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Coping Strategies as Moderators of Bereavement Experience and Psychological disorders in Mothers who have Lost their Child in a Short Time

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A B S T R A C T

Objective: Losing a child is incredibly distressing for a mother, causing more intense and complicated grief compared to other types of loss. This study aims to examine how coping strategies can help alleviate the emotional burden of losing a child and reduce the risk of developing mental health issues in mothers who have recently experienced this tragedy.

Methods and Materials: The current study utilized a descriptive-correlational research approach and a cross-sectional research design, using Structural Equation Modeling (SEM). The statistical population for this study consisted of mothers who had experienced the loss of a child within a short timeframe (between one to six years) due to various causes. These mothers resided in Tehran, Isfahan, and Mashhad, and data collection occurred between July and November of 2023. A sample of 111 individuals was selected using a convenient method. The research instruments employed included the coping strategies questionnaire (CSQ), Grief Experience Questionnaire (GEQ), and Symptom Checklist-90 (SCL90). The researchers used SPSS version 27 software to conduct descriptive statistics. They analyzed path and standard coefficients using SmartPLS version 4 and Jamovi software version 2.4.14.

Findings: According to the findings, the variable of Coping strategies played a significant role as a moderator in the relationship between the guilt variable and Psychoticism (β=-0.354, P<0.001). Similarly, coping strategies also served as a significant moderator for the relationship between Judgment and Psychoticism (β=-0.177, P=0.004). Additionally, coping strategies played a notable role as a moderator for the relationship between Shame and Psychoticism (β=-0.149, P=0.022).

Conclusion: According to the results of the study, it is crucial to grasp the Bereavement Experience encountered by individuals and how coping strategies for dealing with it and having a network of support can assist mothers who have lost a loved one.

Keywords: Bereavement, Coping strategies, Psychological disorders.

1. Introduction

The death of a child is considered one of the most devastating events parents can go through, resulting in a unique and intense grief that can have serious and prolonged effects (Savadi et al., 2021). When a person loses a loved one with whom they had a close relationship, they experience grief as a way of coping with the loss internally, affecting their thoughts and emotions (Azim Oghlui Oskooi et al., 2021). The loss of a child can lead to profound grief, negatively impacting the mental and physical health of parents by increasing the risk of anxiety, depression, and hospitalization, as well as reducing their quality of life and longevity compared to parents who have not experienced such a loss (McNeil et al., 2021). Research findings suggest that mothers often experience bereavement as feelings of loneliness and guilt for not being able to protect their children (Rodrigues et al., 2020). A study on the bond between bereaved mothers and coping with loss revealed that this relationship is not static but changes over time, with the intensity of grief gradually decreasing (Hochman et al., 2022).

Bereaved mothers often experience mental distress, feelings of loneliness, and isolation. The loss of a child not only increases the risk of death, particularly from cardiovascular diseases, but also poses a threat of psychosocial, psychiatric, and psychological problems (Onaolapo et al., 2020). Following the death of a child, mothers may develop various psychological disorders and encounter significant feelings of sadness, depression, preoccupation, and irritability. Failure to address these initial grief reactions, coupled with psychiatric symptoms like depression, post-traumatic stress disorder, and anxiety, can lead to major depressive disorder and complicated grief (Kirui & Lister, 2021). Research has shown that the loss of a family member contributes to heightened psychological distress, resulting in symptoms such as anxiety, depression, phobia, paranoia, hostility, obsessive-compulsive disorder, and psychosis (Joaquim et al., 2021). Additionally, traumatic and multiple deaths of close relatives are strong predictors for the development of prolonged grief disorder, post-traumatic stress disorder, depression, disability, and distress (Kokou-Kpolou et al., 2020).

Bereaved mothers switch between adjusting to life changes and managing coping strategies with loss, depending on the stressors they face, as well as their personal and cultural backgrounds. These coping strategies can be categorized into three main styles: Avoidance, emotion-focused, and problem-focused coping (Mathieu et al., 2022). Coping mechanisms are essential when dealing with stress and its related causes. They involve cognitive and behavioral strategies to handle particular internal or external pressures that exceed an individual's capabilities (Maresca et al., 2022). Research has shown that bereaved parents employ various coping techniques like cherishing positive memories of the child, maintaining a spiritual connection with the deceased child,

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supporting bereaved siblings, spending time with family, staying connected with support networks, and expressing emotions (Kim et al., 2024). Ineffective coping strategies could potentially increase the risk of complications related to chronic grief, including clinical depression, dysthymic disorder, post-traumatic stress disorder, attachment disorder, substance dependence, psychosis, and suicidal ideation (Joaquim et al., 2021). One study also highlighted the role of coping strategies and support in influencing the intensity of grief, depression, and post-traumatic growth (Fisher et al., 2020).

Due to the negative impact of losing a child on the physical, emotional, and communication aspects of a mother, her overall performance in life is disrupted, leading to various abnormal symptoms like stress, depression, and extreme sadness. As a result, understanding the bereavement experience among mothers and its associated challenges is essential. While past studies have explored the experience of grief, there is a gap in research focusing on coping strategies as a way to mitigate the effects of bereavement experience and psychological disorders in mothers who have recently lost their children. This study aims to fill that gap by examining the relationship between bereavement experience, mental health disorders, and coping strategies in bereaved mothers who have experienced such losses. The conceptual model of the research is in Figure 1.

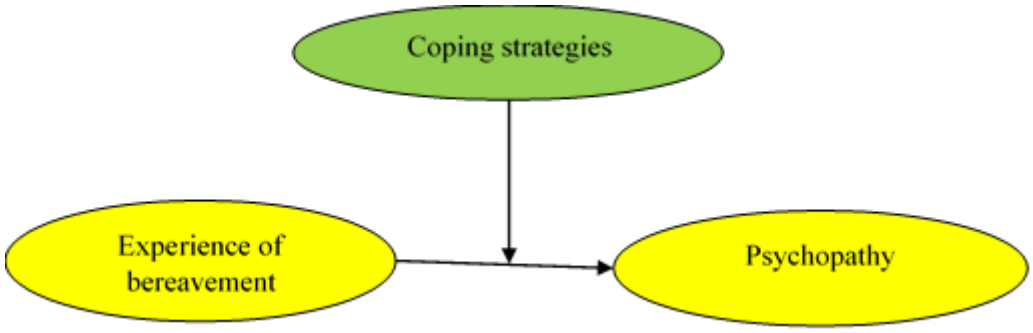

Figure 1: Conceptual framework of the research

2. Methods and Materials

2.1. Study Design and Participants

The current research combines descriptive-correlational methods with cross-sectional analysis using structural equation modeling (SEM). The statistical population for this study consisted of mothers who have experienced the loss of a child within the past one to six years due to various reasons. These mothers resided in Tehran, Isfahan, and Mashhad, and data collection occurred between July and November of 2023. A total of 111 mothers who had lost a child were selected for the study using convenience sampling.

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The sample size was calculated using Cohen's 2013 formula, considering the observed and latent variables, anticipated effect size, and desired statistical power and probability levels (Cohen, 2013). The sample size was calculated using the following criteria: Effect size expected to be 0.3, Statistical power level desired at 0.8, Three latent variables, 156 observed variables, and a probability level of 0.01. The researcher determined that a sample size of 119 was necessary based on calculations; however, to anticipate any potential dropouts, they decided to include 150 participants instead. The study's criteria for inclusion were living in Tehran, Isfahan, or Mashhad for a minimum of one year, being willing to take part, having sufficient literacy to understand the questionnaire, and having experienced the loss of a child. Exclusion criteria encompassed individuals under 20 years old, those with physical or mental limitations that hindered participation, failure to respond to more than eight questionnaire items, or dropping out of the study for any reason.

The study's research methodology involved multiple stages. First, the researcher acquired the required permissions from the university where they were conducting their research. Subsequently, the researcher visited Behesht Zahra, the largest cemetery in Tehran, and coordinated with the management there for the research. The researcher then visited Behesht Zahra on Thursdays and Fridays and approached individuals who had recently visited the graves of their relatives in plots 50 and above to participate in the study. This specific selection was made because individuals in this group had experienced the loss of a loved one within the past year. Recognizing the limited number of participants in Tehran and the challenges faced in getting responses from mothers, the researcher decided to include mothers from Isfahan and Mashhad in the study. To identify mothers in Isfahan, the researcher visited the Rezvan Garden, the largest cemetery in the city. Because participants had difficulty completing questionnaires in person, the researcher also provided some questionnaires electronically.

The participants were informed about the research objectives, permissions, and adherence to ethical principles. They were assured that their data would not be shared in any research documents and had the option to withdraw from the research at any time. The research process, including in-person interviews and questionnaire completion, took five months due to limited participant cooperation. At this stage, individuals underwent screening. Nineteen individuals were excluded from the study for incomplete questionnaire responses and deliberate mistakes, leaving a final selection of 111 participants. Coping strategies, Bereavement Experience, and Psychological disorders were self-reported by the participants. The research followed ethical principles by allowing participants to withdraw from the study at any point.

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2.2. Measure

2.2.1. Coping strategies questionnaire (CSQ)

In 1981 Billings and Moss developed a questionnaire to measure people's coping strategies in dealing with problems (Billings & Moos, 1984). The questionnaire consists of 32 questions and assesses five coping strategies: problem-solving (3 items), emotional restraint (11 items), Cognitive assessment (5 items), physical restraint (9 items), and Attracting social support (4 items). Participants rate each question on a four-point Likert scale from never to always. A reliability study conducted in Iran found a retest reliability coefficient of 0.79 for the questionnaire (Soltani et al., 2013). The Cronbach's alpha coefficients for the different components of the scale were 0.886 for Problem-Solving, 0.941 for Emotional restraint, 0.859 for Cognitive assessment, 0.811 for Physical restraint, and 0.884 for Attracting social support. Additionally, the validity of these dimensions was confirmed using the AVE index, with values of 0.592, 0.739, 0.544, 0.571, and 0.592, respectively.

2.2. ۲. Grief Experience Questionnaire (GEQ)

The scale created by Bailley and Dunham in 2000 is used to assess individuals' emotions following the loss of a loved one, focusing on various aspects such as guilt, search for explanation, somatic reactions, abandonment, judgment, shame, and stigmatization (Bailley et al., 2000). This questionnaire consists of 34 questions designed in a 5-point Likert scale format. The questions are categorized into different dimensions, including abandonment (questions 19, 18, 16, 31), stigmatization (questions 6, 7, 17), search for explanation (questions 8, 9, 11, 12, 10, 14), guilt (questions 13, 33, 28, 26, 30, 24, 20, 23), somatic reactions (questions 1, 2, 3, 4, 5), judgment (questions 22, 34, 33), and shame (questions 21, 29, 27, 25). The total score ranges from 34 to 170, with scores between 34-68 indicating low Bereavement, 68-102 indicating moderate, and above 102 indicating high. The reliability of the questionnaire was tested in Iran, showing a Cronbach's alpha value of 0.86 (Ravanpoor et al., 2022). In a separate study, Cronbach's alpha coefficients for the dimensions of social support, guilt, search for explanation, somatic reactions, abandonment, judgment, shame, and stigmatization were calculated as 0.930, 0.860, 0.735, 0.956, 0.971, 0.942, and 0.982, respectively. Similarly, the validity of these dimensions was confirmed through the AVE index, with values of 0.707, 0.588, 0.558, 0.792, 0.852, 0.743, and 0.902, respectively.

2.2. ۳. Symptom Checklist-90 (SCL90)

The symptom checklist SCL-90-R, also called the SCL-90 test, is a questionnaire created by Drogatis in 1994 to evaluate various psychological problems. One of the applications of this tool is to assess the mental well-being of the public, identify individuals with mental illness, track the effectiveness of treatments, carry out scientific

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investigations, and examine how symptoms are connected to other psychosocial elements (Derogatis, 1994). The questionnaire consists of 90 items presented in a 5-point Likert scale format to assess an individual's level of distress in various areas. Responses are interpreted as follows: "Not at all" indicates the issue has never been a problem or caused discomfort. "A little" suggests the problem has been mild and caused slight discomfort. "Moderately" indicates the issue has been somewhat distressing. For instance, the problem may have occurred a few times in the past weeks. "Quite a bit" signifies frequent occurrences of the issue, causing significant discomfort. "Extremely" suggests the problem has been persistent, intense, and highly distressing. Respondents should answer the SCL-90 test questions based on their experiences in the past week.

This survey assesses nine aspects, including: Physical complaints or somatization (12 questions), Obsessive-Compulsive (9 questions), Interpersonal sensitivity (9 questions), depression (13 questions), anxiety (10 questions), Hostility (6 questions), Phobic Anxiety (7 questions), Paranoid ideation (6 questions), and Psychoticism (10 questions). The total scores for each disorder-related question are divided by the number of questions to calculate the score. The questionnaire categorizes mental health into four levels: 0 to 1 indicates no mental disorder, 1 to 2 indicates mild disorder, 2 to 3 indicates moderate disorder, and greater than 3 indicates disorder (Eslami et al., 2023). The minimum score required for this survey is 1.3. Researchers in Iran confirmed its validity with a Cronbach's alpha value of 0.86 (Mosavian et al., 2016). The study found Cronbach's alpha coefficient values for various categories such as Physical complaints, Obsessive-compulsive disorder, Interpersonal sensitivity, Depression, Anxiety, Hostility, Phobia, Paranoid ideation, and Psychoticism to be 0.984, 0.967, 0.962, 0.974, 0.837, 0.822, 0.791, 0.822, and 0.876, respectively. The AVE index determined the reliability of these categories to be 0.90, 0.83, 0.81, 0.86, 0.77, 0.89, 0.87, 0.65, and 0.65, respectively.

2.۳. Data Analysis

The researchers used SPSS version 27 for descriptive statistics and SmartPLS version 4 for data trend analysis and standard coefficients. Furthermore, JAMOVI software version 2.4.14 was employed to investigate the moderator variable. The distribution of research variables was evaluated for normality using the Shapiro-Wilk test, which showed significant results suggesting a non-normal distribution. As a result, SmartPLS was chosen for additional analysis. The sample size of 111 individuals was deemed sufficient for conducting the structural equation model with the partial least squares method. The P-value for the study was set at 0.05.

3. Findings and Results

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Initially, the researcher analyzed the demographic variables in terms of descriptive statistics in the study. The women in the study were divided into three different age brackets: 20-25 years old, comprising 29.7% of the participants; 25-30 years old, making up 45.9%; and 31 years old and older, accounting for 24.3%. Similarly, the women were segmented into three groups based on the number of children lost: one child (27.0%), two children (62.2%), and more than two children (10.8%). In addition, the individuals were categorized into three different groups based on their educational attainment: Diploma, Bachelor's degree, and advanced education (PhD, MSc).

Table 1

Description of the demographic variables

Variables	Groups	Frequency	Percent	Sample
Number of lost children	1	30	27.0	111
	2	69	62.2	
	+2	12	10.8	
Age	20 - 25	33	29.7	111
	25 - 30	51	45.9	
	31 and up	27	24.3	
Level of Education	Diploma	54	48.6	111
	Bachler	42	37.8	
	Higher education(PhD, MSc)	15	13.5	

Table 2 shows the mean and standard deviation of the research variables.

Table2

Description of the main research variables

Variables	Mean	SD	Shapiro-Wilk	P-value	Min	Max
Problem-Solving	4.676	1.484	0.933	< 0.001	2	8
Emotional restraint	17.351	3.597	0.952	< 0.001	11	25
Cognitive assessment	9.054	2.017	0.911	< 0.001	6	13
Physical restraint	13.135	3.178	0.943	< 0.001	7	19
Attracting social support	6.225	1.842	0.961	0.002	2	10
Guilt	20.270	4.714	0.923	< 0.001	14	31
Search for explanation	16.685	3.454	0.953	< 0.001	10	23
Somatic reactions	15.225	3.074	0.947	< 0.001	9	21
Abandonment	11.468	2.710	0.885	< 0.001	8	16
judgment	10.838	2.474	0.872	< 0.001	8	16
Shame	10.649	2.444	0.865	< 0.001	8	16
Stigmatization	11.712	2.436	0.928	< 0.001	7	15
Physical complaints or somatization	0.788	0.213	0.597	< 0.001	0.61	1.0
Obsessive-compulsive disorder	0.862	0.249	0.795	< 0.001	0.61	1.60
Interpersonal sensitivity	0.816	0.238	0.656	< 0.001	0.61	1.60
Depression	0.817	0.221	0.719	< 0.001	0.61	1.80

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Anxiety	0.789	0.220	0.566	< 0.001	0.61	1.72
Hostility or aggression	0.802	0.230	0.578	< 0.001	0.61	1.66
Phobic Anxiety	0.833	0.264	0.686	< 0.001	0.61	1.69
Paranoid ideation	0.768	0.193	0.477	< 0.001	0.61	1.71
Psychoticism	0.901	0.298	0.730	< 0.001	0.61	1.77

Table 3 shows the correlation between research variables based on Pearson's correlation coefficient.

Table 3

Pearson's correlation coefficient

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
blem-Solving	—																				
otional restraint	0.660 ***	—																			
gnitive assessment	0.577 ***	0.536 ***	—																		
sical restraint	0.748 ***	0.646 ***	0.617 ***	—																	
racting social support	0.512 ***	0.623 ***	0.618 ***	0.613 ***	—																
lt	-0.64 ***	-0.62 ***	-0.54 ***	-0.70 ***	-0.57 ***	—															
rch for explanation	-0.54 ***	-0.52 ***	-0.59 ***	-0.61 ***	-0.53 ***	0.710 ***	—														
natic reactions	-0.33 ***	-0.40 ***	-0.40 ***	-0.40 ***	-0.476 ***	0.589 ***	0.509 ***	—													
ndonment	-0.43 ***	-0.46 ***	-0.48 ***	-0.51 ***	-0.59 ***	0.670 ***	0.658 ***	0.449 ***	—												
gment	-0.32 ***	-0.30 **	-0.42 ***	-0.36 ***	-0.47 ***	0.546 ***	0.530 ***	0.546 ***	0.729 ***	—											
me	-0.18	-0.31 ***	-0.28 **	-0.21 *	-0.39 ***	0.471 ***	0.354 ***	0.395 ***	0.678 ***	0.628 ***	—										
gmatization	-0.41 ***	-0.29 **	-0.47 ***	-0.46 ***	-0.37 ***	0.550 ***	0.516 ***	0.471 ***	0.415 ***	0.428 ***	0.369 ***	—									
sical complaints or somatization	-0.54 ***	-0.61 ***	-0.37 ***	-0.57 ***	-0.60 ***	0.740 ***	0.420 ***	0.507 ***	0.618 ***	0.572 ***	0.597 ***	0.430 ***	—								
essive-compulsive disorder	-0.66 ***	-0.64 ***	-0.41 ***	-0.71 ***	-0.54 ***	0.731 ***	0.499 ***	0.410 ***	0.519 ***	0.347 ***	0.430 ***	0.420 ***	0.826 ***	—							
rpersonal sensitivity	-0.61 ***	-0.65 ***	-0.40 ***	-0.65 ***	-0.61 ***	0.786 ***	0.474 ***	0.502 ***	0.643 ***	0.522 ***	0.500 ***	0.459 ***	0.921 ***	0.777 ***	—						

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pression	-0.57 ***	-0.62 ***	-0.41 ***	-0.58 ***	-0.59 ***	0.704 ***	0.401 ***	0.512 ***	0.591 ***	0.543 ***	0.546 ***	0.396 ***	0.945 ***	0.782 ***	0.860 ***	—				
xiety	-0.52 ***	-0.58 ***	-0.34 ***	-0.56 ***	-0.59 ***	0.717 ***	0.414 ***	0.514 ***	0.600 ***	0.574 ***	0.590 ***	0.414 ***	0.986 ***	0.804 ***	0.904 ***	0.927 ***	—			
stility or ression	-0.52 ***	-0.57 ***	-0.34 ***	-0.56 ***	-0.58 ***	0.717 ***	0.430 ***	0.471 ***	0.610 ***	0.546 ***	0.582 ***	0.408 ***	0.962 ***	0.793 ***	0.915 ***	0.885 ***	0.953 ***	—		
obic anxiety	-0.67 ***	-0.65 ***	-0.46 ***	-0.71 ***	-0.56 ***	0.804 ***	0.512 ***	0.461 ***	0.595 ***	0.470 ***	0.412 ***	0.466 ***	0.836 ***	0.781 ***	0.924 ***	0.775 ***	0.820 ***	0.835 ***	—	
anoid ideation	-0.44 ***	-0.49 ***	-0.35 ***	-0.42 ***	-0.41 ***	0.586 ***	0.341 ***	0.435 ***	0.478 ***	0.541 ***	0.578 ***	0.396 ***	0.809 ***	0.649 ***	0.711 ***	0.800 ***	0.804 ***	0.733 ***	0.668 ***	—
choticism	-0.70 ***	-0.55 ***	-0.43 ***	-0.74 ***	-0.53 ***	0.761 ***	0.584 ***	0.369 ***	0.597 ***	0.471 ***	0.333 ***	0.461 ***	0.690 ***	0.762 ***	0.750 ***	0.665 ***	0.680 ***	0.685 ***	0.800 ***	0.553 *** —

.05, ** p < .01, *** p < .001

Based on the information provided in Table 3, it can be observed that various aspects of the grieving process, such as feelings of guilt, the search for explanation, Somatic reactions, Abandonment, Judgment, shame, and Stigmatization, are strongly and positively associated with mental health disorders like physical complaints or somatization, obsessive-compulsive disorder, interpersonal sensitivity, depression, anxiety, hostility or aggression, phobic anxiety, paranoid ideation, and Psychoticism. These relationships were statistically significant at the P<0.01 level. On the other hand, the various aspects of grieving showed a negative and significant correlation with coping strategies such as problem-solving, emotional restraint, Cognitive assessment, Physical restraint, and Attracting social support. The effectiveness of coping strategies in dealing with grief was also negatively associated with mental health disorders, with all of these connections attaining statistical significance at the P<0.01 level. At the same time, the analyst examined the path coefficients and p-value of the variables listed in Table 4 to delve deeper into these connections. The researcher established a bootstrap value of 5000 for the study.

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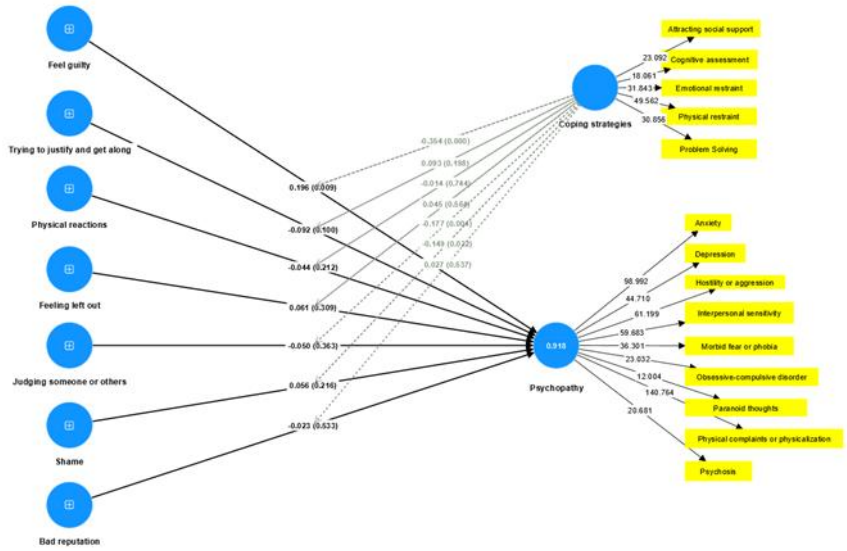

Figure 2: Path coefficients between variables and P-value

Table 4

Standard coefficients

Path	Path coefficient	P-value	T-value	Result
Stigmatization -> Psychoticism	-0.023	0.533	0.623	rejection
Coping strategies -> Psychoticism	-0.557	0.000	10.133	confirmation
Guilt -> Psychoticism	0.196	0.009	2.630	confirmation
Abandonment -> Psychoticism	0.061	0.309	1.018	rejection
Judgement -> Psychoticism	-0.050	0.363	0.909	rejection
Somatic reactions -> Psychoticism	-0.044	0.212	1.248	rejection
Shame -> Psychoticism	0.056	0.216	1.237	rejection
Search for explanation -> Psychoticism	-0.092	0.100	1.646	rejection
Coping strategies x Guilt -> Psychoticism	-0.354	0.000	5.918	confirmation
Coping strategies x Search for explanation -> Psychoticism	0.093	0.198	1.288	rejection
Coping strategies x Somatic reactions -> Psychoticism	-0.014	0.744	0.326	rejection
Coping strategies x Abandonment -> Psychoticism	0.045	0.564	0.577	rejection
Coping strategies x Judgement -> Psychoticism	-0.177	0.004	2.862	confirmation
Coping strategies x Shame -> Psychoticism	-0.149	0.022	2.293	confirmation
Coping strategies x Stigmatization -> Psychoticism	0.027	0.537	0.617	rejection

According to the findings presented in Table 4 and Figure 2, Coping strategies demonstrated a significant negative impact on Psychoticism (β=-0.557, P<0.001). In contrast, Guilt had a notable positive influence on Psychoticism (β=0.196, P=0.009). However, Somatic reactions (β=-0.044, P=0.212), Shame (β=0.056, P=0.056), stigmatization (β=-0.023, P=0.533), abandonment (β=0.061, P=0.309), and Judgment (β=-0.050,

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P=0.363) did not have a significant effect on Psychoticism.

Similarly, the variable of Coping strategies played a significant role as a moderator in the relationship between the Feel guilty variable and Psychoticism (β=-0.354, P<0.001). Additionally, coping strategies also had a significant moderating effect on the path between Judgment and Psychoticism (β = -0.177, P = 0.004). In addition, coping strategies were discovered to have a significant impact on the connection between the Shame variable and Psychoticism (β=-0.149, P=0.022). However, to examine the impact of the moderating variable on the model and further explore its effects, the researcher utilized JAMOVI software. The researcher then analyzed the predictive influence of the Experience of grief on Psychoticism at various levels of the moderating variable Coping strategies.

Table 5

Moderation Estimates and Simple Slope Estimates

		Estimate	SE	Z	p		Estimate	SE	Z	p
Coping strategies x guilt -> Psychoticism	Guilt	0.0744	0.0166	4.47	<0.001	Moderate	0.0744	0.025	2.96	0.003
	Coping strategies	-0.0982	0.0067	-14.63	<0.001	Low (-1SD)	0.2729	0.028	9.57	<0.001
	Guilt ✻ Coping strategies	-0.0196	0.0016	-11.95	<0.001	High (+1SD)	-0.1241	0.036	-3.37	<0.001
Coping strategies x Judgment -> Psychoticism	Judgment	0.0509	0.0371	1.37	0.170	Moderate	0.0509	0.049	1.03	0.304
	Coping strategies	-0.1285	0.0081	-15.70	<0.001	Low (-1SD)	0.3968	0.056	7.07	<0.001
	Judgment ✻ Coping strategies	-0.0341	0.0035	-9.68	<0.001	High (+1SD)	-0.2950	0.073	-4.02	<0.001
Coping strategies x Shame -> Psychoticism	shame	0.1096	0.0374	2.93	0.003	Moderate	0.110	0.048	2.28	0.023
	Coping strategies	-0.1248	0.0080	-15.52	<0.001	Low (-1SD)	0.428	0.053	8.02	<0.001
	shame ✻ Coping strategies	-0.0314	0.0035	-8.93	<0.001	High (+1SD)	-0.209	0.072	-2.89	0.004

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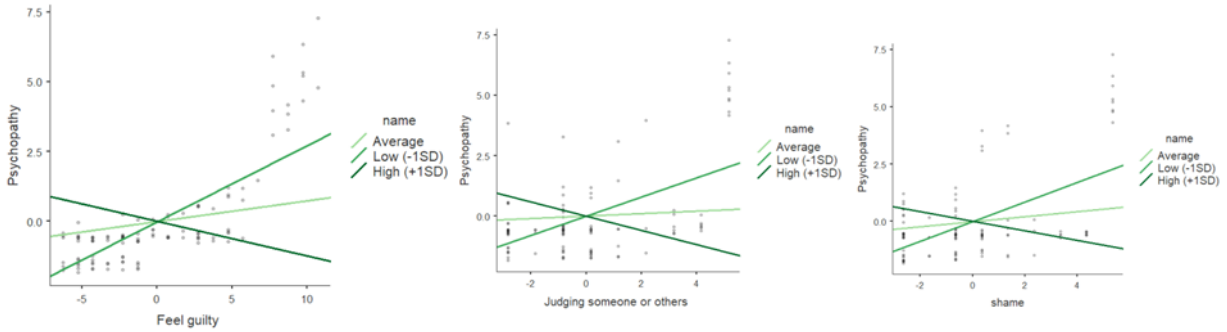

Figure 3: Simple Slope Estimates

Based on the information in Table 5 and Figure 3, the Coping strategies variable operates as a moderating factor. This reduction in Psychoticism results in a decrease in its severity within the individual**.** The decrease in Psychoticism leads to a less severe manifestation within the person.

The researcher checked the reliability and validity of the research variables in Table 6.

Table 6

Reliability and validity of the model

Variables	Cronbach's Alpha	Composite Reliability	AVE
Problem-Solving	0.886	0.909	0.59
Emotional restraint	0.941	0.952	0.73
Cognitive assessment	0.859	0.892	0.54
physical restraint	0.811	0.869	0.57
Attracting social support	0.884	0.910	0.59
Guilt	0.930	0.944	0.70
Search for explain	0.860	0.895	0.58
Somatic reactions	0.735	0.834	0.55
Abandonment	0.956	0.964	0.79
Judgment	0.971	0.976	0.85
Shame	0.942	0.953	0.74
Stigmatization	0.982	0.985	0.90
Physical complaints or somatization	0.984	0.985	0.90
Obsessive-compulsive disorder	**0.967**	**0.973**	0.83
Interpersonal sensitivity	0.962	0.968	0.81
Depression	0.974	0.978	0.86
Anxiety	0.837	0.848	0.77
Hostility or aggression	0.822	0.838	0.89
Phobic Anxiety	0.791	0.812	0.87

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Paranoid ideation	0.822	0.841	0.65
Psychoticism	0.876	0.899	0.65

Table 6 clearly shows that the model's reliability and validity have been verified. The Cronbach's alpha reliability for the variables exceeds 0.7. The combined reliability of these variables also surpasses 0.7. Furthermore, the model's accuracy was evaluated by utilizing the mean-variance extracted index, which showed that the research variables had values exceeding 0.5, thus affirming the model's validity. Furthermore, the researcher evaluated the model's fit, confirming all fit indices. The SRMR, or Standardized Root Mean Square Residual Index, measures the disparity between the observed correlation and the correlation matrix of the structural model. The SRMR value for the model was 0.071, the NFI value was 0.782, and the chi value was 667.656.

4. Discussion and Conclusion

The present study aimed to investigate the impact of coping strategies on the bereavement experience and psychological disorders of mothers who have recently experienced the loss of a child. The findings showed that coping strategies help to decrease psychological disorders, whereas feelings of guilt can exacerbate them. Coping strategies play a crucial role in moderating the relationship between guilt, judgment, shame, and psychological disorders in bereaved mothers, indicating that using coping strategies can mitigate psychological disorders.

The results of the current investigation demonstrate that coping strategies can decrease psychological disorders, while guilt can exacerbate them, a conclusion consistent with earlier studies (Juhari et al., 2022; Wagner et al., 2021; Fisher et al., 2020). Previous research has suggested that problem-solving coping strategy is connected to lower rates of psychological disorders (Juhari et al., 2022). Additionally, a study has highlighted the role of coping strategies and support in managing grief, depression, and post-traumatic growth (Fisher et al., 2020). Wagner and colleagues (2021) have similarly found a connection between guilt and psychological disorders following the loss of a loved one to suicide (Wagner et al., 2021).

When mothers who have experienced the loss of a child are under psychological stress, they develop various coping strategies based on personal factors, situational requirements, and available resources. These coping strategies are effective in reducing the impact of stress on daily life and in preventing psychological disorders (Machado et al., 2022). By utilizing efficient cognitive skills to solve problems, individuals can achieve psychological satisfaction by finding appropriate solutions, leading to mental stability and improved well-being (Mathieu et al., 2022).

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Additionally, the loss of a child can lead to adverse outcomes and emotional turmoil, impacting the mental well-being of mothers. The bereavement experienced by mothers is typically intensified by feelings of isolation and abandonment for being unable to protect their children. The profound sense of guilt and longing for reunion with their child following the tragic separation through death can give rise to a range of psychological disorders such as heightened depression, anxiety, post-traumatic stress disorder, and suicidal ideation. This experience may also trigger Phobic Anxiety in mothers (Kokou-Kpolou et al., 2020; Rodrigues et al., 2020).

Another discovery from the study suggests that utilizing coping strategies as a moderating variable can reduce psychological disorders in bereaved mothers, which is consistent with previous research (Wang et al., 2024; Fisher et al., 2020; Joaquim et al., 2021). One study found that coping strategies can moderate the impact of stressful life events on symptoms of depression and anxiety (Wang et al., 2024). Ineffective coping strategies were also connected to increased vulnerability to complications related to chronic grief, such as clinical depression, dysthymic disorder, post-traumatic stress disorder, attachment disorder, substance dependence, psychoticism, and suicidal ideation (Joaquim et al., 2021). Research has also shown that coping strategies and support play a role in the severity of grief, depression, and post-traumatic growth (Fisher et al., 2020). However, the current study's findings differ from the research by Guerrero-Barona et al. (2021), who concluded that coping strategies do not moderate the relationship between mental health and suicidal ideation among law enforcement officers (Guerrero-Barona et al., 2021).

One way to clarify the discrepancy between the current research and the study findings is by noting that the current research employed the coping strategies questionnaire developed by Billings and Moss, while Guerrero-Barona et al. (2021) used a shorter questionnaire in their study. In addition, the Spanish version of the Carver Coping Scale (COPE), known as Coping, was employed in the current research. Another factor that could contribute to the disparity is the variation within the research community. For instance, while the current study focused on bereaved mothers, Guerrero-Barona, and colleagues studied individuals facing crimes and irritating situations. Their research has shown that exposure to such challenging and stressful events, as well as work-related stress, can significantly affect the mental well-being of these individuals and may counteract the effectiveness of coping strategies (Guerrero-Barona et al., 2021).

However, it should be noted in the interpretation of the study results that when individuals face challenging situations such as the loss of a child, it is common for them to utilize coping strategies. These involve taking actions that facilitate adjustment and finding ways to deal with the difficulties they are going through. Mothers who

have lost their children often use coping strategies such as cognitive assessment and problem-solving to address the stress and challenges of the grieving process. By employing these techniques, they can better manage their sorrow and lessen the intensity of their grief. Embracing religious beliefs is also recognized as an effective coping strategy for mothers following the loss of a child. Additionally, actively solving problems, seeking distractions or relaxation, focusing on tasks, maintaining a positive self-image, and discussing their emotions with others all contribute to reducing the impact of grief on bereaved mothers. As the levels of mourning decline among these women, the likelihood of developing psychosocial, psychiatric, and psychological disorders like anxiety, complicated grief, and depression also diminishes (Onaolapo et al., 2020; Kirui & Lister, 2021).

While the current study holds significant implications, it is essential to acknowledge various limitations. One of these limitations involved the challenges faced due to non-cooperation and the unwillingness of bereaved mothers to participate in the research. To address this issue, the researcher attempted to mitigate these limitations by highlighting the benefits and practicality of the research project. Another limitation of the study was the inadequate assessment of factors such as family history, economic and occupational status, level of social support, and other demographic variables that could impact the research outcomes. The research mainly concentrated on responses to grief, without taking into consideration the gender of the deceased person or the mental health condition of the bereaved individuals before the loss occurred. The use of a questionnaire instead of a psychiatric interview to assess bereavement and other factors was identified as another limitation, indicating the need for alternative measurement tools, including evaluations of physical and emotional symptoms. Furthermore, the study exclusively focused on women, although beneficial for gender-specific investigations, limited the inclusion of perspectives from male counterparts, potentially affecting the accuracy of the findings. Suggestions were given for future research to involve fathers who have undergone loss to gain a more thorough insight into the topic.

The results of the present study suggested that coping strategies have a positive effect while dealing with loss negatively affects mental well-being. It is crucial to comprehend the process of chronic grief and how coping strategies alongside a support system can aid bereaved mothers in coping with their loss. As a result, the outcomes of this research hold importance for grief prevention and support programs. For instance, given the profound bereavement experience by parents following the loss of a child, it is essential for those around them, including therapists, to offer increased attention and support, particularly to mothers. In addition, coping strategies are skills that can be acquired through education and experience and are readily adaptable. Effective use of coping strategies in various situations, whether

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in a controlled environment or real life, requires individuals to receive education, training, and continuous monitoring with the help of modern educational tools. These efforts are crucial in shaping coping strategies, ultimately assisting bereaved mothers.

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