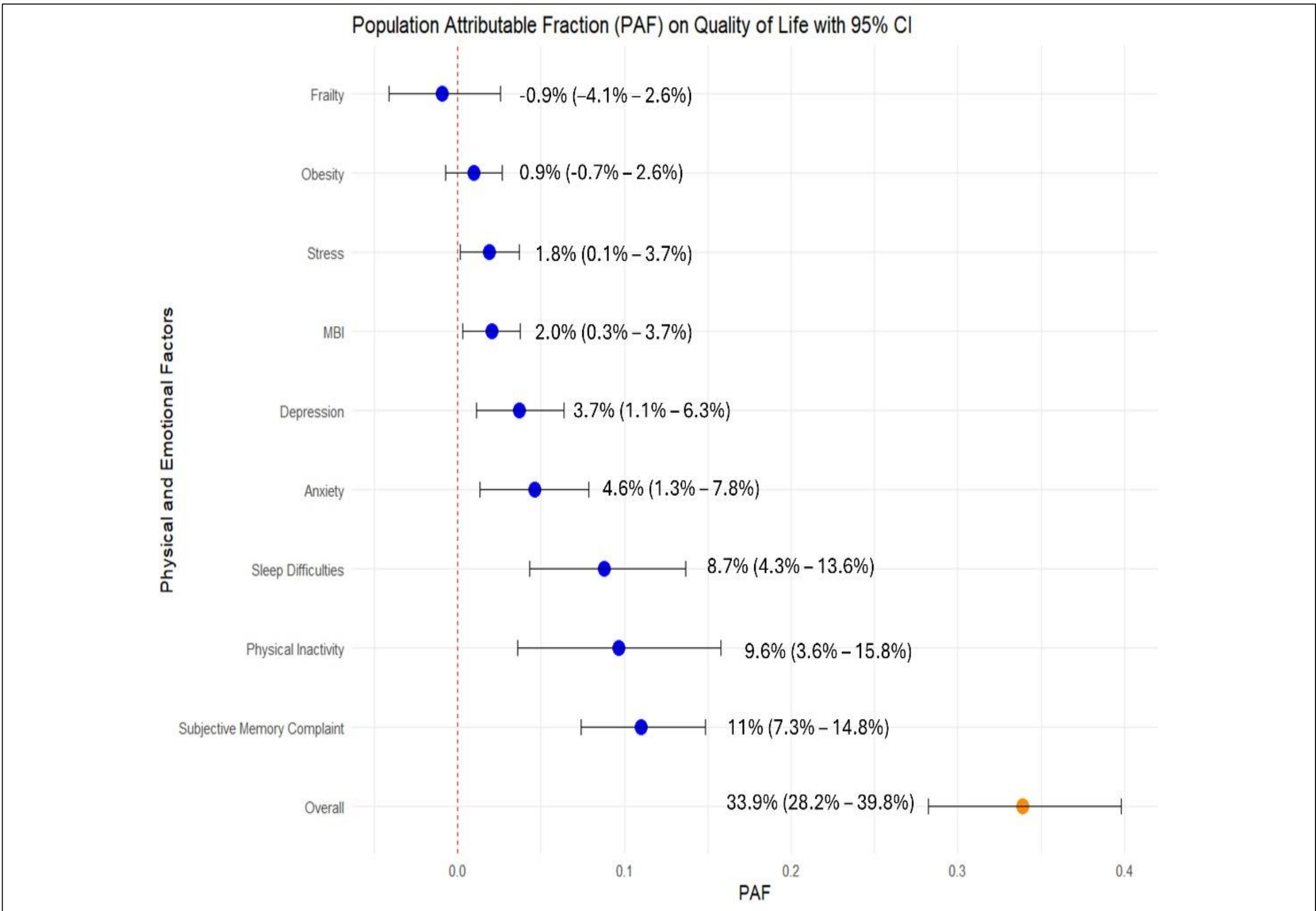
Figure 1. Definitions on the physiological and emotional factors for dementia-related quality of life.

Physiological Factors	Emotional Factors
Physical Inactivity Assessed using the International Physical Activity Questionnaire (IPAQ) and if they did not meet any of the following criteria: (a) at least 75 minutes of vigorous activity per week OR (b) 150 minutes of moderate activity per week OR (c) a combined total of 150 minutes of moderate and vigorous activity per week.	Depression, Anxiety, and Stress Assessed using the self-reported Depression Anxiety Stress Scales-21 (DASS-21). Participants were classified as to at least mild symptom severity: Depression (≥9), Anxiety (≥7), and Stress (≥14).
Sleep Difficulties Assessed using the Pittsburgh Sleep Quality Index (PSQI). A global score ≥5 was classified as having sleep difficulties.	Mild Behavioural Impairment (MBI) Assessed using the Mild Behavioural Impairment Checklist (MBI-C). Participants with a total score of ≥5.5 were classified as positive for MBI.
Frailty Assessed using the Fried Frailty Phenotype. Participants with a score of ≥1 on these criteria were classified as frail.	Subjective Memory Complaint Assessed using the Subjective Memory Complaints Questionnaire (SMCQ) ⁽⁸⁾ . A global score ≥ 5 is considered indicative of a significant memory complaint.
Obesity Obesity was defined based on body mass index (BMI). In accordance with the Singapore guidelines ⁽⁹⁾ , participants with a BMI ≥ 27.5 kg/m ² were considered obese.	

RESULTS

- Low QoL group has more females, Mild Cognitive Impairment (MCI) individuals, and higher prevalence of the factors as compared to high QoL group (Table 1).
- Figure 2 showed the overall PAF for low QOL is 33.8% (28.8% - 39.8%)
- The highest PAF for low QoL are subjective memory complaint (10.9%), physical inactivity (9.8%), and sleep difficulties (8.7%).

Figure 2. Population Attributable Fraction for Physiological and Emotional Factors for Dementia-related Quality of Life



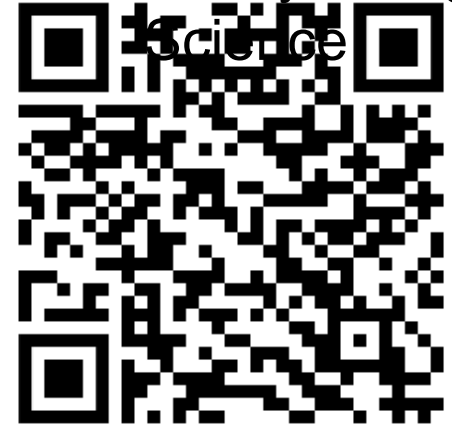
Note. Population Attributable Fraction (PAF) represents the proportion of low quality of life cases in the population that could theoretically be prevented if the risk factor were eliminated, assuming a causal relationship. Values are presented with 95% confidence intervals (CI). Factors included physiological (frailty, obesity, physical inactivity, and sleep difficulties), emotional (stress, depression, anxiety, MBI, and subjective memory complaint). The overall PAF reflects the combined contribution of all included factors.

CONCLUSION

In summary, females and mild cognitive impairment individuals are more prevalent to low QoL. Approximately one-third of low QoL cases could be attributed to the physical and emotional factors examined. Among these, subjective memory complaint, physical inactivity, and sleep difficulties contributed the greatest proportions, highlighting their potential as key intervention targets to improve quality of life.

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Table 1. Demographic, physical and emotional characteristics by quality of life (QoL) group

Characteristic	Overall, N = 1,253	Grouping		p-value
		High QoL, N = 558	Low QoL, N = 695	
Demographic Profiles				
Age	60.07 ± 9.16	60.52 ± 8.92	59.71 ± 9.33	0.10
Race (Chinese)	1097 (88%)	496 (89%)	601 (86%)	0.6
Gender (Female)	773 (62%)	326 (58%)	447 (64%)	0.03
Education Years	14.92 ± 3.48	15.00 ± 3.58	14.86 ± 3.40	0.6
Cognitively Normal	422 (34%)	221 (40%)	201 (29%)	<0.001
Mild Cognitive Impairment	441 (35%)	200 (36%)	241 (35%)	
Physiological Factors				
Physical Inactivity	732 (58%)	289 (52%)	443 (64%)	<0.001
Frailty	372 (30%)	151 (27%)	221 (32%)	0.068
Sleep Difficulties	555 (44%)	189 (34%)	366 (53%)	<0.001
Obesity	154 (12%)	61 (11%)	93 (13%)	0.2
Emotional Factors				
Depression	203 (16%)	37 (6.6%)	166 (24%)	<0.001
Anxiety	291(23%)	72 (13%)	219 (32%)	<0.001
Stress	128 (10%)	16 (2.9%)	112 (16%)	<0.001
Mild Behavioural Impairment	135 (11%)	22 (3.9%)	113 (16%)	<0.001
Memory Complaint	400 (32%)	107 (19%)	293 (42%)	<0.001

Note.
Values are presented as mean ± standard deviation (SD) for continuous variables and n (%) for categorical variables.
High and Low QoL groups were classified based on Dementia Quality of Life (demQOL) total score median split.
p-values were obtained using independent t-tests for continuous variables and chi-square tests for categorical variables.
Bold p < 0.05 indicates statistical significance.