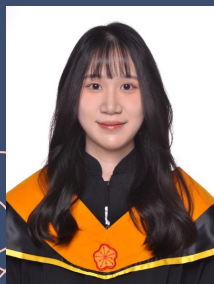


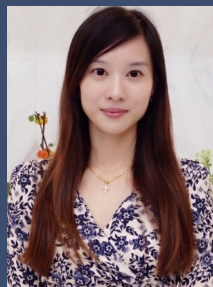


The Influence of Exercise Motivation, Exercise Participation and Occupational Balance on Quality of Life for People with Depression

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I. Introduction



Depression → one of the leading causes of disability worldwide

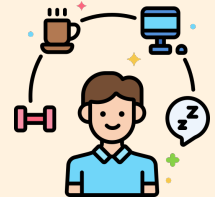
People with depression often experience:

- Low engagement in daily occupation
→ Occupational imbalance and reduced quality of life (QoL) (Gunnarsson et al., 2023; Wagman et al., 2021)

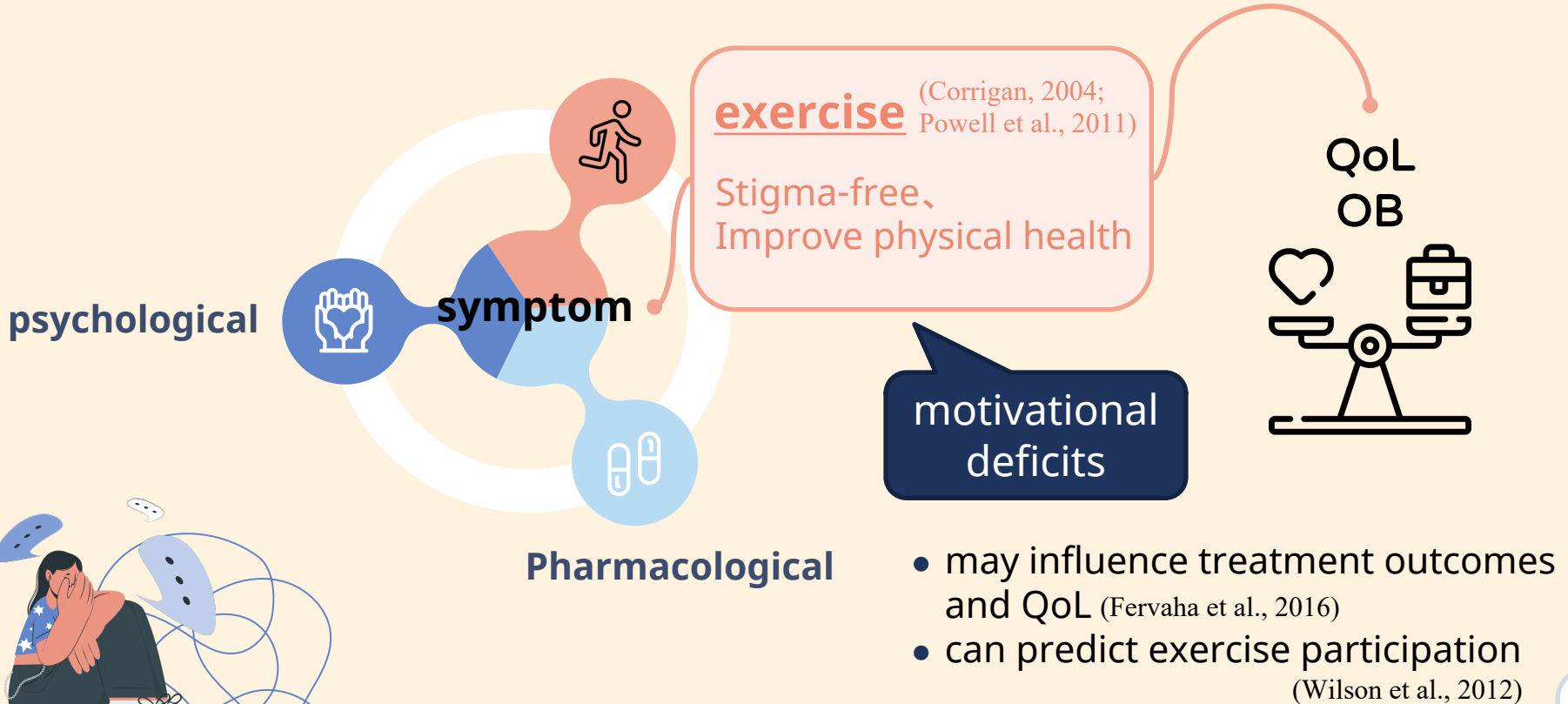
Occupational balance (OB)

(Wagman et al., 2012)

Subjective perception of having an appropriate number of occupations and an appropriate variation in occupational activities.




Treatment of Depression






Research Gap

Most previous studies focused on structured exercise interventions,
Limited research has **simultaneously** examined...



Exercise
Motivation

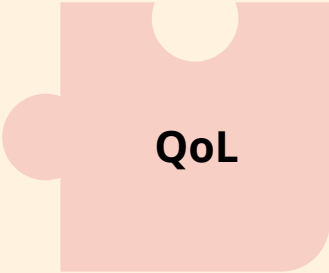
n



Exercise
participation



OB



QoL

especially in
outpatient populations



Research Aims

- 1) To examine the association between **exercise motivation** and exercise participation

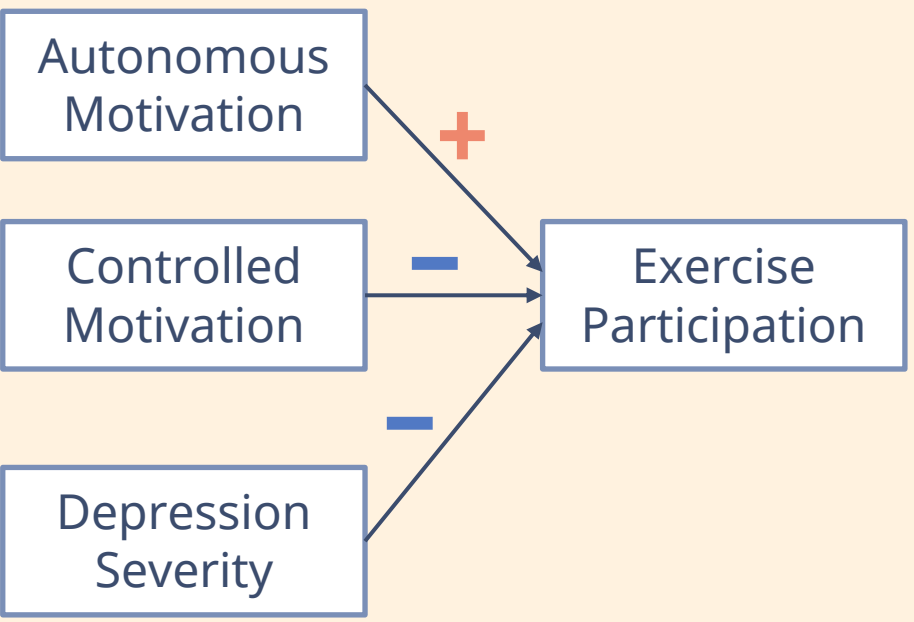
↳ Based on
Self-Determination Theory

- 2) To investigate the influence of exercise motivation, exercise participation, occupational balance, and depression severity on quality of life.

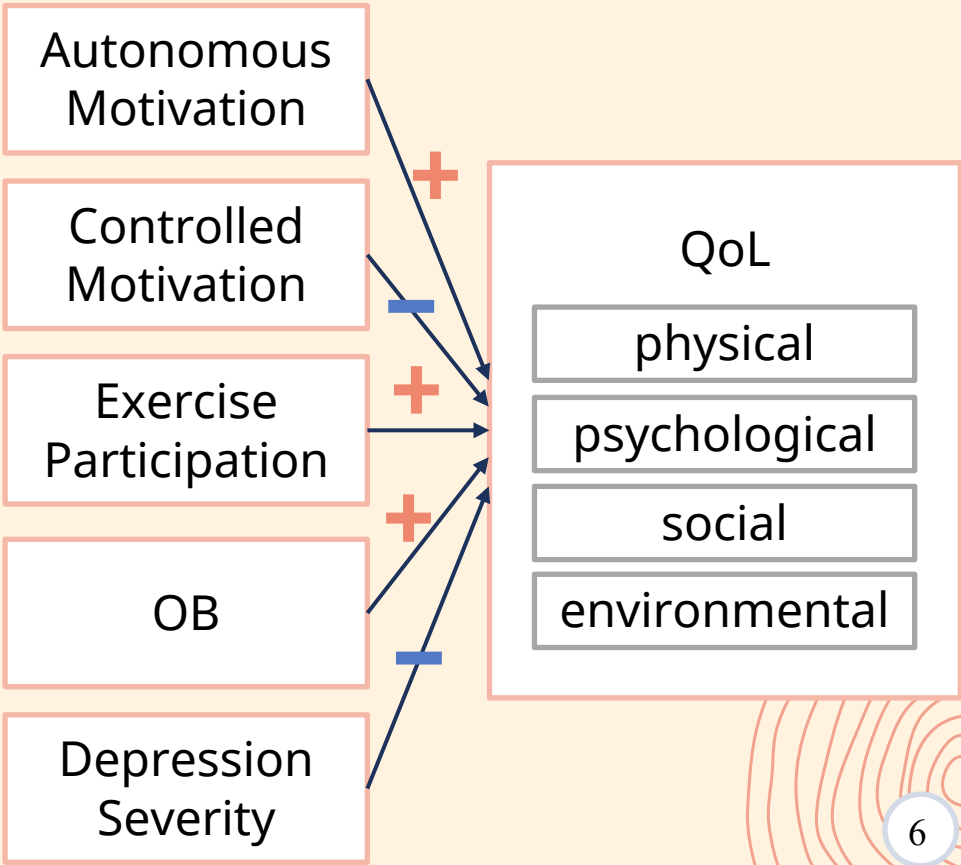
...in outpatients with depression

Conceptual Framework

1)



2)



II. Methods

A. Participants

Inclusion Criteria	Exclusion Criteria
Diagnosed with depression by a psychiatrist	Diagnosed with schizophrenia spectrum and other psychotic disorders)
Assessed by a psychiatrist as having stable psychiatric symptoms	Presence of severe physical illness or medical conditions contraindicates exercise
Adults (aged 20+) with the capacity to act	Currently pregnant or became pregnant during the study period
Literate and possessing basic cognitive function	





II. Methods

- Study Design: Cross-sectional study
- Participants: Outpatients with depression
- Sample size: conducted with 55 adults
- Data Analysis: Descriptive statistics, Difference testing, Pearson correlation, and Multiple linear regression
- IBM SPSS Statistics version 25



B. Key Measures

**Exercise
motivation**

**Behavioral Regulation in Exercise
Questionnaire-2 (BREQ-2)**

**Exercise
participation**

**International Physical Activity
Questionnaire-Long Form (IPAQ-LF)**

**Occupational
balance**

**Occupational Balance
Questionnaire 11-Chinese version
(OBQ11-C)**

**Quality of
life**

WHOQOL-BREF

**Depression
severity**

Beck Depression Inventory-II (BDI-II)

Additionally...

- basic information form
- interviews
- measured height and weight

III. Results

A. Descriptive statistics of participants (N=55)

Age (year)	38.29 (14.44)
Depression severity	24.67 (14.99)
Age group	
20-44	36 (65.5)
44-64	17 (30.9)

Educational level	
Primary school or below	1 (1.8)
Junior high school	6 (10.9)
Senior high school	11 (20.0)
College	32 (58.2)
Master	4 (7.3)
PhD	1 (1.8)
Employment status	

Side effect	
No	19 (34.5)
Minor	22 (40.0)
Major	9 (16.4)
Unclear	5 (9.1)

Family support	25 (45.5)
----------------	-----------

BMI	
Underweight	5 (9.1)
Normal range	29 (52.7)
Overweight	7 (12.7)
Obese	14 (25.5)

Widowed	2 (3.6)
---------	---------

Variable	Mean (SD) or N (%)
Age (year)	38.29 (14.44)
Depression severity	24.67 (14.99)
Age group	
20-44	36 (65.5)
44-64	17 (30.9)
>65	2 (3.6)
Gender	
Male	21 (38.2)
Female	34 (61.8)
Educational level	
Primary school or below	1 (1.8)
Junior high school	6 (10.9)
Senior high school	11 (20.0)
College	32 (58.2)
Master	4 (7.3)
PhD	1 (1.8)
Employment status	
Full-time	20 (36.4)
Part-time	7 (12.7)
Retired	4 (7.3)
No employment	24 (43.6)
Economic status	
Self-sufficiency	26 (47.3)
Family support	25 (45.5)
Government support (eg. Low-income or mid-income)	4 (7.3)
Marital status	
Unmarried	32 (58.2)
Married	18 (32.7)
Divorce	3 (5.5)
Widowed	2 (3.6)
Smoking Status	
Non-smoker (never)	39 (70.9)
Former smoker	5 (9.1)
Current smoker	11 (20.0)
Alcohol Use	
No (never)	49 (89.1)
Yes	6 (10.0)
Drug use	
No	55 (100)
Yes	0 (0)
BMI	
Underweight	5 (9.1)
Normal range	29 (52.7)
Overweight	7 (12.7)
Obese	14 (25.5)

B. Analysis of differences in exercise participation across factors

Variable	Categories	N	Mean (SD)	<i>t</i> / <i>F</i>	<i>p</i>
Gender	Male	21	577.81 (690.61)	-0.564	0.575
	Female	34	795.34 (881.87)		
Age group	(1) 20-44	36	659.13 (744.05)	0.019	0.981
	(2) 45-64	17	664.59 (998.97)		
	(3) > 65	2	544.50 (210.01)		
Educational level	Primary school or below	1	693.00 (N/A)	1.155	0.345
	Junior high school	6	126.50 (167.51)		
	Senior high school	11	368.73 (353.84)		
	College	32	842.58 (971.32)		
	Master	4	738.00 (588.98)		
	PhD	1	693.00 (N/A)		
Marital status	Unmarried	32	593.77 (687.30)	1.570	0.208
	Married	18	923.33 (1020.12)		
	Divorced	3	33.00 (57.16)		
	Widowed	2	198.00 (208.01)		
Employment status	(1) No employment	24	699.50 (767.53)	0.070	0.976
	(2) Retired	4	643.50 (747.43)		
	(3) Part-time	7	703.43 (1477.51)		
	(4) Full-time	20	591.48 (604.61)		
Alcohol Use	No (never)	49	648.83 (794.68)	0.041	0.840
	Yes	6	720.50 (1007.33)		
Smoking Status	Non-smoker (never)	39	723.19 (818.39)	0.582	0.563
	Former smoker	5	336.60 (600.56)		
	Current smoker	11	566.18 (880.07)		
BMI group	Underweight	5	409.80 (311.81)	0.485	0.694
	Normal range	29	773.17 (933.03)		
	Overweight	7	475.50 (585.26)		
	Obese	14	594.00 (809.82)		

NO significant

C. Analysis of differences in quality of life across factors

Age	Employment status ¹	(1) No employment	24	45.27 (7.71)				
		(2) Retired	4	53.15 (2.34)				2 > 1
		(3) Part-time	7	45.71 (12.83)	6.400	0.004		2 > 4
		(4) Full-time	20	46.34 (7.99)				

Variable	Categories	N	Mean (SD)	t / F	p	Post-hoc (Scheffe)
Gender	Male	21	47.77 (7.60)	1.034	0.306	
	Female	34	45.37 (8.82)			
Age group	(1) 20-44	36	45.00 (7.55)	6.606	0.003	3 > 1 3 > 2
	(2) 45-64	17	46.81 (8.04)			
	(3) > 65	2	65.06 (1.03)			
Educational level	Primary school or below	1	64.33 (N/A)	1.539	0.195	
	Junior high school	6	41.80 (14.14)			
	Senior high school	11	45.12 (7.86)			
	College	32	46.53 (6.94)			
	Master	4	48.18 (7.60)			
	PhD	1	52.46 (N/A)			
Marital status	Unmarried	32	45.71 (7.71)	2.661	0.058	
	Married	18	47.21 (7.88)			
	Divorced	3	38.59 (11.95)			
	Widowed	2	58.75 (9.96)			
Employment status ¹	(1) No employment	24	45.27 (7.71)	6.400	0.004	2 > 1 2 > 4
	(2) Retired	4	53.15 (2.34)			
	(3) Part-time	7	45.71 (12.83)			
	(4) Full-time	20	46.34 (7.99)			
Alcohol Use	No (never)	49	49.99 (8.55)	0.542	0.465	
	Yes	6	48.68 (7.08)			
Smoking Status	Non-smoker (never)	39	46.89 (8.29)	0.338	0.715	
	Former smoker	5	44.54 (8.71)			
	Current smoker	11	44.96 (9.13)			
BMI group	Underweight	5	41.23 (4.21)	1.129	0.346	
	Normal range	29	46.80 (8.20)			
	Overweight	7	49.80 (8.45)			
	Obese	14	45.27 (9.53)			

Note. ¹ Welch Anova (unequal variances); if the results showed significant, use Dunnett T3 analysis to do the post-hoc.

Model of Exercise Participation



D. Pearson correlations between exercise participation, autonomous motivation, controlled motivation, and depression severity

Variables	(1)	(2)	(3)	(4)
(1) Exercise Participation	1	0.397**	-0.090	-0.203
		0.003	0.515	0.136
(2) Autonomous Motivation		1	-0.112	-0.410**
			0.415	0.002
(3) Controlled Motivation			1	0.016
				0.909
(4) Depression Severity				1

Note. ** p < 0.01; *p < 0.05

✓ **Autonomous motivation showed significantly moderate positive correlation (r = 0.397, p=0.003)**

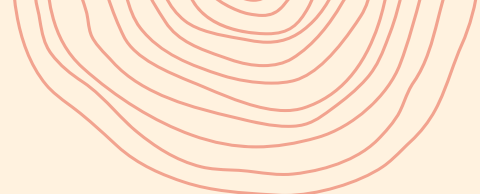
E. Regression analysis on exercise participation

- **Higher Autonomous motivation → Higher levels of Exercise participation**
- The regression model showed that **Autonomous motivation** explained **15.8% of the variance** in exercise participation

Categories	Variable	Beta	p-value
Questionnaire data	Autonomous Motivation	0.397**	0.003
Model	F-value	9.913** (p=0.003)	
	R ²	0.158	

Note. ** p < 0.01

Model of Quality of Life



F. Pearson correlations between overall QoL, Autonomous Motivation, Controlled Motivation, Exercise Participation, OB, and depression severity

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) overall QoL	1	0.512**	-0.090	0.313*	0.742**	-0.767**
(2) Autonomous Motivation		1	0.514	0.020	0.000	0.000
(3) Controlled Motivation			1	0.003	0.004	0.002
(4) Exercise Participation				1	0.240	-0.203
(5) OB					1	0.078
(6) Depression Severity						1

Note. ** p < 0.01; *p < 0.05

Quality of life showed...

- Significantly **moderate positive correlation** with **autonomous motivation** (r = 0.512, p < 0.001) and **exercise participation** (r = 0.313, p = 0.020)
- Significantly **strong positive correlation** with **OB** (r = 0.742, p < 0.001)
- Significantly **strong negative correlation** with depression severity (r = -0.767, p < 0.001)

Model of Quality of Life

G. Regression analysis on quality of life

Categories	Variable	Beta	p-value
Demographics	Age group = 65 ¹	0.261**	0.001
Clinical	Depression severity	-0.423**	0.000
Questionnaire data	Exercise participation	0.142*	0.046
	OB	0.399**	0.000
Model	F-value	35.272** (p=0.000)	
	R ²	0.760	

Note. ** p< 0.01; *p< 0.05.

¹reference group: Age group = 20-44.

- The regression model indicated that **age group**, **depression severity**, **exercise participation**, and **occupational balance** explained **76% of the variance** in overall quality of life.

- **Higher depression severity** was associated with poorer overall quality of life ($\beta = -0.423$, $p < .001$)
- **Higher levels of exercise participation** ($\beta = 0.142$, $p = .046$) and **occupational balance** ($\beta = 0.399$, $p < .001$) were associated with better overall quality of life
- **Age ≥ 65** had a better overall quality of life than those aged 20-44 ($\beta = 0.261$, $p = .001$)

IV. Discussion

Variable	Min	Max	Medium	Mean	SD	Skewness	Kurtosis
Exercise participation (mins/week)							
Vigorous	0.00	480.00	0.00	38.73	88.03	3.15	11.81
Moderate	0.00	360.00	0.00	20.80	64.16	4.12	18.13
Walk	0.00	450.00	0.00	80.64	125.10	1.67	1.94
Total	0.00	540.00	90.00	139.55	154.39	1.01	0.05



insufficient physical activity



No significant differences

(Schuch et al., 2017; Helgadóttir et al., 2018)

IV. Discussion

A. **Autonomous motivation** plays a key role in promoting exercise participation

(Vancampfort et al., 2016)



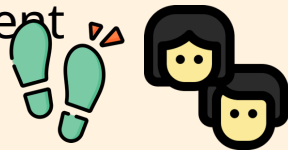
22 of 37 individuals (59.46%) described exercise as a **personal habit** → maintained for more than **six months**

→ especially in **maintaining long-term exercise participation**

B. **Exercise participation, OB, and low depression severity** are crucial for **QoL**.

Significantly predicted QoL, with a high explanatory power ($R^2 = 76.0\%$)

C. **Low-barrier** activities and **social support** may facilitate engagement



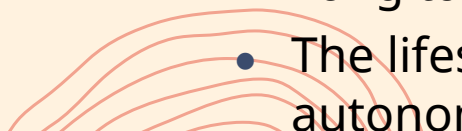
Walking was the most common activity (67.57%)



D. Limitations

- Small sample size limited generalizability
- Criteria
- Potential Treatment Confounding
- Self-report questionnaire
- Study design

E. For future research...

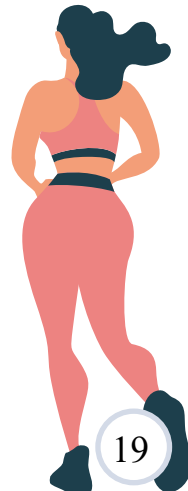
- Examine the mediating effect of exercise participation in the relationship between autonomous motivation and quality of life
 - Longitudinal study
 - The lifestyle redesign intervention to enhance and maintain autonomous motivation
- 

V. Conclusion / Clinical implications

This study highlights the crucial role of **autonomous motivation** in encouraging exercise participation among individuals with depression.

In addition, **enhancing exercise participation and OB** while **reducing depression severity** are important to improve QOL.

These findings underscore the importance of integrating these factors into occupational therapy interventions.





Thank you for listening!