

Shoulder Pain, Shoulder Disability, and Depression as Serial Mediators Between Stress and Health-related Quality of Life Among Middle-aged Women

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Purpose

- This study identified the relationship between stress and health-related quality of life in middle-aged women and proposed a serial multiple mediation model to understand this relationship. It further investigated how stress directly and indirectly affects health-related quality of life through mediators such as shoulder pain, shoulder disability, and depression.

Methods

- This cross-sectional survey examined the relationship between stress and health-related quality of life in middle-aged women.
- 565 participants were included in this study, which ensured an appropriate sample size. Data were collected for the period May 13–23, 2021.
- All study data were processed using SPSS for descriptive statistics and correlation analyses. Hayes's PROCESS macro (Model 6) was used to verify the mediating effect of shoulder pain, shoulder disability, and depression on the relationship between stress and health-related quality of life.

Results

- All the women (N = 565) were aged 35–63 years, with an average age of 42.15 (6.37).
- Depression levels measured using the PHQ-9 showed that minimal depression was the most common (39.6%), followed by mild (35.4%).
- The overall average score for health-related quality of life was 66.28 (10.00), the average score obtained using PCS-12 was 65.28 (10.09), and MCS-12 was 67.15 (11.88).

Results

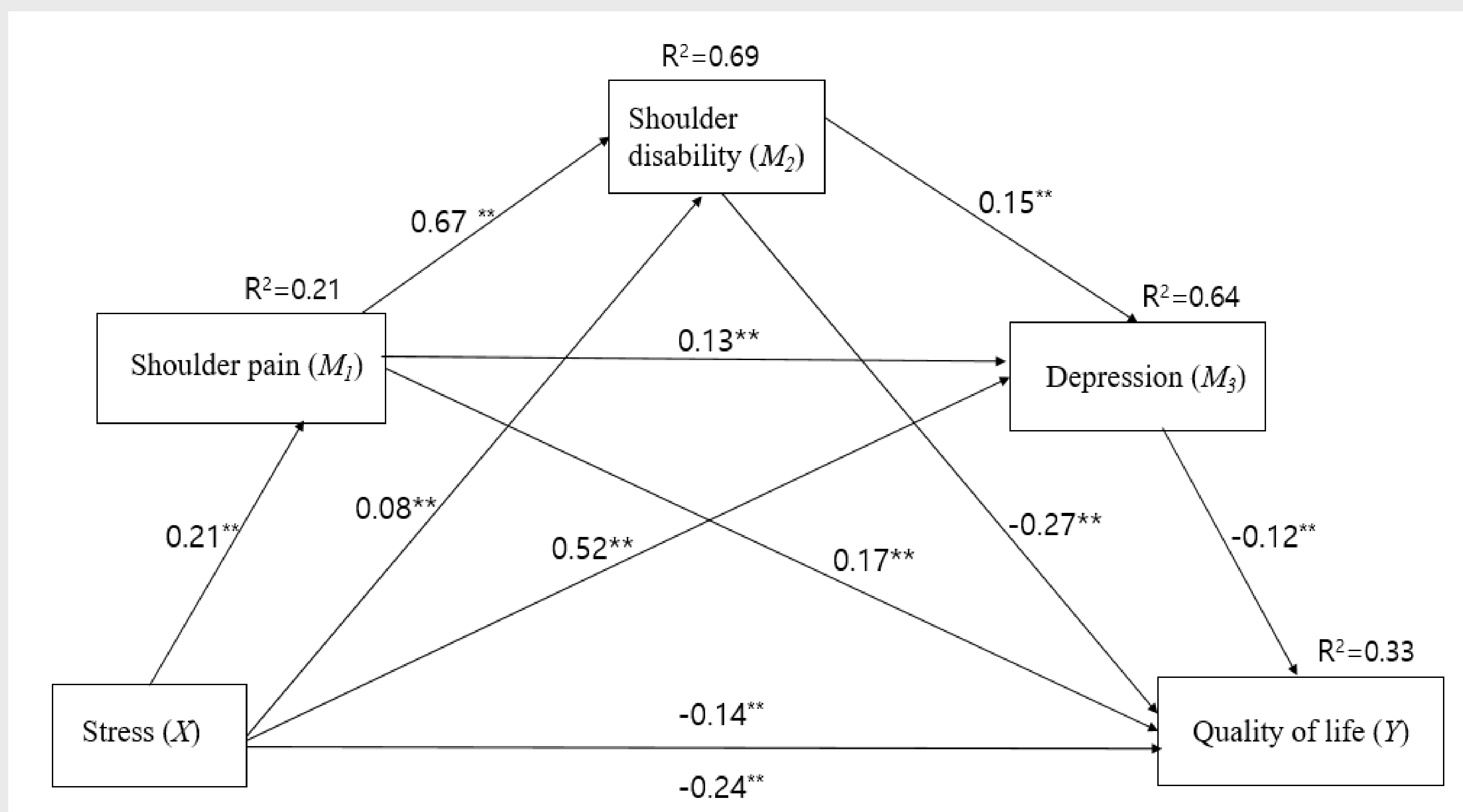


Figure 1. Results of multiple mediation model. ** p < 0.01.

Table 4. Total, direct, and indirect effects for multiple mediation model (N = 565)

	Effect	SE	t	P	95% BC CI
Total effect of stress on health-related quality of life	-0.4408	0.0773	-5.7020	<0.001	[-0.5926, -0.2889]
Direct effect of stress on health-related quality of life	-0.2598	0.0934	-2.7816	0.0056	[-0.4433, -0.0763]
Total indirect effect	-0.1809	0.0655			[-0.3157, -0.0558]
Indirect effect via shoulder pain	0.0679	0.0276			[0.0217, 0.1289]
Indirect effect via shoulder disability	-0.0414	0.0211			[-0.0896, -0.0059]
Indirect effect via depression	-0.1197	0.0574			[-0.2368, -0.0127]
Indirect effect via shoulder pain and shoulder disability	-0.0733	0.0215			[-0.1199, -0.0363]
Indirect effect via shoulder pain and depression	-0.0065	0.0044			[-0.0170, -0.0002]
Indirect effect via shoulder disability and depression	-0.0029	0.0023			[-0.0087, 0.0001]
Indirect effect via shoulder pain, shoulder disability, and depression	-0.0050	0.0033			[-0.0132, -0.0003]

- The average score for depression was 6.73 (5.14), which was ≥ 5 points according to the overall average, suggesting a depressive disability. The average stress score was 18.99 (5.47) points, which is normal. The average score for shoulder pain was 42.68 (25.06) out of 100, and the average score for shoulder disability was 26.82 (23.54) out of 100.
- The results indicate that stress had a statistically direct impact on health-related quality of life. In the serial mediation analysis, shoulder pain, shoulder disability, and depression were found to be statistically significant, thus affecting the relationship between stress and health-related quality of life, with an explanatory power of 33%.

Conclusions

- This study suggests the need for healthcare workers to develop methods, such as exercise intervention programs based on various degrees and types of physical activity, to improve health-related quality of life and reduce stress caused by shoulder pain, shoulder disability, and depression among middle-aged women.