

Development and validation of Healthy Occupation & Lifestyle Competence Scale (HoLCS) among college students

How to measure intervention receipt in an occupation-based lifestyle intervention?

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SE-69 Occupational therapy theory/models/history 10:30-10:42 Amber Room 1-2 (BITEC - Level 2)



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Why **Intervention Receipt** matters?

- Lifestyle interventions are widely used to promote college students' mental health (e.g., Ali et al., 2021; Plotnikoff et al., 2015).
- Most studies focus on health outcomes (e.g. well-being, behavior changes)
- **Intervention receipt:** Less attention on **what participants actually learn from intervention.**

Why Intervention Receipt matters?

- **Intervention receipt** refers to whether participants (Bellg et al., 2004):
 - Understand the information provided by the program
 - Can apply the cognitive and behavioral skills taught by the program
 - Experience the intended psycho-emotional state
- remains poorly quantified in existing research
- ➔ limits our ability to evaluate how and why lifestyle interventions work.
- ➔ **a competence-based measure to assess intervention receipt among college students: the Healthy Occupation & Lifestyle Competence Scale (HoLCS).**

Study Purpose

To examine the reliability and validity of the Healthy Occupation & Lifestyle Competence Scale (HoLCS).

Multiple-step item development

Literature review

- **Competence** (Pikkarainen, 2014)
- **Lifestyle Redesign®** (Pyatak et al., 2022)
- **Health self-management** (Lorig & Holman, 2013)
- **Health Action Process Approach, HAPA** (Schwarzer & Luszczynska, 2008)

Peer feedback

- Research meetings
- Inviting occupational therapists familiar with lifestyle interventions in the discussions

Psychometric testing

- Validity
- Reliability

Psychometric Testing

Content validity and face validity:

- A two-round Delphi method with 8 experts
- CVI cutoff: > 0.83

(Lynn, 1986)

Reliability:

- Ceiling / floor effect (15%)
- Item-total correlations > .30
- Inter-item correlations < .80
- Cronbach's α > .80

Construct validity:

- Confirmatory factor analysis (CFA)
 - tested a two-factor model using maximum likelihood estimation
 - Model fit: $\chi^2/df \leq 3$, CFI > .90, TLI > .90, RMSEA < .08, and SRMR < .08

Convergent validity:

- Occupational balance (Wagman et al., 2012)
- Self-perceived health
- Pearson's $r \geq .50$

Data Collection

- Participants: Undergraduate students
- Data collection: Google form
 - **Healthy Occupation and Lifestyle Competence Scale (HoLCS)**
 - **Occupational Balance Questionnaire 11–Chinese Version (OBQ11–C)**
(chen et al., 2025)
 - **Self-perceived health** (Yeh, 2022)

Results

- After 2 rounds of Delphi methods: Content validity (CVI = .988) and face validity (CVI = .934)
- 145 college students participated (from various academic colleges).

Table 1 Demographics (n = 145)

Variables	N (%) or M (SD)
Gender	
Male	70 (48.3)
Female	75 (51.7)
Age	20.42 (1.76)
Academic college	
Arts & Humanity/Social Sciences	45 (31.0)
Business & Management	12 (8.3)
Science, Technology, Engineering, Mathematics (STEM)	77 (53.1)
Design & Other	11 (7.6)
Year in college	
1 st or 2 nd	107 (73.8)
3 rd , 4 th , or 5 th	38 (26.2)
Healthy Occupation and Lifestyle Competence Scale (HoLCS)	
Willingness for a Healthy Lifestyle (5 items)	6.24 (3.63)
Lifestyle Adjustment Skills (4 items)	item score range 1-10 6.25 (3.43)
Occupational Balance (OBQ11-C)	score range 0-33 17.92 (4.25)
Self-perceived health	score range 3-30 18.91 (5.99)

Reliability

- No floor or ceiling effects were identified.
- Two subscales respectively demonstrated reliability.

Table 2 Reliability of the HoLCS (n = 145)

Reliability indicators	Willingness for a Healthy lifestyle subscale (5 items)	Lifestyle Adjustment Skills subscale (4 items)
Cronbach's $\alpha > .80$.857	.867
Item-total correlations $r > .30$.550 ~ .781	.662 ~ .771
Inter-item correlations $r < .80$.432 ~ .701, $p < .001$.520 ~ .683, $p < .001$

Construct Validity – CFA Results

- HoLCS demonstrated good model fit with two factors
 $\chi^2 / df = 1.61$; **CFI = .982**; **TLI = .971**; **SRMR = .036**; **RMSEA = .065**, **90% CI = [.018, .103]**
- The two latent factors showed a strong association (*factor covariance = 0.86*)
Willingness for a healthy lifestyle (5 items, factor loadings = 0.58–0.89)
and lifestyle adjustment skills (4 items, factor loadings = 0.73–0.83)
- All items loaded significantly on their intended factors ($p < .001$), *supporting convergent validity within a scale*

Convergent validity

- “Willingness” subscale demonstrated convergent validity with OBQ11-C and self-perceived health ($r \geq .50$).
- “Skills” subscale demonstrated convergent validity with OBQ11-C ($r \geq .50$).

Table 3 Convergent validity between the HoLCS, OBQ11-C, and self-perceived health (n = 145)

Reliability indicators	Occupational Balance Questionnaire 11-Chinese version (OBQ11-C)	Self-perceived Health
Willingness for a Healthy lifestyle subscale	.636, p < .001	.620, p < .001
Lifestyle Adjustment Skills subscale	.518, p < .001	.404, p < .001

Conclusion

The HoLCS is reliable and valid for measuring college students' "healthy occupation and lifestyle competence."

The two subscales should be scored separately and can be used in separation.

Research limitations included non-random sampling.

Future research can explore HoLCS's predictive validity for health behaviors across diverse populations.



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The Healthy Occupation and Lifestyle Competence Scale (HoLCS) translated by Chaptgpt

Willingness for a Healthy lifestyle subscale

1. How important it is to me to incorporate health-promoting activities into my daily routines.

Not important at all (0%) ~ Extremely important (100%)

2. How well I understand how my daily activities, habits, and routines promote or harm my health.

Not understand at all (0%) ~ Extremely understand (100%)

3. When life is busy, how confident I feel about successfully incorporating health-promoting activities into my daily routines.

Not confident at all (0%) ~ Extremely confident (100%)

4. When life involves problems and hassles, how confident I feel about being able to live a “satisfying” college life.

Not confident at all (0%) ~ Extremely confident (100%)

5. When life involves problems and hassles, how confident I feel about being able to live a “healthy” college life.

Not confident at all (0%) ~ Extremely confident (100%)

Lifestyle Adjustment Skills subscale

1. How proficient I am at observing how my daily activities, habits, and routines affect my health.

Not proficient at all (0%) ~ Extremely proficient (100%)

2. How proficient I am at using concrete and feasible action plans to change my life arrangements.

Not proficient at all (0%) ~ Extremely proficient (100%)

3. How proficient I am at analyzing factors that facilitate or hinder the achievement of an action plan (*e.g., physical and mental condition, ways of doing things, peer and family influences, weather factors, physical environment, etc.*).

Not proficient at all (0%) ~ Extremely proficient (100%)

4. How proficient I am at resolving problems or adjusting an action plan when it is difficult to achieve, so that it can be carried out successfully.

Not proficient at all (0%) ~ Extremely proficient (100%)