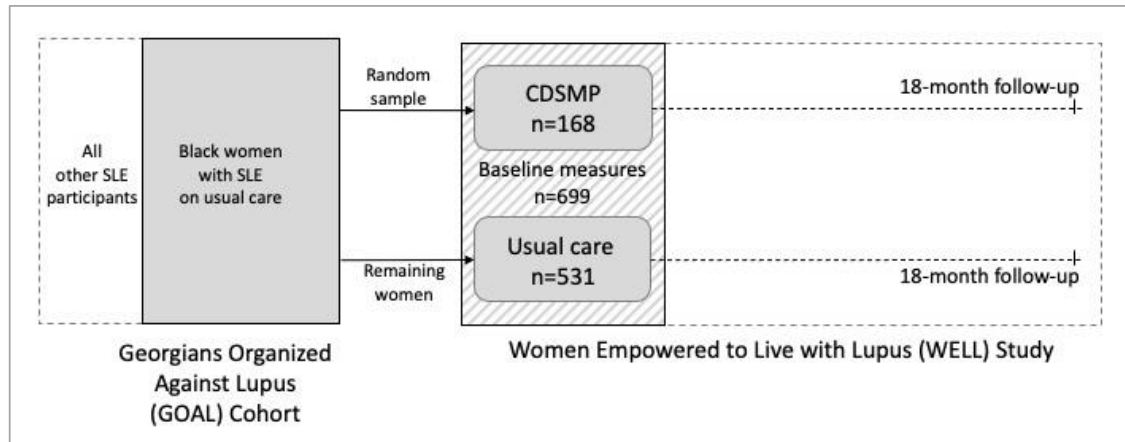


Supplemental Material



Supplemental Figure 1. Overview of the study design. The WELL Study is a two-group longitudinal cohort of Black women with SLE nested within the GOAL cohort. The current study is a cross-sectional analysis of baseline measures among 699 Black women (168 who participated in the Chronic Disease Self-management Program [CDSMP] and 531 on usual care), represented by the gray-line patterned rectangle in the center of the figure. A more comprehensive description of the WELL design and participants' characteristics can be found in <https://lupus.bmj.com/content/lupusscimed/7/1/e000391.full.pdf>.

Supplemental Table 1. Description of the WELL Study Population

Category	Measure	Overall (n=699)	
		Missing values	Statistics
Socio-demographics	Age (years), mean (SD)	0	47.9 (13.7)
	Age group (years), n (%)	0	
	18-34		143 (20.5)
	35-54		329 (47.1)
	55+		227 (32.5)
	Educational attainment, n (%)	1	
	High school or less		261 (37.4)
	Some college		226 (32.4)
	Bachelor degree or above		211 (30.2)
	Work status, n (%)	6	
	Employed (full- or part-time)		249 (35.9)
	Out of labor force		142 (20.5)
	Unemployed or disabled		302 (43.6)
	Insurance, n (%)	1	
No Insurance		87 (12.5)	
Federal Insurance		391 (56.0)	
Private Insurance		220 (31.5)	
Disease Duration & Severity	Disease duration (years), mean (SD)	0	15.6 (10.3)
	Disease activity (SLAQ score), mean (SD)	3	15.1 (8.7)
	Organ damage (SA-BILD score), mean (SD)	3	2.6 (2.5)
Health-related Quality of Life	Depression severity, n (%)	6	
	None		358 (51.7)
	Mild		185 (26.7)
	Moderate/severe		150 (21.6)
	Fatigue, mean (SD)	8	57.8 (11.0)
Pain interference, mean (SD)	5	58.0 (9.9)	
Self-efficacy	To manage symptoms, mean (SD)	6	48.0 (8.5)
	To manage medications and treatments, mean (SD)	6	46.1 (9.2)

Supplemental Table 2. Combined Effect of Self-efficacy and either Depression, Age, or Educational Attainment on the Adjusted Slope of Fatigue

<i>Self-efficacy to Manage Symptoms by Depression</i>					
R ² =0.45; Mean Square Error =67.6; P-value for the interaction=0.04					
Adjusted Slope*			Slope Difference		
Depression Severity	Slope (±SE)	P value	Depression Severity Comparison	Difference (±SE)	P value
1. None	-0.330 ± 0.056	<0.001	2 vs. 1	0.036 ± 0.102	0.7
2. Mild	-0.294 ± 0.087	<0.001	3 vs. 1	0.267 ± 0.106	0.01
3. Moderate/severe	-0.063 ± 0.091	0.5	3 vs. 2	0.231 ± 0.126	0.07
<i>Self-efficacy to Manage Symptoms by Age</i>					
R ² =0.46; Mean Square Error =65.9; P-value of the interaction=0.2					
Adjusted Slope**			Slope Difference		
Age Group	Slope (±SE)	P value	Age Group Comparison	Difference (±SE)	P value
1. 18-34	-0.117 ± 0.079	0.1	2 vs. 1	-0.146 ± 0.094	0.1
2. 35-54	-0.263 ± 0.060	<0.001	3 vs. 1	-0.159 ± 0.101	0.1
3. 55+	-0.276 ± 0.069	<0.001	3 vs. 2	-0.013 ± 0.087	0.9
<i>Self-efficacy to Manage Symptoms by Education</i>					
R ² =0.46; Mean Square Error =65.7; P-value of the interaction=0.05					
Adjusted Slope***			Slope Difference		
Educational Attainment	Slope (±SE)	P value	Educational Attainment Comparison	Difference (±SE)	P value
1. High school or less	-0.214 ± 0.060	<0.001	2 vs. 1	0.062 ± 0.087	0.5
2. Some college	-0.152 ± 0.069	0.03	3 vs. 1	-0.174 ± 0.094	0.06
3. Bachelor degree or above	-0.388 ± 0.078	<0.001	3 vs. 2	-0.235 ± 0.099	0.02
<i>Self-efficacy to Manage Medications and Treatments by Depression</i>					
R ² =0.42; Mean Square Error =70.8; P-value for the interaction=0.009					
Adjusted Slope^			Slope Difference		
Depression Severity	Slope (±SE)	P value	Depression Severity Comparison	Difference (±SE)	P value
1. None	-0.208 ± 0.053	<0.001	2 vs. 1	0.166 ± 0.090	0.07
2. Mild	-0.042 ± 0.073	0.6	3 vs. 1	0.268 ± 0.091	0.003
3. Moderate/severe	0.060 ± 0.073	0.4	3 vs. 2	0.102 ± 0.104	0.3
<i>Self-efficacy to Manage Medications and Treatments by Age</i>					
R ² =0.43; Mean Square Error =69.1; P-value of the interaction=0.6					
Adjusted Slope^^			Slope Difference		
Age Group	Slope (±SE)	P value	Age Group Comparison	Difference (±SE)	P value
1. 18-34	-0.008 ± 0.069	0.9	2 vs. 1	-0.080 ± 0.085	0.4
2. 35-54	-0.088 ± 0.054	0.1	3 vs. 1	-0.091 ± 0.096	0.3
3. 55+	-0.099 ± 0.069	0.2	3 vs. 2	-0.011 ± 0.086	0.9
<i>Self-efficacy to Manage Medications and Treatments by Education</i>					
R ² =0.44; Mean Square Error =68.6; P-value of the interaction=0.06					
Adjusted Slope^^^			Slope Difference		
Educational Attainment	Slope (±SE)	P value	Educational Attainment Comparison	Difference (±SE)	P value
1. High school or less	-0.117 ± 0.056	0.04	2 vs. 1	0.166 ± 0.083	0.05
2. Some college	0.048 ± 0.063	0.4	3 vs. 1	-0.029 ± 0.087	0.7
3. Bachelor degree or above	-0.147 ± 0.070	0.04	3 vs. 2	-0.195 ± 0.093	0.04

*Adjusted for symptoms self-efficacy, age, education, work status, insurance, disease duration, disease activity (SLAQ), and organ damage (SA-BILD). **Adjusted for symptoms self-efficacy, depression, education, work status, insurance, disease duration, disease activity (SLAQ), and organ damage (SA-BILD). ***Adjusted for symptoms self-efficacy, depression, age, work status, insurance, disease duration, disease activity (SLAQ), and organ damage (SA-BILD). ^Adjusted for treatment self-efficacy, age, education, work status, insurance, disease duration, disease activity (SLAQ), and organ damage (SA-BILD). ^^Adjusted for treatment self-efficacy, depression, education, work status, insurance, disease duration, disease activity (SLAQ), and organ damage (SA-BILD). ^^^Adjusted for symptoms self-efficacy, depression, age, work status, insurance, disease duration, disease activity (SLAQ), and organ damage (SA-BILD). Abbreviations: SE=standard error; HS=high school.

Supplemental Table 3. Combined Effect of Self-efficacy and either Depression, Age, or Educational Attainment on the Adjusted Slope of Pain Interference

<i>Self-efficacy to Manage Symptoms by Depression</i>					
R ² =0.41; Mean Square Error (MSE)=59.9; P-value for the interaction=0.05					
Adjusted* Slope			Slope Difference		
Depression Severity	Slope (±SE)	P value	Depression Severity Comparison	Difference (±SE)	P value
1. None	-0.196 ± 0.052	<0.001	2 vs. 1	0.230 ± 0.096	0.02
2. Mild	0.034 ± 0.082	0.7	3 vs. 1	0.115 ± 0.100	0.3
3. Moderate/severe	-0.080 ± 0.086	0.4	3 vs. 2	-0.115 ± 0.118	0.3
<i>Self-efficacy to Manage Symptoms by Age</i>					
R ² =0.42; Mean Square Error (MSE)=59.0; P-value of the interaction=0.02					
Adjusted Slope			Slope Difference		
Age Group	Slope (±SE)	P value	Age Group Comparison	Difference (±SE)	P value
1. 18-34	0.060 ± 0.074	0.4	2 vs. 1	-0.169 ± 0.088	0.06
2. 35-54	-0.109 ± 0.057	0.06	3 vs. 1	-0.263 ± 0.096	0.006
3. 55+	-0.203 ± 0.065	0.002	3 vs. 2	-0.094 ± 0.083	0.3
<i>Self-efficacy to Manage Symptoms by Education</i>					
R ² =0.42; Mean Square Error (MSE)=59.0; P-value of the interaction=0.04					
Adjusted Slope			Slope Difference		
Educational Attainment	Slope (±SE)	P value	Educational Attainment Comparison	Difference (±SE)	P value
1. High school or less	-0.085 ± 0.057	0.1	2 vs. 1	0.068 ± 0.082	0.4
2. Some college	-0.017 ± 0.065	0.8	3 vs. 1	-0.171 ± 0.089	0.06
3. Bachelor degree or above	-0.256 ± 0.074	<0.001	3 vs. 2	-0.239 ± 0.094	0.01
<i>Self-efficacy to Manage Medications and Treatments by Depression</i>					
R ² =0.40; Mean Square Error (MSE)=60.8; P-value for the interaction=0.06					
Adjusted* Slope			Slope Difference		
Depression Severity	Slope (±SE)	P value	Depression Severity Comparison	Difference (±SE)	P value
1. None	-0.069 ± 0.049	0.2	2 vs. 1	0.187 ± 0.084	0.03
2. Mild	0.117 ± 0.068	0.08	3 vs. 1	0.136 ± 0.084	0.1
3. Moderate/severe	0.066 ± 0.068	0.3	3 vs. 2	-0.051 ± 0.096	0.6
<i>Self-efficacy to Manage Medications and Treatments by Age</i>					
R ² =0.40; Mean Square Error (MSE)=60.3; P-value of the interaction=0.8					
Adjusted Slope			Slope Difference		
Age Group	Slope (±SE)	P value	Age Group Comparison	Difference (±SE)	P value
1. 18-34	0.056 ± 0.064	0.4	2 vs. 1	-0.031 ± 0.079	0.7
2. 35-54	0.026 ± 0.050	0.6	3 vs. 1	-0.053 ± 0.090	0.6
3. 55+	0.003 ± 0.064	1.0	3 vs. 2	-0.022 ± 0.080	0.8
<i>Self-efficacy to Manage Medications and Treatments by Education</i>					
R ² =0.41; Mean Square Error (MSE)=60.0; P-value of the interaction=0.3					
Adjusted Slope			Slope Difference		
Educational Attainment	Slope (±SE)	P value	Educational Attainment Comparison	Difference (±SE)	P value
1. High school or less	-0.021 ± 0.052	0.7	2 vs. 1	0.119 ± 0.077	0.1
2. Some college	0.098 ± 0.059	0.1	3 vs. 1	0.025 ± 0.082	0.8
3. Bachelor degree or above	0.004 ± 0.065	0.9	3 vs. 2	-0.094 ± 0.086	0.3

*Adjusted for symptoms self-efficacy, age, education, work status, insurance, disease duration, disease activity (SLAQ), and organ damage (SA-BILD). ** Adjusted for symptoms self-efficacy, depression, education, work status, insurance, disease duration, disease activity (SLAQ), and organ damage (SA-BILD). *** Adjusted for symptoms self-efficacy, depression, age, work status, insurance, disease duration, disease activity (SLAQ), and organ damage (SA-BILD). ^Adjusted for treatment self-efficacy, age, education, work status, insurance, disease duration, disease activity (SLAQ), and organ damage (SA-BILD). ^^ Adjusted for treatment self-efficacy, depression, education, work status, insurance, disease duration, disease activity (SLAQ), and organ damage (SA-BILD). ^^^ Adjusted for symptoms self-efficacy, depression, age, disease duration, work status, insurance, SLAQ, and organ damage score. Abbreviations: SE=standard error; HS=high school.

Supplemental Table 4. Sensitivity Analyses of the Combined Effect of Self-efficacy to Manage Symptoms and Depression on the Adjusted Mean of Fatigue				
Original Model, adjusted for symptoms self-efficacy [^] , age, education, work status, insurance, disease duration, disease activity (SLAQ), and organ damage (SA-BILD)				
<i>Interaction between Self-efficacy to Manage Symptoms and Depression (P=0.04)</i>				
Depression Severity	Adjusted Mean (95% CI)	Depression Comparison	Mean Difference (95% CI)	P-value
1. No	55.5 (54.4, 56.6)	2 vs. 1	3.4 (1.8, 5.0)	<0.001
2. Mild	58.9 (57.6, 60.3)	3 vs. 1	6.8 (4.7, 8.9)	<0.001
3. Moderate/severe	62.3 (60.5, 64.2)	3 vs. 2	3.4 (1.3, 5.6)	0.002
Model 2, adjusted for symptoms self-efficacy [^] , age, education, work status, insurance, disease duration, disease activity (SLAQ), organ damage (SA-BILD), and steroid use*				
<i>Interaction between Self-efficacy to Manage Symptoms and Depression (P=0.04)</i>				
Depression Severity	Adjusted Mean (95% CI)	Depression Comparison	Mean Difference (95% CI)	P-value
1. No	55.5 (54.4, 56.7)	2 vs. 1	3.3 (1.6, 4.9)	<0.001
2. Mild	58.8 (57.4, 60.2)	3 vs. 1	6.7 (4.6, 8.8)	<0.001
3. Moderate/severe	62.2 (60.3, 64.1)	3 vs. 2	3.4 (1.2, 5.6)	0.002
Model 3, adjusted for symptoms self-efficacy [^] , age, education, work status, insurance, disease duration, disease activity (SLAQ), organ damage (SA-BILD), and steroid dose**				
<i>Interaction between Self-efficacy to Manage Symptoms and Depression (P=0.06)</i>				
Depression Severity	Adjusted Mean (95% CI)	Depression Comparison	Mean Difference (95% CI)	P-value
1. No	54.9 (53.4, 56.4)	2 vs. 1	3.3 (1.7, 5.0)	<0.001
2. Mild	58.3 (56.5, 60.0)	3 vs. 1	6.7 (4.5, 8.8)	<0.001
3. Moderate/severe	61.6 (59.4, 63.7)	3 vs. 2	3.3 (1.1, 5.5)	0.004
Model 4, adjusted for symptoms self-efficacy [^] , age, education, work status, insurance, disease duration, disease activity (SLAQ), organ damage (SA-BILD), and immunosuppressive drugs use*				
<i>Interaction between Self-efficacy to Manage Symptoms and Depression (P=0.04)</i>				
Depression Severity	Adjusted Mean (95% CI)	Depression Comparison	Mean Difference (95% CI)	P-value
1. No	55.5 (54.3, 56.7)	2 vs. 1	3.5 (1.8, 5.2)	<0.001
2. Mild	59.0 (57.5, 60.4)	3 vs. 1	7.2 (5.0, 9.4)	<0.001
3. Moderate/severe	62.7 (60.8, 64.6)	3 vs. 2	3.7 (1.5, 6.0)	0.001
Model 5, adjusted for symptoms self-efficacy [^] , age, education, work status, insurance, disease duration, disease activity (SLAQ), organ damage (SA-BILD), steroid and/or immunosuppressive drugs use*				
<i>Interaction between Self-efficacy to Manage Symptoms and Depression (P=0.04)</i>				
Depression Severity	Adjusted Mean (95% CI)	Depression Comparison	Mean Difference (95% CI)	P-value
1. No	55.4 (54.2, 56.6)	2 vs. 1	3.5 (1.8, 5.2)	<0.001
2. Mild	58.9 (57.5, 60.3)	3 vs. 1	7.2 (5.0, 9.4)	<0.001
3. Moderate/severe	62.6 (60.7, 64.6)	3 vs. 2	3.7 (1.4, 6.0)	0.001
Model 6, adjusted for symptoms self-efficacy [^] , age, education, work status, insurance, disease duration, disease activity (SLAQ), organ damage (SA-BILD), steroid dose** and/or immunosuppressive drugs use*				
<i>Interaction between Self-efficacy to Manage Symptoms and Depression (P=0.07)</i>				
Depression Severity	Adjusted Mean (95% CI)	Depression Comparison	Mean Difference (95% CI)	P-value
1. No	54.9 (53.3, 56.4)	2 vs. 1	3.6 (1.8, 5.3)	<0.001
2. Mild	58.4 (56.6, 60.2)	3 vs. 1	7.1 (4.9, 9.4)	<0.001
3. Moderate/severe	62.0 (59.8, 64.2)	3 vs. 2	3.6 (1.3, 5.9)	0.003
[^] Symptoms self-efficacy at mean T-score=48.1. * Steroid and immunosuppressive drugs used were categorized as yes/no. ** Steroid dose (prednisone or equivalent) was categorized as: none (0 mg); low (1-15 mg/day); moderate (16-30mg/day); high (>30mg/day). Missing values: for steroids use n=17; for steroid dose n=33; for immunosuppressive drugs n= 44.				

Supplemental Table 5. Sensitivity Analyses of the Combined Effect of Self-efficacy to Manage Symptoms and Depression on the Adjusted Mean of Pain Interference				
Original Model, adjusted for symptoms self-efficacy [^] , age, education, work status, insurance, disease duration, disease activity (SLAQ), and organ damage (SA-BILD)				
<i>Interaction between Self-efficacy to Manage Symptoms and Depression (P=0.05)</i>				
Depression Severity	Adjusted Mean* (95% CI)	Depression Comparison	Mean Difference (95% CI)	P-value
1. No	56.9 (55.8, 57.9)	2 vs. 1	1.3 (-0.2, 2.8)	0.09
2. Mild	58.2 (56.9, 59.4)	3 vs. 1	2.0 (0.0, 4.0)	0.04
3. Moderate/severe	58.9 (57.1, 60.6)	3 vs. 2	0.7 (-1.3, 2.7)	0.5
Model 2, adjusted for symptoms self-efficacy [^] , age, education, work status, insurance, disease duration, disease activity (SLAQ), organ damage (SA-BILD), and steroid use*				
<i>Interaction between Self-efficacy to Manage Symptoms and Depression (P=0.07)</i>				
Depression Severity	Adjusted Mean (95% CI)	Depression Comparison	Mean Difference (95% CI)	P-value
1. No	56.8 (55.7, 57.9)	2 vs. 1	1.4 (-0.2, 2.9)	0.08
2. Mild	58.2 (56.9, 59.5)	3 vs. 1	1.9 (-0.1, 4.0)	0.06
3. Moderate/severe	58.8 (57.0, 60.5)	3 vs. 2	0.6 (-1.5, 2.6)	0.6
Model 3, adjusted for symptoms self-efficacy [^] , age, education, work status, insurance, disease duration, disease activity (SLAQ), organ damage (SA-BILD), and steroid dose**				
<i>Interaction between Self-efficacy to Manage Symptoms and Depression (P=0.05)</i>				
Depression Severity	Adjusted Mean (95% CI)	Depression Comparison	Mean Difference (95% CI)	P-value
1. No	56.9 (55.5, 58.3)	2 vs. 1	1.6 (0.0, 3.2)	0.05
2. Mild	58.5 (56.9, 60.1)	3 vs. 1	1.9 (-0.1, 3.9)	0.07
3. Moderate/severe	58.8 (56.8, 60.8)	3 vs. 2	0.3 (-1.8, 2.4)	0.8
Model 4, adjusted for symptoms self-efficacy [^] , age, education, work status, insurance, disease duration, disease activity (SLAQ), organ damage (SA-BILD), and immunosuppressive drugs use*				
<i>Interaction between Self-efficacy to Manage Symptoms and Depression (P=0.04)</i>				
Depression Severity	Adjusted Mean (95% CI)	Depression Comparison	Mean Difference (95% CI)	P-value
1. No	56.9 (55.8, 58.1)	2 vs. 1	1.3 (-0.3, 2.9)	0.11
2. Mild	58.3 (56.9, 59.6)	3 vs. 1	2.1 (-0.0, 4.2)	0.05
3. Moderate/severe	59.0 (57.2, 60.8)	3 vs. 2	0.8 (-1.4, 2.9)	0.5
Model 5, adjusted for symptoms self-efficacy [^] , age, education, work status, insurance, disease duration, disease activity (SLAQ), organ damage (SA-BILD), steroid and/or immunosuppressive drugs use*				
<i>Interaction between Self-efficacy to Manage Symptoms and Depression (P=0.04)</i>				
Depression Severity	Adjusted Mean (95% CI)	Depression Comparison	Mean Difference (95% CI)	P-value
1. No	56.8 (55.7, 58.0)	2 vs. 1	1.5 (-0.1, 3.1)	0.08
2. Mild	58.3 (57.0, 59.7)	3 vs. 1	2.1 (-0.0, 4.2)	0.05
3. Moderate/severe	58.9 (57.1, 60.7)	3 vs. 2	0.6 (-1.5, 2.7)	0.6
Model 6, adjusted for symptoms self-efficacy [^] , age, education, work status, insurance, disease duration, disease activity (SLAQ), organ damage (SA-BILD), steroid dose** and/or immunosuppressive drugs use*				
<i>Interaction between Self-efficacy to Manage Symptoms and Depression (P=0.03)</i>				
Depression Severity	Adjusted Mean (95% CI)	Depression Comparison	Mean Difference (95% CI)	P-value
1. No	57.0 (55.5, 58.5)	2 vs. 1	1.7 (0.1, 3.4)	0.04
2. Mild	58.7 (57.0, 60.4)	3 vs. 1	2.0 (-0.1, 4.1)	0.07
3. Moderate/severe	59.0 (56.9, 61.0)	3 vs. 2	0.3 (-1.9, 2.4)	0.8
[^] Symptoms self-efficacy at mean T-score=48.1. * Steroid and immunosuppressive drugs used were categorized as yes/no. ** Steroid dose (prednisone or equivalent) was categorized as: none (0 mg); low (1-15 mg/day); moderate (16-30mg/day); high (>30mg/day). Missing values: for steroids use n=17; for steroid dose n=33; for immunosuppressive drugs n= 44.				