Psycho-educational Nursing Intervention for Improving Coping Strategies and Psychological Well-Being among Family Caregivers of Children with Down Syndrome

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Abstract

Background: Training family caregivers of children with Down Syndrome on how to promote their own psychological well-being and to cope effectively is essential as they are frequently unstable and forego their psychological well-being. **Aim:** This study aimed to assess the effect of psycho-educational nursing intervention on coping strategies and psychological well-being among family caregivers of children with Down Syndrome. **Design:** A quasi-experimental design was utilized in this study. **Setting:** This study was carried out in the Genes Clinics of Down Syndrome in the specialized clinics of the university pediatric hospital affiliated to Ain Shams University Hospitals. **Subjects:** A sample of 60 family caregivers of children with Down Syndrome. The study tools were: 1) Interviewing Questionnaire, 2) Brief-COPE inventory (Carver, 1997), 3) Ryff's Psychological well-being scale (1989) and 4) Psycho-educational program. **The results:** There were highly statistically significant differences between pre & post intervention regarding to emotion-focused coping strategies except for humor, acceptance, religion, venting and substance use and there were highly statistically significant differences between pre & post intervention regarding to problem-focused coping strategies except for use of instrumental support. **Conclusions:** There were highly statistically significant differences between pre & post intervention regarding the level of psychological well-being. There was a negative statistically significant correlation between psychological well-being pre & post intervention and all types of emotion-focused coping strategies except for humor, acceptance and religion. Meanwhile, there was a highly positive statistically significant correlation between psychological well-being pre & post intervention and problem-focused coping strategies regarding active coping and positive reframing and a positive statistically significant correlation regarding use of instrumental support and planning. **Recommendations:** Future research to assess challenges encountered by siblings of Down Syndrome children and to apply supportive intervention that promotes positive relationships and attitudes.

Key Words: Psycho-educational Nursing Intervention, Psychological Wellbeing, Coping Strategies, Down Syndrome.
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Introduction

Down Syndrome disability affects the ability of a child to perform daily tasks and results in significant family time, emotional and financial costs and ineffective coping. The length of time family caregivers have to adopt the caregiving responsibility for the child is also much longer that extends even when the child is well into adulthood **(Choi& Van Riper, 2020).**

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During this time span, Family caregivers of children with DS experience higher levels of stress, poorer coping and lower psychological wellbeing than families with typically developing children **(Sargent, 2021)**. Family caregivers may face psychological distress using effective coping strategies that aim at either changing or controlling the stressful situation or alleviating emotional distress **(Pastor-Cerezuela, et al, 2021)**. Nurse can help family caregivers of children with DS to learn new skills, care of associated health problems, use community services and social support which affect their attitude, psychological well-being and adaptation positively
(Heys, et al, 2020). Nurses are in an excellent position to give emotional support and provide guidance throughout this challenging situation. By recognizing the coping strategies used by the family caregivers, nurse can develop effective intervention programs to help these family caregivers improve their coping strategies, enhance their psychological well-being, overcome their anxiety and depression, and find the right ways to support them **(Hegazy & Baraka, 2021).** Hence, the study intended to assess the effect of psycho-educational nursing intervention on coping strategies and psychological well-being among family caregivers of children with DS.

Aim of study is to assess the effect of psycho-educational nursing intervention on coping strategies and psychological well-being among family caregivers of children with DS.

Research Hypothesis: Psycho-educational nursing intervention has a positive impact on improving coping strategies and psychological wellbeing among family caregivers of children with DS.

Subject and Methods

Research Design: A quasi-experimental design has been utilized to fulfill the aim of the study.

Setting of the Study: This study was implemented in the Genes Clinics of DS in the specialized clinics of the university pediatric hospital affiliated to Ain Shams University.

Subjects: A sample of 60 family caregivers of children with DS who agreed to share in the study and fulfilled the following criteria:

Inclusion criteria for children with Down syndrome:

- Intelligence Quotient (IQ) from (25-70).
- Age :(6-12) years old.
- Sex: both sexes.

Exclusion criteria for children with DS:

- Have another disability that is not related to DS.
- Have a sibling or another family member with a disability.

Inclusion criteria for family caregivers of children with Down syndrome:

- Family members who give direct care to the child.
- Have only one disabled child.
- Free from any psychiatric illness.

Exclusion criteria for family caregivers of children with DS:

- Have more than one disabled child.
- Have a physical disability or a psychiatric disease.

Data Collection Tools

1. Interviewing Socio Demographic Questionnaire It was designed by Mohammed, (2018) and it included two parts:
   a. **A-First part**: involved data related to socio-demographic characteristics of family caregivers such as; age, sex, marital status and level of education, etc.
   b. **B-Second part:** involved data related to demographic characteristics of DS child such as; age, sex, education, etc.
2. Brief-COPE inventory

It was originally designed by **(Carver, 1997)** and adapted by **Mohammed, (2018)**. It was used to assess coping strategies among family caregivers of children with DS. It involves 28 items presented in the form of a coping statement and respondents rate whether they have or have not been using each method of coping on a fully anchored three- point scale ranging from "I haven't been doing this at all" to "I've been doing this a lot".

3. Ryff's Psychological well-being scale (1989):

It was adapted by **Mohammed, (2018)**. It was used to assess the level of psychological well-being among the study sample. It involves 42 items classified into 6 subscales.

4. Psycho-educational program:

It was designed by the researcher based on related recent literatures, written in a simple Arabic language and it includes theoretical and practical part.

Tools Validity and Reliability

To achieve the criteria of trustworthiness of the tools of data collection in this study, the tools were tested and evaluated for their face and content validity, and reliability. The reliability of the tools was assessed using the questionnaires and reassessment was done after (7) days on the same subjects, the results were the same each time.

Pilot Study

The Pilot study was conducted for 10% of the sample (6 family caregivers of children with DS) to evaluate the reliability, clarity of questions and applicability of the tools, and the time needed to complete them. Family caregivers who participated in the pilot study were excluded from the main study sample. The time needed to fill out the tools was about 10 to 15 minutes.

Field Work

- Data collection of this study was conducted once permission was granted to proceed with the study.
- The aim of the study was simply explained to the sample who agreed to participate in the study prior to any data collection.
- Voluntary participation and confidentiality were assured by the researcher for each family caregiver through reporting that all information will be used for scientific research only.
- Sample was selected according to the inclusion and exclusion criteria.
- Data was collected during morning and afternoon at the working time of the Genes Clinics of DS in The Specialized Clinics in The University Pediatric Hospital affiliated to Ain Shams University Hospitals.
- The researcher met 60 family caregivers of children with DS who agreed to participate in the study sample.
- After the pre assessment has been completed, the researcher started the intervention program's sessions with family caregivers.
- The intervention program was implemented by classifying family caregivers into 4 groups. Each group consisted of 15 family caregivers.
- The intervention program was introduced for each group separately due to the clinics size that leads to difficulty in gathering all family caregivers involved in the study sample at the same time and also due to preventive measures against COVID 19.
- Each group attended to The Genes Clinics once per two weeks either on Saturday or Wednesday.
- Data collection lasted for eight months; started at July 2020 and was completed by February 2021.

Psycho-educational Program

The aim of the psycho-educational program was to enhance coping strategies and psychological well-being among family caregivers of children with DS. It was designed by the researcher based on related recent literatures. It was written in a simple Arabic language and included two parts as the following:

Part I- Theoretical part: It was concerned with knowledge about the problems associated with DS, needs of children with DS, family caregivers role in caring of a child with DS, available services, types of coping strategies, steps of effective coping, the six dimensions of psychological well-being and methods of enhancing coping strategies and psychological well-being.

Part II- Practical part: It was concerned with practical guidelines to deal with child problems, role of family caregiver in modifying behaviors of a child with DS, methods of effective coping, methods of enhancing psychological well-being, methods of developing positive thoughts and enhancing self-esteem, anger management, ways of expressing emotions, time management and performing different relaxation techniques.

The content of the intervention program was achieved through (33) sessions, covered in (25) hours; 3 theoretical hours, 20 practical hours and 2 hours for data collection and orientation. By the end of the program, family caregivers of children with DS acquired the necessary knowledge and skills required to improve their coping strategies and psychological well-being. This is achieved **through:**

Session (1) Orientation Session

Objective: At the end of this session, each family caregiver of children with DS acquainted the educational intervention program content and its objectives and answered questions of data collection tools (first assessment).

First, the researcher established rapport with the family caregivers, introduced himself, and each family caregiver introduced herself as well. The researcher explained the program, its objectives and meeting time.

Sessions (2 &3) Awareness of Child Problems

Objective: At the end of these sessions, each family caregiver of children with DS obtained an overview about child problems and determined her own child needs.

These sessions included definition of DS, problems of children with DS, definite criteria of children with DS, impact of mental retardation on children with DS and needs of children with DS. This was done by using open discussion, brain storming and handout.

Sessions (4:8) How to Deal with Child Problems

Objective: At the end of these sessions, each family caregiver of children with DS was able to apply methods of dealing with child problems and developing abilities and talents, social skills, educational level and self-responsibility of his own child.

These sessions included methods of dealing with DS child problems, occupational therapy for children with DS, improving DS child communication with others, importance of engaging DS child in community, educational skills and methods of enhancing self-responsibility for DS child. This was done by using open discussion, brain storming, pictures, videos and handout.

Sessions (9:11) Role of family caregivers in modifying child behaviors:

Objective: At the end of these sessions, each family caregiver of children with DS was able to follow therapeutic measures for modifying behaviors and enhancing positive behaviors of his own child.

These sessions included methods of accepting child with DS, importance of learning by play and role modeling in modifying DS child behavior, positive reinforcement, methods of enhancing positive behaviors and available services for children with DS in Egypt. This was done by using open discussion, brain storming, pictures, videos and handout.

Sessions (12:16) Coping Methods

Objective: At the end of these sessions, each family caregiver of children with DS was able to explore and apply methods of effective coping.

These sessions included definition of coping, difference between problem-focused and emotion-focused coping methods, examples for both problem-focused and emotion-focused coping methods and steps of effective coping. This was done by using open discussion, brain storming and handout.

Sessions (17) Overview about Psychological Well-being

Objective: At the end of this session, each family caregiver of children with DS obtained an overview about psychological well-being.

This session included definition, dimensions and benefits of psychological well-being. This was done by using brain storming, open discussion and handout.

Sessions (18:32) Applying Methods for Enhancing Psychological Well-being

Objective: At the end of these sessions, each family caregiver of children with DS was able to apply methods of enhancing psychological well-being.

These sessions included methods of enhancing psychological well-being, positive thinking skills, tips for enhancing self-esteem, anger management skills, ways of expressing emotions, time management skills and relaxation techniques. This was done using open discussion, brain storming, demonstration, role play, videos and handout and evaluated by asking questions, oral feedback and re-demonstration.

Session (33) Closure Session (Post Assessment)

Objective: At the end of this session, each family caregiver of children with DS was able to fill in the data collection tools.

Finally, the researcher gave feedback and made post assessment after the intervention program has been completely applied. The researcher provided

thanks for cooperation to all family caregivers who participated in this study.

Administrative Design

An official letter of approval was taken from the Dean of Faculty of Nursing affiliated to Ain Shams University, a letter involving the title and the aim of the study, and it was introduced to the director of The specialized Clinics of The University Pediatric Hospital affiliated to Ain Shams University Hospitals to obtain his approval for data collection.

Ethical Considerations

Ethical approval was obtained from the Scientific and Ethical Committee of Nursing Faculty of Ain Shams University, The researcher explained the purpose of the study to the family caregivers involved in the study, Anonymity and confidentiality of the data were assured and maintained. Family caregivers were informed that they are allowed to participate or not in the study and that they have the right to withdraw from the study at any time, and the researcher reported that all information would be used for scientific research and for the benefits of the family caregivers.

Statistical Design

The statistical analysis of data was done using the Statistical Package for Social Science (SPSS) program, for Windows Version 20.0. Armonk, NY: IBM Corp. The first part of data was descriptive data which was revised, coded, tabulated and statistically analyzed using percentage, arithmetic mean(x) and standard deviation (SD). The following tests were used to test relations and correlations for significance. For quantitative data by chi-square tests-correlation by Linear Correlation Coefficient [r] tests. Linear Correlation coefficient was used for detection of correlation between two quantitative variables in one group. The validity and reliability tests were confirmed using the Cronbach Alpha Coefficient test. Degree of significance results were:-

- P. Value>0.05(Not Significant)
- P. Value≤0.05(significant)
- P. Value≤0.001(Highly Significant)

Results

Table 1. Distribution of Socio-Demographic Characteristics of family caregivers of children with Down Syndrome (N=60)

Items	N	%
Types of caregiver		
Father	0	0
Mother	60	**100**
Age of Mother		
15-<35	16	26.7
35-<55	33	**55**
55 and more	11	18.3
Mean±SD	37.65±5.67	
Marital Status		
Married	42	**70.0**
Widowed	13	21.7
Divorced	5	8.3
Level of Education		
Illiterate	33	**55.0**
Primary School	7	11.7
Secondary School	6	10.0
University	8	13.3
Postgraduate	6	10.0
Occupation		
Employed	8	13.3
UN Employed	52	**86.7**
Residence		
Urban	24	40.0
Rural	36	**60.0**
Family Income		
Enough	5	8.3
Not Enough	55	**91.7**
Family History for Psychiatric Illness		
Yes	0	0
No	60	**100**
Family History for DS		
Yes	0	0
No	60	**100**

Table (1): indicates that all family caregivers (100%) were mother and more than half (55%) were in age group (35-<55) years old, the married caregivers were more than two thirds (70%), the illiterate caregivers represented (55%), the majority of the study sample were unemployed and had not enough family income which constituted (86.7%) and (91.7%) respectively, and more than half (60%) lived in rural areas. According to family history, all family caregivers (100%) had no family history for psychiatric illness or DS.

Table 2. Level of psychological well-being pre & post intervention for family caregivers of Down Syndrome children (N=60)

Level of Psychological- wellbeing	Pre		Post		Chi-square	
	N	%	N	%	X2	p- value
Less than usual	34	56.7	10	16.7	23.746	<0.001*
Same as usual	14	23.3	16	26.7		
Better than usual	12	20.0	34	56.7		
Total	60	100	60	100		

Table (2) reveals that there were highly statistically significant differences between pre and post intervention regarding level of psychological well-being.

Table 3. Distribution of emotion- focused coping strategies pre & post intervention for family caregivers of Down Syndrome children (N=60)

Emotion- Focused Coping Strategies		No		Sometimes		Yes		Chi-square	
		N	%	N	%	N	%	X2	P-value
Self-distraction	Pre	6	10.0	11	18.3	43	71.7	54.169	<0.001*
	Post	41	68.3	13	21.7	6	10.0		
Denial	Pre	5	8.3	12	20.0	43	71.7	66.783	<0.001*
	Post	45	75.0	12	20.0	3	5.0		
Substance use	Pre	59	98.3	1	1.7	0	0.0	1.008	0.315
	Post	60	100.0	0	0.0	0	0.0		
Use of emotional support	Pre	10	16.7	13	21.7	37	61.7	16.933	<0.001*
	Post	31	51.7	10	16.7	19	31.7		
Behavioral disengagement	Pre	9	15.0	14	23.3	37	61.7	50.921	<0.001*
	Post	45	75.0	11	18.3	4	6.7		
Venting	Pre	3	5.0	6	10.0	51	85.0	1.351	0.509
	Post	2	3.3	3	5.0	55	91.7		
Humor	Pre	7	11.7	9	15.0	44	73.3	1.801	0.406
	Post	4	6.7	6	10.0	50	83.3		
Acceptance	Pre	0	0.0	5	8.3	55	91.7	0.536	0.464
	Post	0	0.0	3	5.0	57	95.0		
Religion	Pre	0	0.0	4	6.7	56	93.3	1.878	0.171
	Post	0	0.0	1	1.7	59	98.3		
Self-blame	Pre	3	5.0	12	20.0	45	75.0	59.491	<0.001*
	Post	23	38.3	33	55.0	4	6.7		

Table (3) illustrates that there were highly statistically significant differences between pre & post intervention regarding to emotion-focused coping strategies except for humor, acceptance, religion, venting and substance use.

Table 4. Distribution of problem- focused coping strategies pre & post intervention for family caregivers of Down Syndrome children (N=60)

Problem-Focused Coping Strategies		No		Sometimes		Yes		Chi-square	
		N	%	N	%	N	%	X2	P-value
Active coping	Pre	37	61.7	5	8.3	18	30.0	49.940	<0.001*
	Post	1	1.7	14	23.3	45	75.0		
Use of instrumental support	Pre	3	5.0	17	28.3	40	66.7	1.315	0.518
	Post	1	1.7	15	25.0	44	73.3		
Positive reframing	Pre	34	56.7	13	21.7	13	21.7	51.798	<0.001*
	Post	0	0.0	15	25.0	45	75.0		
Planning	Pre	33	55.0	12	20.0	15	25.0	45.271	<0.001*
	Post	1	1.7	14	23.3	45	75.0		

Table (4) shows that there were highly statistically significant differences between pre & post intervention regarding to problem-focused coping strategies except for use of instrumental support.

Table 5. Correlation between psychological well-being pre & post intervention and emotion-focused coping strategies for family caregivers of Down Syndrome children (N=60)

Emotion-focused coping strategies	Psychological well-being			
	Pre intervention		Post intervention	
	r	P-value	r	P-value
Self-distraction	-0.248	0.039*	-0.427	<0.001*
Denial	-0.490	<0.001*	-0.384	<0.001*
Substance use	-0.047	0.723	-0.103	0.199
Use of emotional support	-0.265	0.041*	-0.375	0.002*
Behavioral disengagement	-0.327	0.011*	-0.284	<0.001*
Venting	-0.745	<0.001*	-0.433	<0.001*
Humor	0.347	0.007*	0.326	<0.001*
Acceptance	0.240	0.064	0.315	<0.001*
Religion	0.519	0.003*	0.279	<0.001*
Self-blame	-0.755	<0.001*	-0.430	<0.001*

Table (5) reveals that there was a negative statistically significant correlation between psychological well-being pre & post intervention and all types of emotion-focused coping strategies except for humor, acceptance and religion.

Table 6. Correlation between psychological well-being pre & post intervention and problem-focused coping strategies for family caregivers of Down Syndrome children (N=60)

Problem-focused coping strategies	Psychological well-being			
	Pre intervention		Post intervention	
	r	P-value	r	P-value
Active coping	0.966	<0.001*	0.332	<0.001*
Use of instrumental support	0.239	0.046*	0.230	0.004*
Positive reframing	0.500	<0.001*	0.377	<0.001*
Planning	0.329	0.015*	0.323	<0.001*

Table (6) clarifies that there was a highly positive statistically significant correlation between psychological well-being pre & post intervention and problem-focused coping strategies regarding active coping and positive reframing and a positive statistically significant correlation regarding use of instrumental support and planning.

Discussion

Family caregivers of children with DS are affected badly as they have to overcome stressful events in their lives **(Sheikh, et al, 2018).** Stresses arising from the caregiving responsibility as well as from the pileup of other major life events have the potential to cause psychological distress as a result of ineffective coping. Family caregivers use different positive and/or negative coping strategies to face this psychological stress. **(Baker, et al, 2020).**

Socio-Demographic Characteristics of Family Caregivers of Children with Down Syndrome

The current study results indicate that all family caregivers were mothers. This may be as according to Egyptian culture, it is usually the mother who gives direct care for the disabled child and is forced to give up her job or career to stay home and take over most of the child caregiving roles whereas fathers assume the bread winner.

The current study results reveal that more than two thirds of the family caregivers were married. This may be as the parents of the disabled children seek to develop stable marital relation to be able to overcome caregiving challenges as well as other life stressors.

The current study results indicate that the majority of the family caregivers were unemployed. This may be as all family caregivers of children with DS were mothers who had to spend most of the day at home for taking care of their disabled children, facing their children dependence, health problems and behavioral issues that may characterize their child disability.

The findings of the current study reveal that the majority of the family caregivers had not enough family income. This may be as most of mothers were housewives who were forced to stay at home longer to take over most of child caregiving roles while fathers were the only breadwinners for all family members.

Level of Psychological Well-being Pre & Post Intervention for Family Caregivers of DS Children

The current study results illustrate that there were highly statistically significant differences between pre and post intervention regarding level of psychological well-being. These results reflect the positive effects of the psycho-educational nursing intervention on the psychological well-being of family caregivers of children with DS who were provided with the necessary knowledge and skills including stress management, coping with stigma, tips of improving psychological well-being, positive thinking skills and relaxation techniques that enabled them to manage daily life stressors. These results are congruent with **Crnic, et al, (2017),** in their study about "Intellectual disability and developmental risk: Promoting intervention to improve child and family well-being" who reported that their study findings supported the efficacy of mindfulness interventions in reducing stress among diverse samples of parents of children with intellectual disability producing medium to large effect sizes in reducing parental depression, anxiety, and distress as well as enhancing self-compassion, psychological well-being, and life satisfaction.

Emotion-focused Coping Strategies Pre & Post Intervention for Family Caregivers of DS Children

There were highly statistically significant differences between pre & post intervention regarding to emotion-focused coping strategies except for humor, acceptance, religion, venting and substance use. This may be due to the effect of psycho-educational nursing intervention which played a vital role in providing the family caregivers with the necessary knowledge and skills about the nature of DS, the role of family caregivers, available resources, coping strategies and methods of applying effective coping. These results are consistent with **Adams, et al, (2018),** in their study about "Coping strategies in mothers of children with intellectual disabilities showing multiple forms of challenging behavior" who indicated that improvements were noted between pre-test and post-test scores regarding use of emotion-focused coping strategies due to increasing awareness of the parents after the program about the coping strategies that are effective to cope with their child disability.

Problem-focused Coping Strategies Pre & Post Intervention for Family Caregivers of DS Children

The current study results reveal that there were highly statistically significant differences between pre and post intervention regarding problem- focused coping strategies except for use of instrumental support. This may be due to the effect of the psycho-educational nursing intervention that focused on the benefits of problem-focused coping strategies which aim to solve the problem or do something to actively change one's perception of a stressor. These results are consistent with **Susanty, et al, (2020),** in their study about "Benefits and cultural adaptations of psychosocial interventions for parents and their children with intellectual disabilities in low-and middle-income countries: A systematic review" who described that findings suggested that interventions motivated the parents to use problem-focused coping strategies resulting in positive perceptions of family functioning.

Correlation between Psychological Well-being Pre & Post Intervention and Emotion-focused Coping Strategies for Family Caregivers of DS Children

The current study results revealed that there was a negative statistically significant correlation between psychological well-being pre & post intervention and all types of emotion-focused coping strategies except for humor, acceptance and religion.

Regarding **denial,** there was a highly negative statistically significant correlation between psychological well-being pre & post intervention and denial. This may be as use of denial serves to avoid actually confronting the problem leading to increased mental suffering and desperateness as well as increased burnout. These current study results are in the same line with **Deng, (2021),** who conducted "An Examination of Acculturation, Social Support, and Health Outcomes among Chinese American Parents of Children with Developmental Disabilities", and found that use of denial coping strategy was significantly and positively associated with maternal depressive symptoms.

Regarding **self-blame,** there was a highly negative statistically significant correlation between psychological well-being pre & post intervention and self-blame. This may be as self-blame coping strategy leads to increasing family caregivers' grief, shame, guilt, hopelessness, and helplessness as well

as preventing the family caregivers from taking active steps toward solving problems and overcoming situations leading to depression and dissatisfaction. These current study results are consistent with **Megreya, et al, (2020),** in their study about "Cognitive emotion regulation strategies, anxiety, and depression in mothers of children with or without neurodevelopmental disorders" who found that there was a highly negative statistically significant correlation between self-blame coping and psychological wellbeing among parents with DS children.

Regarding **venting,** there was a highly negative statistically significant correlation between psychological well-being pre & post intervention and venting. This may be as use of venting provides only false reassurance, doesn't provide solutions for the problem and may delay use of active coping strategies that aim to deal with the cause of the problem and not only to reduce anxiety on the short run. These current study results are consistent with **Gupta & Kumar, (2020),** who discussed the mediating role of positive perceptions on coping strategies and psychological well-being among mothers of children with intellectual disabilities and clarified that venting had been reported to show a positive association with depression and a negative association with satisfactory outcome.

Regarding **self-distraction,** there was a negative significant correlation pre intervention and a highly negative significant correlation post intervention between psychological wellbeing and self-distraction. It may reflect the family caregivers' efforts to alleviate parenting stress through letting off steam which was ineffective as it didn't resolve the adverse situation that provoked the stress. These current study results are congruent with **Kurowska, et al, (2020),** in their study of "How to cope with stress?'Determinants of coping strategies used by parents raising children with intellectual disabilities, other developmental disorders and typically developing children. A cross-sectional study from Poland", who reported that use of self-distraction coping strategy may foster recuperation but it does not provide a long term solution and may have negative effects as it delays the family caregiver intervention for solving problems.

Regarding **behavior disengagement,** there was a negative statistically significant correlation pre intervention and a highly negative statistically significant correlation post intervention between psychological well-being and behavior disengagement. This may be as use of behavior disengagement is an ineffective coping strategy that doesn't resolve the actual problem and thus provokes the stress and increases psychological distress and burnout. These current study results are consistent with **Adams, et al, (2018),** in their study about "Coping strategies in mothers of children with intellectual disabilities showing multiple forms of challenging behavior" who found that anxiety and depression scores were positively associated with behavioral disengagement.

Regarding **use of emotional support,** there was a negative statistically significant correlation between psychological well-being pre & post intervention and use of emotional support. This may be as use of emotional support serves to avoid actually facing the problem or finding solutions leading to time waste, increased mental suffering and burden. These current study results are incongruent with **Alexander & Walendzik, (2016),** in their study of "Raising a Child with DS: Do Preferred Coping Strategies Explain Differences in Parental Health?" who reported that family caregivers of children with DS who prevalently use emotional support find opportunities to overcome their life situations and become at a low risk for psychological and physical health problems.

Concerning **humor,** there was a positive significant correlation between psychological wellbeing and humor. This may be as family caregivers preferred to use humor which may provide an outlet for stress for some time until being able to deal with the problem in the long run and thus leads to less psychological distress. This result is incongruent with **Ganjiwale, et al, (2016),** in the study of "Quality of life and coping strategies of caregivers of children with physical and mental disabilities ", who found that family caregivers used humor to reduce stress and overcome the painful situation but this represented an escape tendency which didn't help them realistically in dealing with the problem in the long run and thus leads to less psychological wellbeing.

Concerning **acceptance,** there was a positive significant correlation between psychological wellbeing and acceptance. This may reflect good faith and religiosity that are highly prevalent in Egypt where a disabled child might be considered as a gift from Allah. Such optimistic attitude may help to improve caregivers' coping and psychological wellbeing. This result is congruent with **Parameswari & Eljo, (2016),** in their study

about" A Study on Psychological Well Being among the Family caregivers of Children with Intellectual and Developmental Disabilities ", who clarified that family caregivers who accept the reality of their child disability tend to lead a positive life in enhancing their coping skills and self-esteem as well as developing confidence and improved psychological wellbeing.

Concerning **religion,** there was a positive significant correlation between psychological wellbeing and religion. This may be as the family caregivers tended to turn their problems over to a 'higher power' and engaged themselves in religious practices that are supportive means to help them accept the reality and become satisfied of their life. These current study results are congruent with **Sharma & Gupta, (2017),** in their study of "The Every Day Lives and Coping Strategies of Women in Delhi: Discerning Roots of Psychological Empowerment", who reported that family caregivers often find relief in religious practices and surrender to the will of God when faced with intractable problems.

Correlation between Psychological Well-being Pre & Post Intervention and Problem-focused Coping Strategies for Family Caregivers of DS Children

Concerning **active coping,** there was a highly positive statistically significant correlation between psychological well-being pre & post intervention and active coping. This may be because engagement in active practices of caregiving activities helps the family caregivers to find out appropriate community resources and services for DS child and thus helps in overcoming stressors and burden of care and thus better psychological wellbeing of family caregivers. These study results are in the same line with **Estes, et al, (2019),** in their study about "The effects of early autism intervention on parents and family adaptive functioning" who found that parents who used active coping experienced a greater reduction in anxiety and family dysfunction.

Concerning **positive reframing,** there was a highly positive statistically significant correlation between psychological well-being pre & post intervention and positive reframing. This may be because positive reframing helps family caregivers to do something to actively change one's perception of a stressor for the purpose of reducing or managing the feelings of distress and thus leads to better psychological well-being. These study results are congruent with **Salas, et al, (2017),** in their study about "The role of coping strategies and self-efficacy as predictors of life satisfaction in a sample of parents of children with autism spectrum disorder" who found that positive reframing was positively correlated with life satisfaction and better psychological well-being and added that some family caregivers become better able to appreciate the important things in life.

Concerning **use of instrumental support,** there was a positive statistically significant correlation between psychological well-being pre & post intervention and use of instrumental support. This may be because use of instrumental support includes seeking advices from physician, social worker and psychologist and family caregivers of other children with the same disability. These advices help the family caregivers to confront different problems associated with child disability and act as guidance for the family caregivers in their life leading to better psychological wellbeing. This study result is in the same line with **Choi & Van Riper, (2017),** in the study of "Adaptation in families of children with Down syndrome in East Asian countries: an integrative review", who reported that instrumental support affected family caregivers positively, increased self-confidence or self-satisfaction from fulfilling the caregiving role as well as experiencing positive consequences of having a DS child and not just the negative.

Concerning **planning,** there was a positive statistically significant correlation pre intervention and a highly positive statistically significant correlation post intervention between psychological well-being and planning. This may be as planning coping strategy involves setting problems, identifying goals, determining priorities, suggesting solutions and then taking active steps toward achieving the intended goals. So, planning is an effective coping strategy that leads to reducing stress and burnout as well as improving psychological well-being. These study results are in the same line with **Susanty, et al, (2020),** in their study about "Benefits and cultural adaptations of psychosocial interventions for parents and their children with intellectual disabilities in low-and middle-income countries: A systematic review" who found that planning coping strategy was associated with an enhanced psychological wellbeing.

Conclusion

On the light of the current study results, it can be concluded that, there were highly statistically significant differences between pre and post intervention regarding level of psychological well-being. There were highly statistically significant differences between pre & post intervention regarding to emotion-focused coping strategies except for humor, acceptance, religion, venting and substance use and there were highly statistically significant differences between pre & post intervention regarding to problem-focused coping strategies except for use of instrumental support.

Recommendations

Based upon the results of the current study, the following recommendations were suggested:

- Establishment of counseling clinics for parents and siblings to improve psychological wellbeing and coping strategies.
- Future research to assess factors that may influence role of caregiving and different challenges faced by family caregivers in rearing different aged children with DS.
- Future research to assess the challenges encountered by sibling of DS children and providing supportive intervention that promote positive relationships and attitudes.
- Applying the same educational interventional program for enhancement of coping strategies and psychological well-being among families of children with DS in other different institutions.

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