Emotion Regulation Strategies and Health-Related Quality of Life in Chinese Adolescents with Depression: A Cross-Sectional Study

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OBJECTIVES

- To examine the associations of cognitive reappraisal (CR) and expressive suppression (ES) with health-related quality of life (HRQoL) in Chinese adolescents with depressive symptoms.

METHODS

- This cross-sectional study included 1,902 adolescents **aged 10–19 years** with **PHQ-9 scores ≥5 from 11 middle and high schools across 9 provinces in China.**
- Depression severity was assessed using the PHQ-9. Emotion regulation strategies were measured using the Emotion Regulation Questionnaire, including cognitive reappraisal (CR) and expressive suppression (ES). HRQoL was assessed using CHU9D and EQ-5D-Y-3L.
- Participants were classified into subthreshold depression and major depression groups (PHQ-9 scores ≥10). CR and ES were further categorized into high- and low-use.
- Group differences were examined using Mann–Whitney U tests. Multivariable linear regression models with robust standard errors were used to assess the independent associations of CR and ES with utility values and to test interactions with depression severity.

RESULTS

- Among 1,902 adolescents, 58.4% were female and the mean age was 15.8 years. Of these, **73.0% had subthreshold depression and 27.0% had major depression.** Mean utility values were 0.745 for CHU9D and 0.904 for EQ-5D-Y-3L.
- Compared with the subthreshold depression group, the major depression group had lower CHU9D utility (0.625 vs. 0.790), lower EQ-5D-Y-3L utility (0.842 vs. 0.927), less frequent high CR use (39.8% vs. 57.0%), and more frequent high ES use (67.6% vs. 46.0%).
- In unadjusted analyses, high CR use was associated with higher utility values, whereas differences by ES use were no longer statistically significant after stratification.

Table 1 Participant characteristics and HRQoL by depression severity

Characteristic	Total participants	Subthreshold depression	Major depression	P value
Female, n (%)	1111 (58.4)	788 (56.8)	323 (62.7)	0.020
Age, mean (SD), years	15.8 (1.6)	15.9 (1.6)	15.7 (1.5)	0.018
High CR use, n (%)	996 (52.4)	791 (57.0)	205 (39.8)	<0.001
High ES use, n (%)	986 (51.8)	638 (46.0)	348 (67.6)	<0.001
PHQ-9 score, mean (SD)	8.8 (3.9)	7.0 (1.4)	13.8 (4.2)	<0.001
CHU9D utility value, mean (SD)	0.745 (0.173)	0.790 (0.139)	0.625 (0.197)	<0.001
EQ-5D-Y-3L utility value, mean (SD)	0.904 (0.100)	0.927 (0.074)	0.842 (0.130)	<0.001
EQ-VAS score, mean (SD)	74.0 (20.5)	78.2 (17.7)	62.9 (23.1)	<0.001

Abbreviations: CHU9D, Child Health Utility 9D; CR, cognitive reappraisal; EQ-5D-Y-3L, EuroQol 5-Dimension Youth 3-Level Version; EQ-VAS, EuroQol Visual Analogue Scale; ES, expressive suppression; PHQ-9, Patient Health Questionnaire-9; SD, standard deviation.

Table 2 Unadjusted differences in CHU9D and EQ-5D-Y-3L utility values by emotion regulation strategy and depression status

Instrument and subgroup	Comparison	Mean utility values	P value
CHU9D, total sample	High CR use vs Low CR use	0.773 vs 0.715	<0.001
CHU9D, total sample	High ES use vs Low ES use	0.723 vs 0.769	<0.001
CHU9D, subthreshold depression	High CR use vs Low CR use	0.800 vs 0.776	0.015
CHU9D, subthreshold depression	High ES use vs Low ES use	0.785 vs 0.794	0.258
CHU9D, major depression	High CR use vs Low CR use	0.667 vs 0.597	<0.001
CHU9D, major depression	High ES use vs Low ES use	0.610 vs 0.654	0.052
EQ-5D-Y-3L, total sample	High CR use vs Low CR use	0.918 vs 0.890	<0.001
EQ-5D-Y-3L, total sample	High ES use vs Low ES use	0.895 vs 0.915	<0.001
EQ-5D-Y-3L, subthreshold depression	High CR use vs Low CR use	0.932 vs 0.921	0.025
EQ-5D-Y-3L, subthreshold depression	High ES use vs Low ES use	0.926 vs 0.929	0.614
EQ-5D-Y-3L, major depression	High CR use vs Low CR use	0.861 vs 0.829	0.021
EQ-5D-Y-3L, major depression	High ES use vs Low ES use	0.837 vs 0.851	0.244

Abbreviations: CHU9D, Child Health Utility 9D; CR, cognitive reappraisal; EQ-5D-Y-3L, EuroQol 5-Dimension Youth 3-Level Version; ES, expressive suppression.

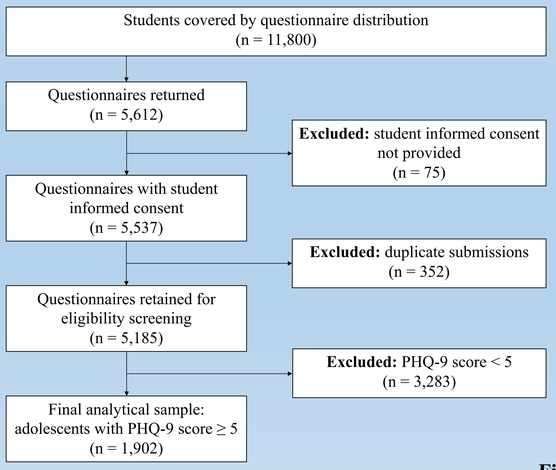

Figure 1 Flowchart of sample selection

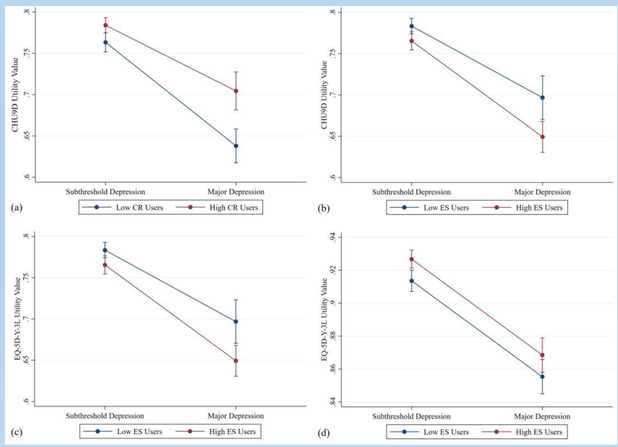

Figure 2 Utility values by depression status and emotion regulation strategy
(a) CR and CHU9D; (b) ES and CHU9D;
(c) CR and EQ-5D-Y-3L; (d) ES and EQ-5D-Y-3L

Table 3 Adjusted associations of depression and emotion regulation strategies with CHU9D and EQ-5D-Y-3L utility values

Outcome	Comparison	β	P value
CHU9D	Major depression vs subthreshold depression	-0.105	<0.001
CHU9D	**High CR use vs low CR use**	**0.033**	**<0.001**
CHU9D	High ES use vs low ES use	-0.025	<0.001
CHU9D	Low CR use × Subthreshold depression	Ref.	
CHU9D	Low CR use × Major depression	-0.125	<0.001
CHU9D	High CR use × Subthreshold depression	0.021	<0.01
CHU9D	**High CR use × Major depression**	0.046	**<0.01**
EQ-5D-Y-3L	Major depression vs subthreshold depression	-0.059	<0.001
EQ-5D-Y-3L	**High CR use vs low CR use**	**0.013**	**<0.01**
EQ-5D-Y-3L	High ES use vs low ES use	-0.007	>0.05

Abbreviations: β, regression coefficient; CHU9D, Child Health Utility 9D; CR, cognitive reappraisal; EQ-5D-Y-3L, EuroQol 5-Dimension Youth 3-Level Version; ES, expressive suppression.

- Across both utility measures, **cognitive reappraisal** emerged as the more **consistent correlate of better HRQoL** in adolescents with depression. Its positive association was observed in both depression groups and was **stronger** in adolescents with major depression.
- By contrast, expressive suppression showed a weaker and less stable pattern, especially after adjustment and when HRQoL was assessed using EQ-5D-Y-3L.
- Compared with EQ-5D-Y-3L, CHU9D appeared more sensitive to mental health-related functional differences associated with emotion regulation.

CONCLUSION

- **Higher cognitive reappraisal use** was consistently associated with **better HRQoL** in Chinese adolescents with depressive symptoms, supporting its relevance as a potential target for adolescent mental health interventions.