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Effect of an Empowerment Program on Self-Efficacy and Coping of Adults with Sickle Cell Disease

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ABSTRACT

Background: Sickle Cell Disease (SCD) is a chronic disease that has implications for health in different countries. It is considered serious with significant prevalence worldwide. Educational programs have demonstrated positive results in increasing self-efficacy and coping strategies specifically for people with chronic illnesses; however scant research has examined their effectiveness among SCD patients.

Objective: This study intended to evaluate the impact of an empowerment program on self-efficacy & coping strategies among adults with Sickle Cell Disease.

Method: A quasi-experimental design with 62 participants diagnosed with SCD and allocated purposefully to the study. The eight-week program was delivered in educational workshops, skills training and support sessions. Self-efficacy and coping strategies were measured by means of validated questionnaires prior to intervention, immediately after the intervention, and after three months of the intervention.

Results: An improvement in self-efficacy and coping strategies scores was observed among participants. The total Self-Efficacy mean scores were higher in posttest ($\bar{x}$=34.29) and follow up ($\bar{x}$=33.03) than pretest ($\bar{x}$=26.03). The total coping strategies mean scores were improved in posttest ($\bar{x}$=50.52) and follow up ($\bar{x}$=50.37) than the pretest ($\bar{x}$=43.83). Therefore, the empowerment program is influential for the 95% confidence on enhancing the self-efficacy and coping in adults with SCD.

Conclusions: The empowerment program substantially increased self-efficacy and coping skills in adults with SCD, indicating that appropriate interventions could enhance self-belief and mental health status among this group. However, more research is required to examine the mechanisms of action and sustainability over time as well as generalization across different populations.

KEYWORDS: Empowerment Program. Self-Efficacy. Coping. Adults. Sickle Cell Disease.

1. Introduction

Sickle Cell Disease (SCD) is a blood disorder characterized by abnormal hemoglobin formation resulting in the distorted appearance of red cells into crescent-like shape (Al Nasiri et al., 2020). This leads to a host of problems, such as chronic pain, anemia (lack of iron), susceptibility to infection and tissue damage. In communities where marriages among relatives are more common, sickle cell disease tends to be more prevalent (Druye et al., 2024). Clients with SCD tend to have a great deal of suffering influencing their health due to the sickle shaped red blood cells. The challenges of SCD require multifaceted care delivered to manage interaction between clinical and psychosocial aspects within the disease (Ahmadi et al., 2023).

Living with SCD can be a stressful experience that makes an individual feel helpless, anxious and possibly depressed. These emotional struggles can lessen an individual's perceived self-efficacy (Saad et al., 2022), which Chapel defines as one's belief in his or her ability to execute behaviors required to produce specific performance attainments (Inusa et al., 2020). People with low self-efficacy may not be able to engage in effective coping mechanisms that helps maintain a vicious cycle (a destructive feedback loop), worsening the situation (Rizio et al., 2022). On the other hand, increasing self-efficacy has been associated with better health outcomes since people who have confidence in their capacity to handle different aspects of their lives are more likely to engage in healthy behaviors (FAREMI, 2020).

Intervention Empowerment programs designed to enhance self-efficacy and coping skills are promising for individuals with SCD. Education, skills training and social support are often the goals of these programs with participants receiving information about their condition including management strategies (Martin et al., 2021; Mansaray, 2024). Empowerment interventions are designed to provide people with SCD a sense of control and allow them to be more active partners in their health, which helps improve self-management in coping strategies of the condition (Pantaleao, 2022).

Empowerment programs generally enhance self-efficacy, which can then lead to more frequent use of adaptive coping strategies (Ajusiyine, 2021). Coping strategies such as problem-solving and seeking social support can mitigate the emotional challenges faced SCD patients (Hagan Asamoah, 2021). In addition, increased insight and coping skills allow individuals to become more resilient in the face of unpredictability and change related to living with a chronic illness (Asamoah, 2021).

The implementation of empowerment programs targeted not only to children but also to adults with SCD is an integral necessity, given the distinctive social, cultural and healthcare context. Interventions that are sensitive to culture need to be grounded in an understanding of the personal values and beliefs, which ultimately guide behavior (Alyami, 2022). By integrating SCD management education with psychological support, these programs can work to provide a holistic care approach that caters for not just physical wellbeing but also emotional health (Eberhardt et al., 2024).

It is important to examine the impact of an empowerment program on self-efficacy and coping in adults living with SCD (M Atia et al., 2021). While the burden of SCD remain significant among this population, new tools that give people greater control over their health beyond best practices can improve overall health outcomes (Obeagu et al., 2023). By tending to the psychological issues related to SCD, such programs help with not just individual maintenance but also support as part of wider public health efforts towards managing chronic diseases better in communities (Alkahtani 2020; Essien et al., 2023).

Problem Statement

Sickle Cell Disease (SCD) imposes complex physical and emotional trials on those affected, especially in regions where the disease prevalence is remarkably higher. In this regard, many adults with SCD may have low self-efficacy that can erupt subsequent to maladaptive coping strategies. Second, traditional medical approaches tend to concentrate on the physical symptoms of SCD and often neglect important psychosocial aspects that contribute into a disease management.

Significance of the Study

This study is important as it may contribute to the body of research about how empowerment programs can actively boost the psychological resilience in a patient living with SCD. This kind of research could offer key insights into how individuals can improve their condition and utilize strategies that mediate self-efficacy. These results may be of benefit in guiding healthcare providers and policy-makers on the value of embedding psychological interventions within SCD treatment plans, suggesting that a comprehensive patient-centered approach to chronic disease care is the key.

Aim of the Study

This study aims to evaluate the effect of an empowerment program on self-efficacy and coping among adults with Sickle Cell Disease.

2. Methodology

This study employed a quasi-experimental design using only one group with pre-post testing to examine the practical application of the empowerment program. The process, referred to as the measurement of participants both before and after they attended the program which altered dependent variables developed by the investigators (Coping skills and self-efficacy).

Setting:

The Hospital for Inherited Blood Diseases, Saudi Arabia.

Sample:

A purposeful sampling of 62 early adults diagnosed with SCD was employed in the study. Sample size was calculated through Eq. based on population, α-levels, sample proportions and margin of errors (Cofield, 2022). The inclusion criteria young adults with a confirmed diagnosis of SCD, and those excluded were individuals carrying only the trait or subjects who could not communicate (e. g: due some psychotic issue).

Data collection:

The first tool was Demographic and Medical Information Questionnaire that was developed by the researcher. This tool was developed to gather data on participants' age, gender, marital status, education level, occupation, hospitalization frequency and reasons, and personal medical history. This tool aims to provide comprehensive insights into the participants' backgrounds and health status.

The second tool was The Sickle Cell Self-Efficacy Scale (SCSES) established by Edwards et al. (2000). This tool was used to measure participants' confidence in managing symptoms of sickle cell disease using a nine-item questionnaire scored on a 5-point Likert scale, with total scores ranging from 9 to 45 to indicate levels of self-efficacy. This instrument has demonstrated high reliability, with Cronbach's alpha coefficients ranging from 0.80 to 0.89 in various studies.

The third tool was The Coping Strategies Inventory-Short Form (CSI-SF) developed by Addison et al. (2007). This tool consists of 16 items measuring four coping strategies—problem-focused and emotion-focused—across two dimensions. It includes subscales for engagement and disengagement strategies, with higher scores indicating greater use of the respective coping method. Reliability assessments show good internal consistency (Cronbach's alpha between 0.73 and 0.89), and content validity was established through evaluation by experts in community health nursing.

After receiving the approvals from ethical committees, the researcher informed subjects about the objective and methods used in this study, then carried on with data collection after obtaining informed consents. The initial assessments explored demographic, medical information and self-efficacy as well as coping strategies. Then the program was introduced using lectures, workshops and monthly yoga sessions by a certified trainer. The data were assessed again immediately and three months later to ensure sustainability. The data were then statistically analyzed and assessed the impact of the empowerment program on self-efficacy and coping strategies among participants. In conducting this study, ethical considerations were prioritized as the data was anonymously coded to respect participants, who were in turn informed about the ethical rights including voluntarily quitting the study at any time. Informed consent forms were provided to all participants before inclusion in the study and collection was conducted based on ethical standards.

3. Results

Table (1): Frequency distribution of the studied adults' personal data (n=62).

Personal data		f	%
Age:	18- 23 years	11	17.7
24-28 years		10	16.1
29-34 years		7	11.3
35-39 years		17	27.4
40-45 years		17	27.4
Mean± SD		34.29±5.80	

Gender:	Male	22	35.5
Female		40	64.5
Residence:	Al-Qatif	8	12.9
Safwa		4	6.5
Saihat		1	1.6
Al Qatif villages		49	79.0
Marital status:	Single	28	45.2
Married		33	53.2
Separated/widow		1	1.6
Number of children:	1-3	20	32.3
4-6		5	8.1
No		37	59.6
Degree of Education:	Secondary school	33	53.2
BSc		26	42
Post graduate studies		3	4.8
Work:	yes	32	51.6
No work		30	48.4
Income Sufficiency	sufficient	24	38.7
	insufficient	33	53.2
Job category:	Health care provider	7	21.9
Teaching		2	6.3
Worker		6	18.7
Freelancer		4	12.5
Food and beverage		3	9.4
Administrative		10	31.2

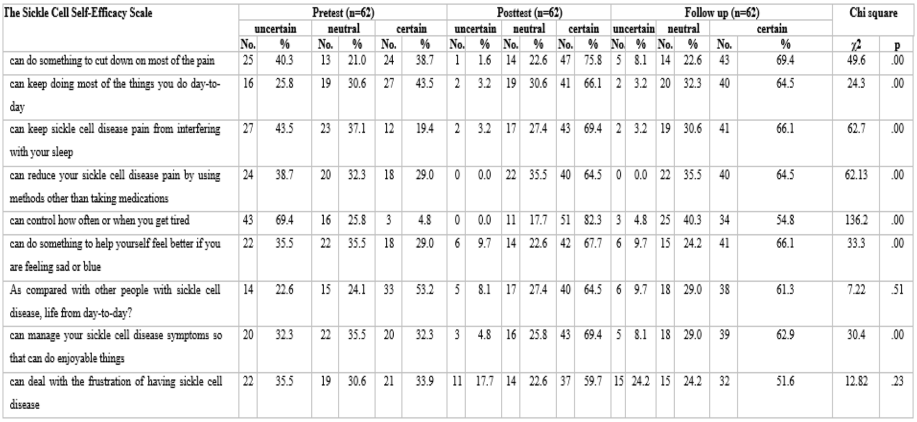
Table (1) shows that (79%) of the study participants were living in Al Qatif villages, (54.8%) were 35-45 years old with a mean age of 34.29±5.80. Around two thirds (64.5%) were females, (53.2%) were married and (59.6%) had no children.-Around half of participants (53.2%) had secondary school education, (51.6%) were working, and from those (21.9%) were working as health care providers.

Table (2): Frequency distribution of adults' medical data (n=62).

Medical data		f	%
Hospitalization number:	No	21	33.9
1		19	30.6
2-3		16	25.8
4-5		3	4.8
>5 times		3	4.8
Cause:	Pain	18	29
Sickle cell attack		21	33.9
Surgical		2	3.2
Medical history:	Nothing	27	43.5
Cardiovascular disease		7	11.3
Respiratory disease		1	1.6
GIT problem		19	30.6
Genito-urinary tract problem		4	6.5
Neuro/ psychiatric problem		4	6.5

Table (2) shows that near one third (30.6%) of the study participants were hospitalized for one time, about one third (33.9%) were hospitalized due to sickle cell attack, more than two fifth (43.5%) had no medical disease other than sickle cell disease, while near one third (30.6%) had history of GIT problems.

Table (3): Comparing adults' SCD Self-Efficacy items in the different phases (pretest, posttest, follow up).



The Sickle Cell Self-Efficacy Scale	Pretest (n=62)						Posttest (n=62)						Follow up (n=62)						Chi square	
	uncertain		neutral		certain		uncertain		neutral		certain		uncertain		neutral		certain			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No	%	No.	%	No.	%	χ^2	p
can do something to cut down on most of the pain	25	40.3	13	21.0	24	38.7	1	1.6	14	22.6	47	75.8	5	8.1	14	22.6	43	69.4	49.6	.00
can keep doing most of the things you do day-to-day	16	25.8	19	30.6	27	43.5	2	3.2	19	30.6	41	66.1	2	3.2	20	32.3	40	64.5	24.3	.00
can keep sickle cell disease pain from interfering with your sleep	27	43.5	23	37.1	12	19.4	2	3.2	17	27.4	43	69.4	2	3.2	19	30.6	41	66.1	62.7	.00
can reduce your sickle cell disease pain by using methods other than taking medications	24	38.7	20	32.3	18	29.0	0	0.0	22	35.5	40	64.5	0	0.0	22	35.5	40	64.5	62.13	.00
can control how often or when you get tired	43	69.4	16	25.8	3	4.8	0	0.0	11	17.7	51	82.3	3	4.8	25	40.3	34	54.8	136.2	.00
can do something to help yourself feel better if you are feeling sad or blue	22	35.5	22	35.5	18	29.0	6	9.7	14	22.6	42	67.7	6	9.7	15	24.2	41	66.1	33.3	.00
As compared with other people with sickle cell disease, life from day-to-day?	14	22.6	15	24.1	33	53.2	5	8.1	17	27.4	40	64.5	6	9.7	18	29.0	38	61.3	7.22	.51
can manage your sickle cell disease symptoms so that can do enjoyable things	20	32.3	22	35.5	20	32.3	3	4.8	16	25.8	43	69.4	5	8.1	18	29.0	39	62.9	30.4	.00
can deal with the frustration of having sickle cell disease	22	35.5	19	30.6	21	33.9	11	17.7	14	22.6	37	59.7	15	24.2	15	24.2	32	51.6	12.82	.23

*P value is significant at ≤0.05, insignificant at>0.05.

Table (3) reveals that there is highly significant statistical differences between the different training phases in all self-efficacy items (p=00) except for managing life from day to day (p=0.51) and dealing with frustration of having SCD (= 0.23). Being certain of their abilities ranged between 4.8% -53.2% in pretest, 59.7%-82.3% in posttest and 5.6% – 69.4% in follow up. Being able to keep sickle cell disease pain from interfering with sleep represented 19.4% in pretest then increased to 69.4% in posttest and 66.1% in follow up. Around one third (29%) of them have a high sickle cell self-efficacy regarding the item of being able to reduce sickle cell disease pain by using methods other than taking medications then increased to 64.5% in posttest and 64.5% in follow up. Also, (4.8%) have the ability to control how often or when get tired then increased to 82.3% in posttest and 54.8% in follow up. As well, (29%) have the ability of doing something to help feel better if feeling sad or blue then increased to 67.7% in posttest and 66.1% in follow up. Around one third, (32.3%) have a high Sickle Cell Self-Efficacy in managing sickle cell disease symptoms that increased to 69.4% in posttest and 62.9% in follow up.

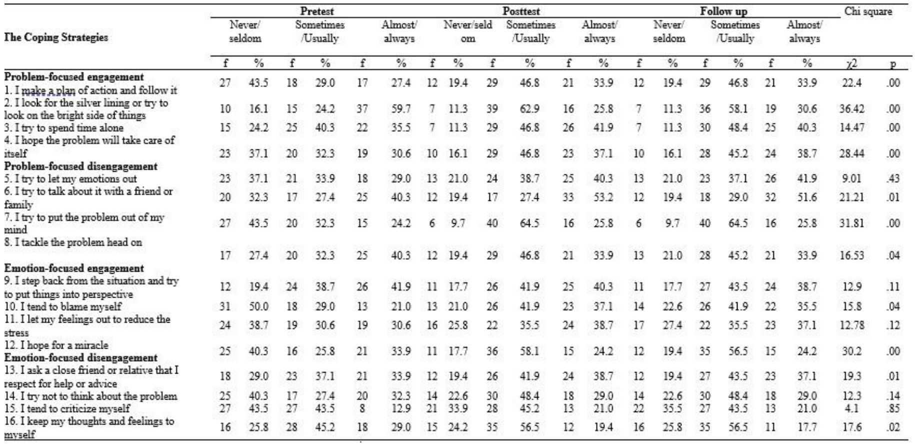
Table (4): Comparing adults' SCD total Self-Efficacy mean scores between the different study phases.

Self-Efficacy	Pretest		Posttest		Follow up		Repeated measures ANOVA	
	Mean	SD	Mean	SD	Mean	SD	F	p
Total self-efficacy	26.03	5.91	34.26	3.93	33.03	3.96	55.37	.00

*p value is significant at ≤0.05, insignificant at>0.05.

Table (4) shows that there was a highly significant statistical difference (F=55.37, P=0.00) in adults' SCD total Self-Efficacy mean scores between the different study phases with improvement in posttest ($\bar{x}$=34.29) and follow up ($\bar{x}$=33.03) than pretest ($\bar{x}$=26.03)

Table (5): Comparing adults' SCD coping strategies items in the different phases (pretest, posttest, follow up).



The Coping Strategies	Pretest						Posttest						Follow up						Chi square	
	Never/ seldom		Sometimes /Usually		Almost/ always		Never/seld om		Sometimes /Usually		Almost/ always		Never/ seldom		Sometimes /Usually		Almost/ always			
	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	χ2	p
Problem-focused engagement																				
1. I make a plan of action and follow it	27	43.5	18	29.0	17	27.4	12	19.4	29	46.8	21	33.9	12	19.4	29	46.8	21	33.9	22.4	.00
2. I look for the silver lining or try to look on the bright side of things	10	16.1	15	24.2	37	59.7	7	11.3	39	62.9	16	25.8	7	11.3	36	58.1	19	30.6	36.42	.00
3. I try to spend time alone	15	24.2	25	40.3	22	35.5	7	11.3	29	46.8	26	41.9	7	11.3	30	48.4	25	40.3	14.47	.00
4. I hope the problem will take care of itself	23	37.1	20	32.3	19	30.6	10	16.1	29	46.8	23	37.1	10	16.1	28	45.2	24	38.7	28.44	.00
Problem-focused disengagement																				
5. I try to let my emotions out	23	37.1	21	33.9	18	29.0	13	21.0	24	38.7	25	40.3	13	21.0	23	37.1	26	41.9	9.01	.43
6. I try to talk about it with a friend or family	20	32.3	17	27.4	25	40.3	12	19.4	17	27.4	33	53.2	12	19.4	18	29.0	32	51.6	21.21	.01
7. I try to put the problem out of my mind	27	43.5	20	32.3	15	24.2	6	9.7	40	64.5	16	25.8	6	9.7	40	64.5	16	25.8	31.81	.00
8. I tackle the problem head on	17	27.4	20	32.3	25	40.3	12	19.4	29	46.8	21	33.9	13	21.0	28	45.2	21	33.9	16.53	.04
Emotion-focused engagement																				
9. I step back from the situation and try to put things into perspective	12	19.4	24	38.7	26	41.9	11	17.7	26	41.9	25	40.3	11	17.7	27	43.5	24	38.7	12.9	.11
10. I tend to blame myself	31	50.0	18	29.0	13	21.0	13	21.0	26	41.9	23	37.1	14	22.6	26	41.9	22	35.5	15.8	.04
11. I let my feelings out to reduce the stress	24	38.7	19	30.6	19	30.6	16	25.8	22	35.5	24	38.7	17	27.4	22	35.5	23	37.1	12.78	.12
12. I hope for a miracle	25	40.3	16	25.8	21	33.9	11	17.7	36	58.1	15	24.2	12	19.4	35	56.5	15	24.2	30.2	.00
Emotion-focused disengagement																				
13. I ask a close friend or relative that I respect for help or advice	18	29.0	23	37.1	21	33.9	12	19.4	26	41.9	24	38.7	12	19.4	27	43.5	23	37.1	19.3	.01
14. I try not to think about the problem	25	40.3	17	27.4	20	32.3	14	22.6	30	48.4	18	29.0	14	22.6	30	48.4	18	29.0	12.3	.14
15. I tend to criticize myself	27	43.5	27	43.5	8	12.9	21	33.9	28	45.2	13	21.0	22	35.5	27	43.5	13	21.0	4.1	.85
16. I keep my thoughts and feelings to myself	16	25.8	28	45.2	18	29.0	15	24.2	35	56.5	12	19.4	16	25.8	35	56.5	11	17.7	17.6	.02

*p value is significant at ≤0.05, insignificant at>0.05.

Table (5) reveals that there is highly significant statistical differences between the different phases in most of the items of coping. Around one fourth, (27.4%) of the studied adults' with SCD had a high Sickle Cell coping strategies regarding the item of making a plan of action and following it which increased to 33.9% in posttest and 33.9% in follow up. Also, (35.5%) have a high Sickle Cell coping strategies regarding the item of trying to spend time alone then increased to 41.9% in posttest and 40.3% in follow up. Around one third (30.6%) have a high Sickle Cell coping strategies regarding the item of hoping the problem will take care of itself then increased to 37.1% in posttest and 38.7% in follow up. As well (40.3%) have a high Sickle Cell coping strategies regarding trying to talk about it with a friend or family then increased to 53.2% in posttest and 51.6% in follow up. Around two tenths (21%) have a high Sickle Cell coping strategies regarding tending to blame self that increased to 37.1% in posttest and 35.5% in follow

Table (6): Comparing adults' SCD total coping strategies mean scores in the different phases (pretest, posttest, follow up).

Dimensions	**Pretest**		**Posttest**		**Follow up**		**Repeated measures _ANOVA**	
	Mean	SD	Mean	SD	Mean	SD	F	p
Problem-Focused Engagement	10.73	2.92	12.68	1.93	12.69	1.90	.01	.01
Problem-Focused Disengagement	11.47	3.16	12.55	1.76	12.55	1.74	4.50	.01
Emotion-Focused Engagement	11.16	3.99	12.94	2.49	12.89	2.50	1.24	.03
Emotion-Focused Disengagement	10.47	2.68	12.35	2.35	12.24	2.25	2.44	.02
Total coping strategies	43.83	12.74	50.52	8.53	50.37	8.40	3.33	.02

*P value is significant at ≤0.05, insignificant at>0.05.

Table (6) indicates that there was a significant statistical difference (F=3.33, P=0.02) in adults' SCD total coping strategies mean scores between the different phases with improvement in posttest (x̄=50.52± 8.53) and follow up (x̄=50.37 ±8.40) than pretest (x̄=43.83±12.74). As well, the table shows statistically significant differences between the means of pretest, posttest and follow-up in all domains of coping.

Table (7): Correlation between SCD Self-Efficacy and coping strategies among adults at pretest.

Pearson Correlation Pretest		**Total self-efficacy**
Total coping strategies	r	.47
	p	.00

*P value is significant at ≤0.05, insignificant at>0.05.

Table (7) illustrates that there were significant statistical positive correlations between total coping strategies with total self-efficacy (r=0.47, p=0.00) among Saudi adults at pretest

Table (8): Correlation between SCD Self-Efficacy and coping strategies among adults at posttest.

Pearson Correlation Posttest		**Total self-efficacy**
Total coping strategies	r	.20
	P	.00

*P value is significant at ≤0.05, insignificant at>0.05.

Table (8) shows that there were significant statistical positive correlations between total coping strategies with total self-efficacy (r=0.20, p=0.00) among Saudi adults at posttest.

Table (9): Correlation between SCD Self-Efficacy and coping strategies among adults at follow up.

Pearson Correlation Follow up		**Total self-efficacy**
Total coping strategies	r	.24
	P	.01

*P value is significant at ≤0.05, insignificant at>0.05.

Table (9) shows that there were significant statistical positive correlations between total coping strategies with total self-efficacy (r=0.24, p=0.01) among Saudi adults at follow up.

4. Discussion

This study sought to evaluate the impact of an empowerment program on self-efficacy as well as coping strategies among adults living with SCD. Results showed significant improvement in self-efficacy scores. This improvement has been attributed in part to the program's holistic nature of combining education sessions, skills training and emotional support. In line with this result, Fathalla et al. (2022) found in his study that the empowerment program was not only a conduit for empowerment transfer of SCD and how to manage it, but also succeeded in reinforcing control over own health among the participants which subsequently increased their self-efficacy and coping with challenges posed by both life with an incurable disease.

The current study demonstrated a significant improvement in self-efficacy among participants following the intervention, as shown by increased mean scores from pretest to posttest and follow-up. According to Bandura's (1977) Social Cognitive Theory, heightened self-efficacy is linked to proactive health management and adherence to treatment (Goldstein-Leever et al., 2020). The findings align with prior research indicating that enhanced confidence in managing symptoms leads to better healthcare engagement and lifestyle choices (Selzler et al., 2020). Moreover, participants reported greater confidence in their ability to navigate daily activities related to their condition. This study highlights the importance of targeted education in fostering self-efficacy, ultimately improving health outcomes and promoting a collaborative relationship with healthcare providers.

In addition, the results showed that coping strategies significantly improved after taking part in empowerment program. An increase in using problem-solving and emotion regulation strategies is central to daily disease management in SCD (Mushiana et al., 2021). This is in line with a current approach under which empowerment works as facilitator enhancing coping competence where psychological resources are deployed instead of exhausted. The study indicates a significant shift toward adaptive coping strategies among participants, supported by interventions that promote problem-focused engagement and reduce emotion-focused disengagement, aligning with Walsh et al. (2020). Improvement in self-efficacy correlates positively with the adoption of these effective coping strategies. Education and emotional support were key components, equipping participants with tools to manage stress and enhancing resilience (Kavanagh et al., 2022). Participants seeking proactive solutions demonstrated better health outcomes than those relying on avoidance. Overall, the findings reinforce previous literature by highlighting the crucial role adaptive coping strategies play in managing chronic conditions, thereby improving daily functioning and long-term well-being.

The correlation between self-efficacy and coping in SCD’s management is significant, with participants who demonstrating higher self-efficacy. Enhancing clients’ confidence and proactive healthcare engagement can positively affect coping strategies. Tailored interventions addressing coping strategies can improve resilience, aiding healthcare providers in creating programs to meet patients' multifaceted needs and enhance their quality of life.

The improvements observed following the intervention provide a hopeful message for this type of programmatic approach to revolutionize living with chronic health conditions (Natarajan et al., 2024). Empowerment programs can facilitate this through self-efficacy and adaptive coping strategies that benefit the health in SCD. More in-depth exploration of these programs, particularly when considering demographic details, will only serve to better inform the efficacy and potential effectiveness for this population.

5. Limitation of the study:

First, the self-reported nature of these assessments for self-efficacy and coping strategies might have introduced response biases by participants who may be inclined to portray themselves in a more favorable light following intervention. Moreover, although the sample size was enough for the present study results, it may affect external validity so that these findings cannot be over generalizable to all patients with SCD. Therefore, further studies are needed that will include long-term consequences if lasting improvement is needed in self-efficacy, or coping strategies from participating in an empowerment program.

6. Recommendation

Future studies using different research designs would be recommended to assess the impact of the empowerment program on self-efficacy and coping strategies among people with SCD. In addition, developing the program materials to tackle diverse demographic groups to increase its efficiency.

As well, replication of the study on a larger sample is suggested to generalize the results.

7. Conclusions

This study demonstrates the positive effect of an empowerment program to enhance self-efficacy and coping styles for adults with Sickle Cell Disease. Findings highlight the need for empowering individuals with chronic conditions to increase self-efficacy and coping. Although there are limitations to the study, they demonstrate a possible important role for targeted interventions in mental health of SCD individuals. Future research is needed in this area to confirm these results and tailor empowering strategies for those with specific condition.

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