



Meaning Making Under Stress: The Mediating Role of Resilience in Affect and Memory

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Abstract

This research investigated the interplay among stress, meaning in life, and resilience, and examined their combined effects on affective and memory functioning. Two independent, post-test-only experiments (N = 140; 70 per experiment) with matched group randomized block design were conducted involving young adults. In Experiment 1, negative affect was experimentally induced using positive-negative affect valence task, while Experiment 2 employed a standardized stress induction through singing a song stress test. In both experiments, participants assigned to the experimental condition completed a structured meaning-making task involving writing about life goals, positives from past negative experiences, and value affirmation task. Experiment 1 assessed resilience and affective responses; Experiment 2 assessed resilience and memory functions (delayed and immediate recall, retention of similar and dissimilar pairs, and recognition). Independent samples t tests and simple mediation analyses were conducted. Across both experiments, meaning in life showed a robust positive association with resilience. Resilience mediated the relationship between meaning and negative affect, with meaning-making linked to higher positive affect and reduced negative affect following induction. Effects on memory were modest, though positive impact was observed on immediate recall and retention of dissimilar pairs. These findings underscore meaning-making as a significant psychological resource that strengthens resilience and supports affective well-being under stress, with selective benefits for memory functions.

Keywords: Meaning in Life; Memory Functions; Positive and Negative Affect; Resilience; Stress

1. Introduction

Stress exhausts psychological and cognitive resources, impairing emotion regulation and memory. Prolonged stress elevates negative affect, reduces positive affect (Hamama et al., 2012; Richardson, 2017), and disrupts working memory and retrieval (Schwabe & Wolf, 2010b; Wolf, 2017). Resilience—shaped by personal strengths and contextual supports—acts as a protective factor (Sisto et al., 2019). Meaning in life enhances resilience by providing coherence, purpose, and significance (Frankl, 1963/1984; Steger, 2012), enabling constructive interpretation of stress. Empirical work shows that meaning predicts resilience (Burton et al., 2015), jointly improving affective and cognitive outcomes (Kimhi, 2015; Lewis et al., 2017). Building on this evidence, the study examined how stress, meaning, and resilience interact to

shape affect and memory. The proposed model conceptualizes stress as a disruptive antecedent, with meaning-making mitigating these effects by strengthening resilience, which subsequently shapes affective well-being and memory performance (Fig. 1).

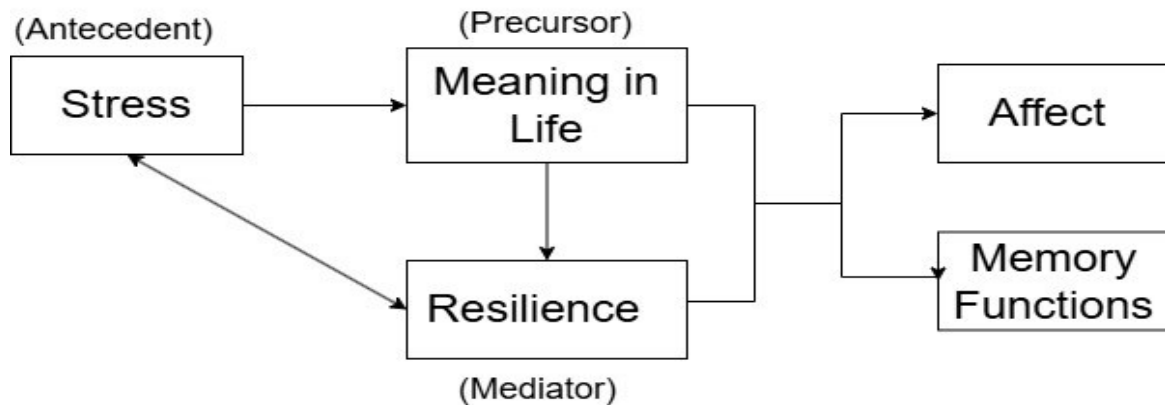


Figure 1. Hypothesized model linking stress, meaning, resilience, and impact on affect and memory.

This study examines how meaning and resilience jointly shape affect and memory among young adults, offering insights for interventions that enhance emotional regulation, cognitive functioning, and adaptive coping under stress. Young adulthood—a transitional phase marked by elevated stress—remains less studied than groups such as trauma survivors or older adults (Hakkim & Deb, 2021; Reker & Woo, 2011). Extending correlational evidence (Arslan & Yildirim, 2021; Kocjan et al., 2021; Park, 2010), this experimental investigation tests proposed theoretical framework, clarifies the role of resilience, and underscores meaning and resilience as foundational psychological resources for promoting healthy coping and overall well-being.

2. Theoretical Framework

2.1 Stress and Its Impact on Human Functioning

Stress that exceeds optimal levels adversely affects physiological, psychological, emotional, and cognitive systems, thereby diminishing overall well-being (Devi et al., 2019). Foundational theories have long emphasized these outcomes. Selye's (1956) General Adaptation Syndrome (GAS) outlines a three-stage response—alarm, resistance, and exhaustion—demonstrating how prolonged exposure results in cognitive inefficiency, weakened immunity, and vulnerability to anxiety and depression. The Diathesis–Stress Model (Meehl, 1962; Zubin & Spring, 1977) similarly posits that stress can activate latent vulnerabilities, culminating in dysfunction when exposure becomes overwhelming. Complementing these perspectives, the Allostatic Load Model (McEwen & Stellar, 1993) explains how repeated activation of physiological systems produces cumulative strain, contributing to cognitive decline, emotional dysregulation, and heightened risk for physical illness. Together, these frameworks highlight the pervasive and multifaceted effects of stress and underscore the importance of resilience as a protective factor.

2.2 Stress and Resilience

Resilience, defined as the capacity to adapt and recover from adversity, serves as a psychological buffer against the detrimental effects of stress. According to Lazarus and Folkman's (1984) Transactional Model, stress arises from cognitive appraisal and coping processes; adaptive coping strengthens resilience, whereas maladaptive appraisal intensifies distress. Hobfoll's (1989) Conservation of Resources Theory further asserts that stress results from actual or threatened resource loss, while resilience develops through the protection and accumulation of valued resources. Thus, resilience reflects the interaction between personal

dispositions—such as optimism, self-efficacy, and meaning in life—and contextual supports. Among these, meaning in life is consistently identified as a central resource that promotes adaptive functioning (Frankl, 1963/1984).

2.3 Meaning, Resilience, and Stress

Meaning in life provides a coherent framework for interpreting experiences and pursuing purposeful goals (Steger, 2012; Heintzelman & King, 2014b). Although conceptually distinct, meaning and resilience are closely linked. Maslow's (1943, 1968/1971) humanistic perspective suggests that deriving meaning supports psychological growth and adaptive functioning. Contemporary theories reinforce this connection: the Meaning Maintenance Model (McGregor et al., 2001), fluid compensation (Heine et al., 2006), and counterfactual thinking (Baumeister & van Hippiel, 2020) all emphasize meaning reconstruction as a mechanism supporting emotional regulation and resilience.

2.4 Impact of the Meaning–Resilience Link on Affect and Memory Functions

Stress impairs affective regulation and cognitive functioning; however, meaning and resilience help buffer these effects. Empirical work shows that meaning enhances resilience, which subsequently promotes positive affect and reduces negative affect (Arslan & Yildirim, 2021; Yildirim et al., 2022). Meaning-oriented coping fosters adaptive appraisal processes, strengthening emotional well-being (Collins, 2007). Additionally, purpose in life is associated with enhanced cognitive functioning, greater cognitive reserve, and reduced memory deficits, particularly in later adulthood (Abellana-Pérez et al., 2023; Lewis & Hill, 2021). Despite these insights, most existing evidence is correlational. The present study extends this literature by experimentally examining how meaning and resilience jointly shape affective and cognitive functioning under stress.

Hypotheses Formulation

Existing theoretical and empirical work consistently highlights the strong association between meaning in life and resilience, as well as the beneficial influence of this link on affective and cognitive outcomes, including memory. Meaning-making enables individuals to interpret adverse situations adaptively, facilitating effective coping and fostering resilience. In turn, these processes positively influence emotional regulation and memory functioning. Drawing from this literature, the present study proposed the following hypotheses:

H1- Under stress, participants performing meaning making will demonstrate higher resilience than those in the control group.

H2- Under stress, participants engaging in meaning making will exhibit higher positive affect and lower negative affect compared to those in the control group.

H3- Under stress, participants engaging in meaning making will show better memory performance compared to those in the control group.

H4: Meaning will positively influence affect and memory through the mediating role of resilience under stress.

3. Method

The study employed a post-test-only, matched-group randomized block design to minimize priming, reactivity, and learning effects on affective and memory outcomes. Pre-assessment of meaning-related constructs was deliberately avoided, as it could itself induce reflective processes similar to the experimental manipulation. Block randomization (block size = 4) ensured balanced group sizes across recruitment and reduced allocation bias. Two experiments were conducted to examine the impact of stress on the meaning–resilience relationship and its subsequent effects on affect and memory.

Participants were recruited using snowball sampling, which facilitated access to individuals willing to engage with reflective and potentially sensitive tasks. The sample comprised postgraduate and doctoral students aged 24–33 years, a group considered cognitively equipped to engage with abstract constructs such as meaning and resilience, and likely to experience relevant academic and transitional life stressors. Both experiments used some same measures and followed some common procedures.

- Common measures:
 1. Informed consent form and demographic data sheet to obtain consent and collect participant information.
 2. General Health Questionnaire (GHQ 12, Goldberg & Hillier, 1979) – This screening tool identified individuals without psychiatric disorders to ensure sample suitability. Widely used in community and general population settings, the GHQ-12 is effective in detecting minor psychiatric conditions.
 3. Brief Resilience Scale (BRS, Smith et al., 2008) – It assessed participants' ability to recover from stress using six items rated on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). Items 2, 4, and 6 were reverse scored, and a mean resilience score was calculated, with higher scores indicating greater resilience. Participants were instructed to consider their current mental state while responding.
 4. Meaning Making Battery – This custom writing-based task integrated three meaning-oriented exercises designed to evoke purpose, coherence, and significance. The tasks involved articulating life goals, identifying positives from past negative experiences, and engaging in value-affirmation, following established protocols (Bhattacharya, 2011; Cohen & Sherman, 2014; Henry et al., 2010; Routledge et al., 2012; Westerhof et al., 2010).
- Common procedural steps:

Following screening and consent, participants scoring less than 15 on GHQ-12 were included in the study to ensure a non-clinical sample and to control confounding effect of elevated psychological disturbance on the study variables. They were randomly divided into experimental and control groups through computer generated block randomization sequence. One researcher was responsible for eligibility screening and the second researcher implemented group allocation independently using pre-generated sequence. The allocation sequence was concealed from the researcher involved in participant enrollment thereby minimizing the risk of predictability. Participants not willing to give consent and refusing to complete the task were excluded. Each group had 35 participants. Later the participants were briefed about the experiment.

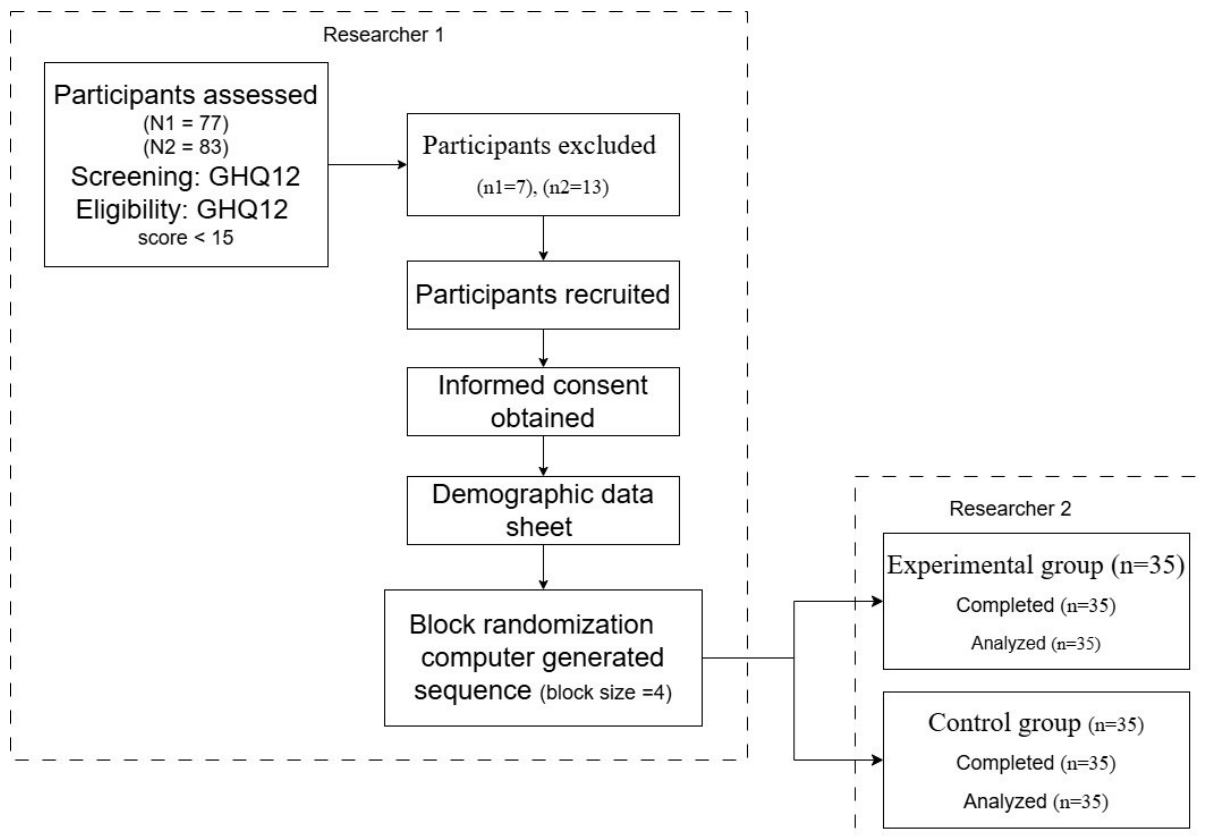


Figure 2. Flow diagram of participant selection and assignment across experimental and control conditions.

3.1 Experiment 1: Impact of Meaning-Resilience link on Affect

3.1.1 Participants

Total 77 participants were assessed for eligibility. Of these 7 were excluded (GHQ12 score >15 or declined participation). The remaining 70 participants met the inclusion criteria and were randomly assigned to experimental (n=35) and control (n=35) groups. All participants completed the assigned tasks and post-test assessments and data from all participants were included in the final analysis. The experimental group had 15 females (43%) and 20 males (57%) with average age of 27.34 years (range=24-32, SD= 2.04). The control group consisted of 11 females (31%) and 24 males (69%) with average age of 27.69 years (range= 23-33, SD=2.77). Table 1 presents other demographic characteristics of the participants.

3.1.2 Material

In addition to the common tools used across both experiments, the Positive and Negative Affect Valence Task was employed to induce negative affect using validated affective images from the International Affective Picture System (IAPS). Fifty-four slides of unpleasant, pleasant, and neutral pictures were presented. Participants' affective states were then assessed using the Positive and Negative Affect Schedule (PANAS), a 20-item measure comprising two 10-item subscales assessing positive and negative affect. The respondent must respond based on his current feelings using a 5-point Likert scale ranging from not at all (1) to extremely (5) (Watson et al., 1988). In this study, the PANAS showed good internal consistency (Positive affect $\alpha=0.80$; Negative affect $\alpha=0.78$), and the BRS also demonstrated acceptable reliability ($\alpha=0.79$).

3.1.3 Procedure

After the initial common procedures, negative affect was induced in both groups using the Positive–Negative Affect Valence Task, lasting for 4 minutes 20 seconds. It was followed by a manipulation check. A manipulation check confirmed that negative affect was induced equally in participants from both groups, $t(68) = 0.30$, $p = 0.76$, $d = 0.07$. Participants in the experimental group then completed the Meaning Making Battery, which took about 30-40 minutes. While the control group performed a neutral writing task about their favourite food or season; lasting for 15-20 minutes. Both tasks were followed by manipulation checks. A manipulation check confirmed that participants from experimental group perceived significantly higher meaning than those in the control group, $t(68) = 12.30$, $p < .001$, $d = 4.23$. Subsequently, resilience was assessed using the Brief Resilience Scale (BRS), after which the PANAS was administered, and participants were debriefed.

3.1.4 Data Analysis

Data were analysed using IBM SPSS 27. Descriptive statistics were computed using frequencies and percentages of demographic variables. An independent-samples t test assessed mean differences between groups. Additionally, mediation analysis was conducted to examine whether the independent variable influenced the dependent variable indirectly through a mediating factor. Statistical significance was at $p < 0.001$ and $p < 0.05$.

3.1.5 Results

Tab. 1 indicates comparable demographic characteristics across experimental and control groups. Most participants were male, unmarried, urban residents, with a higher proportion of doctoral students than postgraduates.

Table 1: Demographic characteristics of participants (in %)

Variables		Experimental Group n (%)	Control Group n (%)
Gender	Female	15(43)	11(31)
	Male	20(57)	24 (69)
Education	Post grad	5(14)	5 (14)
	Ph.D	30(86)	30 (86)
Marital status	Unmarried	31(89)	27 (77)
	Married	4(11)	8 (23)
Background	Rural	10(29)	8(23)
	Urban	25(71)	27(77)

Tab. 2 shows that mean score of resilience of participants from experimental group was higher ($M = 19.74$, $SD = 2.74$) than the control group ($M = 17.40$, $SD = 2.22$) depicting the positive impact of independent variable on dependent variable. The difference between these scores was significant ($t = 3.92$, $p = 0.000$).

Table 2: Between-groups differences in Resilience

Variable	Experimental Group(n=35)		Control Group(n=35)		t	df	p value	Cohen'sd [95% CI]
	M	SD	M	SD				
Resilience	19.74	2.74	17.40	2.22	3.92	68	0.000***	0.94[0.44,1.42]

*** $p < 0.001$

Tab. 3 shows mean scores of positive and negative affects of participants from both groups. Positive affect was more in the participants from experimental group ($M = 35.17$, $SD = 8.05$) compared to the control group ($M = 30.17$, $SD = 8.09$). This difference was significant ($t = 2.59$, $p = 0.012$). On the other hand, participants from experimental group scored lower on negative

affect ($M=15.71$, $SD=6.34$) in comparison with the control group ($M=20$, $SD=8.80$), with a significant score difference ($t=-2.33$, $p=0.022$).

Table 3: Between-group differences in Positive and Negative Affect

Affect	Experimental group (n=35)		Control group (n=35)					
	M	SD	M	SD	t	df	p value	Cohen's d [95%CI]
Positive	35.17	8.05	30.17	8.09	2.59	68	0.012*	0.62 [0.13, 1.09]
Negative	15.71	6.34	20	8.80	-2.33	68	0.022*	-0.55 [-1.03, -0.08]

* $p < 0.05$

Tab. 4 presents a simple mediation analysis using Hayes' PROCESS macro (Model 4) with 5000 bootstrap samples to assess whether resilience mediated the association between meaning in life and negative affect. Meaning significantly predicted resilience ($B=2.34$, $SE=0.59$, $t=3.92$, $p<.001$, 95% CI[1.18,3.50]), which in turn significantly predicted negative affect ($B=-0.80$, $SE=0.36$, $t=-2.21$, $p=.03$, 95% CI[-1.51,-0.09]). While the direct effect of meaning on negative affect was nonsignificant ($B = 2.40$, $SE = 1.97$, $t = 1.21$, $p = .22$, 95% CI [-1.46, 6.26]), the indirect effect via resilience was significant ($B= -1.87$, $SE= 1.10$, 95% CI [0.07,4.39]), indicating a full mediation. The mediation analysis assumes liner and additive relations between variables, independence of observations, and no multicollinearity. Indirect effects were evaluated using bias-corrected bootstrap confidence intervals. Priori power analysis specific to indirect effect was not conducted.

Table 4: Mediation analysis examining the role of Resilience in the Meaning-Negative Affect relationship

Variables	Coefficient(β)	SE	t	p value	95%CI
Meaning- Resilience	2.34	0.59	3.92	0.000***	[1.18, 3.50]
Resilience –Negative Affect	-0.80	0.36	-2.21	0.03*	[-1.51, -0.09]
Meaning – Negative Affect	2.40	1.97	1.21	0.22	[-1.46, 6.26]
Bootstrap	Effect	SE	LLCI	ULCI	
Resilience	-1.87	1.10	0.07	4.39	

*** $p < 0.001$, LLCI- Lower-level confidence interval, ULCI- Upper-level confidence interval

* $p < 0.05$

$N=70$, $R^2 = 0.13$

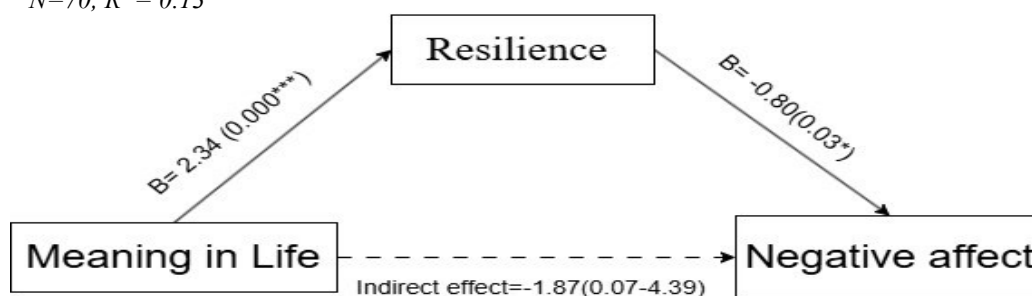


Figure 3. Path Model of meaning, resilience and negative affect.

3.1.6 Discussion

The findings showed that the experimental and control groups were demographically comparable, reducing the likelihood that background variables influenced the results. Under experimentally induced stress, participants who completed the meaning-making task exhibited significantly higher resilience than those in the control group, supporting Hypothesis 1. Manipulation checks confirmed that only participants in the experimental condition generated

meaning, validating the intervention. The three writing activities in the meaning-making task were structured to enhance participants' sense of purpose, coherence, and life significance by encouraging reinterpretation of personal experiences (Heintzelman & King, 2014b). These activities activated cognitive processes such as reframing, flexible perspective taking, and imaginative reconstruction, all of which promote adaptive functioning under stress. The results are consistent with the Meaning Maintenance Model (McGregor et al., 2001), which argues that individuals work to restore coherence when meaning is threatened, and with Counterfactual Thinking Theory (Baumeister & Hoppel, 2020), which emphasizes the adaptive value of generating cognitive alternatives. Prior research likewise suggests that meaning functions as a personal resource that supports reappraisal, thus mitigating stress and fostering resilience (Park, 2010; Steger et al., 2006).

Participants in the meaning-making condition also reported higher positive affect and lower negative affect than those in the control group, supporting Hypothesis 2. This aligns with the Transactional Model of Stress (Lazarus & Folkman, 1987) and the Meaning-Making Model (Park & Folkman, 1997), which both highlight the role of meaning-oriented cognitive reconstruction in reducing negative emotional responses and promoting positive affect.

Finally, meaning was positively associated with resilience, and resilience was in turn, associated with lower negative affect. These findings are consistent with an indirect-only mediation pattern partially supporting Hypothesis 4. This suggests that resilience may function as an intervening variable connecting meaning and negative affect.

3.2 Experiment 2: Impact of Meaning-Resilience Link on Memory Functions

3.2.1 Participants

Total 83 participants were assessed for eligibility. Of these 13 were excluded (GHQ12 score >15 or declined participation). The remaining 70 participants met the inclusion criteria and were randomly assigned to experimental (n=35) and control (n=35) groups. All participants completed the assigned tasks and post-test assessments and data from all participants were included in the final analysis. The experimental group had 8 females (23%) and 27 males (77%) with average age of 27.94 years (range=25-32, SD= 2.04). The control group consisted of 11 females (31%) and 24 males (69%) with average age of 27.89 years (range= 26-33, SD=2.77). Table 5 presents other demographic characteristics of the participants.

3.2.2 Material

The Sing a Song Stress Test (SSST), a standardized tool, was employed to induce stress efficiently without an actual audience. It includes ten slides, nine with neutral content and one requiring participant to sing, each presented at one-minute intervals. Participants rated their pre-singing stress from 0 to 10 (Brouwer & Hogervorst, 2014). Memory functions were assessed using five subscales of the PGI Memory Scale—delayed recall, immediate recall, retention of similar and dissimilar pairs, and recognition. It is a standardized test widely used in Indian context with established normative data for assessing multiple memory domains (Pershad & Wig, 1976).

3.2.3 Procedure

After completing the initial common procedures, stress was induced in both groups using the Sing a Song Stress Test, which lasted for 13 minutes. It was followed by a manipulation check which confirmed that stress levels were similar in participants from both groups, $t(68) = 1.20$, $p = 0.23$, $d = 0.29$. Participants in the experimental group then completed the meaning-making battery, which took about 30-45 minutes. Whereas the control group performed a neutral writing task about their favourite food or season, which lasted for around 15-20 minutes. Both

tasks were followed by a manipulation check confirming that participants from experimental group perceived significantly higher meaning than those in control group, $t(68) = 13.62$, $p < .001$, $d = 4.17$. Subsequently, both groups were assessed on resilience using the Brief Resilience Scale, completed the PGI Memory Scales, and were later debriefed.

3.2.4 Data Analysis

IBM SPSS Version 27.0 was used for data analysis. Descriptive statistics summarized demographic variables, and independent-samples t -tests assessed mean differences between groups. Additionally, mediation analysis was conducted to examine whether the independent variable influenced the dependent variable through a mediating variable. Statistical significance was at $p < 0.001$ and $p < 0.05$.

3.2.5 Results

Tab. 5 indicates that experimental and control groups were demographically comparable across sex, age, education, marital status, and background. Male and doctoral participants were relatively more represented, and most participants were unmarried and from urban areas.

Table 5: Demographic Characteristics of Participants (in %)

Variables		Experimental Group n (%)	Control Group n (%)
Gender	Female	8 (23)	11(31)
	Male	27 (77)	24 (69)
Education	Post grad	0 (0)	1 (3)
	Ph.D	35 (100)	34 (97)
Marital status	Unmarried	32(91)	31(89)
	Married	3 (9)	4 (11)
Background	Rural	10(31)	13(37)
	Urban	25(69)	22(63)

Tab. 6 shows that mean score of resilience of participants from experimental group was higher ($M = 19.37$, $SD = 3.14$) than the control group ($M = 16.37$, $SD = 2.76$) depicting the positive impact of independent variable on dependent variable. The difference between these scores was significant ($t = 4.23$, $p = 0.000$).

Table 6: Between-group differences in resilience

Variable	Experimental Group (n=35)		Control Group (n=35)					
	M	SD	M	SD	T	df	p value	Cohen's d [95%CI]
Resilience	19.37	3.14	16.37	2.76	4.23	68	0.000***	1.01[0.51,1.50]

*** $p < 0.001$

Tab. 7 shows mean scores of memory functions of participants from both groups. Bonferroni correction showed that immediate recall score was more in the participants from experimental group ($M = 9.60$, $SD = 1.59$) compared to the control group ($M = 7.49$, $SD = 1.78$). This difference was significant ($t = 5.22$, $p = 0.000$).

Table 7: Between group comparison of Memory Functions

Variables	Experimental Group(n=35)		Control Group (n=35)				
	M	SD	M	SD	t	p value (Holm-Bonferroni adjusted)	Cohen's d [95% CI]
Delayed recall	9.63	0.54	9.37	1.21	0.14	0.57	0.28 [-0.19, 0.75]

Immediate recall	9.60	1.59	7.49	1.78	0.22	0.000*	1.25 [0.74, 1.76]
Retention of similar pairs	4.94	0.23	4.86	0.43	0.03	0.57	0.23 [-0.24, 0.70]
Retention of dissimilar pairs	12.40	2.49	10.77	3.83	0.10	0.12	0.50 [0.02, 0.98]
Recognition	9.63	0.77	9.37	0.87	0.30	0.57	0.32 [-0.15, 0.79]

Note. P values are Bonferroni adjusted for five comparisons.

p<.01*

3.2.6 Discussion

The results indicated comparable demographic characteristics across experimental and control groups, confirming that demographics did not influence the outcomes. Participants who engaged in meaning making demonstrated higher resilience than those who did not, consistent with findings from the first experiment and supporting Hypothesis 1 that meaning positively influences resilience. Participants in the meaning-making group also showed superior immediate recall, partially confirming Hypothesis 3. These findings align with theories emphasizing meaning's role in cognitive functioning. Levels of Processing Theory (Craik & Lockhart, 1972) highlights how deep, meaningful processing enhances encoding, and meaning making is likely to increase attentional engagement facilitating initial coding. The absence of any effect on delayed recall or retention suggests that the manipulation may not have affected memory consolidation processes which need time and reinforcement. Prior research similarly links meaning with better cognitive performance under stress (Kimhi, 2015; Sutin et al., 2021). However, no group differences emerged in delayed recall, retention of similar and dissimilar pairs, or recognition, and resilience did not mediate the relationship between meaning and memory, thereby rejecting hypothesis 4.

4. General Discussion

This study employed two experiments to investigate the interrelations among stress, meaning in life, resilience, affective states, and memory functions. Across both experiments, the findings consistently demonstrated that meaning in life enhances resilience even under stress, aligning with earlier work identifying meaning as a key predictor of resilient functioning. Wong and Wong (2012) emphasized the conceptual and empirical significance of meaning in resilience, and subsequent studies have shown that meaning serves as a foundational psychological resource that strengthens adaptive capacities (Hakim & Deb, 2021; Kim et al., 2005).

The study also confirmed the positive influence of meaning and resilience on affective outcomes. Both constructs have been associated with higher positive affect: resilience supports the generation of positive emotions, while meaning enhances individuals' capacity to experience them (Ryan & Deci, 2001; Xing & Sun, 2013). Although resilience did not mediate the relationship between meaning and positive affect, this may reflect the reciprocal nature of these constructs—meaning fosters positive affect, which in turn strengthens the sense of meaning (King & Hicks, 2021). Similarly, resilience promotes positive emotions, while positive emotions build enduring psychological resources, including resilience (Fredrickson et al., 2008). Consistent with this cycle, the present study conceptually supported that meaning making may contribute to psychological well-being (lower negative affect) by fostering adaptive coping resources such as resilience.

With respect to cognitive outcomes, meaning and resilience showed limited influence on memory functions, except for immediate recall. Comparable stress levels across groups and demographic homogeneity may have minimized potential effects, given the role of stress appraisal (Lupien et al., 2009) and cognitive reserve (Stern, 2002). Additionally, relatively high-performance level and young adults with strong baseline memory may have led to limited

variability in delayed recall and retention. Overall, the findings underscore the strong role of meaning and resilience in adaptive emotional functioning and their more context-dependent influence on memory. Practically, meaning-making interventions emerge as promising tools for enhancing resilience, strengthening positive affect, and mitigating negative emotional responses.

5. Limitations And Future Directions

This study had small sample size due to limited availability of resources like only one investigator, time constraints of participants etc. Thus, authors are aware that small sample size of this study is likely to be underpowered. Snowball sampling helped in identifying participants willing to participate in the study but limited the representativeness and generalizability of the findings. A brief, experimentally induced meaning-making manipulation was involved, therefore to avoid priming, practice and recency effects baseline assessment of study variables could not be conducted. Experimental and control tasks differed in duration which may have created expectancy effects or differences in participant engagement. This should be considered while interpreting the findings. For future studies, implementing an active control condition matched for duration and engagement such as neutral expressive writing about daily activities can help to control expectancy effects. It will also help to disentangle specific effects of meaning making from non-specific factors. Although, mediation analyses were performed to examine theoretically drawn pathways, the mediator and outcome variables were assessed at post-test only. Therefore, temporal ordering among mediator and outcome variables cannot be established. Consequently, mediation results should be interpreted as model consistent associations rather than definitive evidence of causal relationship. The effects observed for memory outcomes should be interpreted with caution. Along with modest magnitude of effects, the sample was of young adults who show relatively stable cognitive functioning, limiting the difference in memory performance. The PGI memory scale is an older test, mainly developed for neuropsychological assessment. As such, it may be less sensitive to subtle experimental effects in non-clinical population. Therefore, future research could include more contemporary memory measures like Wechsler Memory Scale or n-back working memory tasks to precisely catch subtle cognitive changes. This study did not assess other important factors influencing affect and cognitive functions, such as personality traits, intelligence, or coping styles. Including these variables in future research would offer a more comprehensive understanding of their interrelations. Additionally, the stress induced was brief and of low intensity; stronger or prolonged stressors may provide clearer insights into the effects of stress on affect and cognition. Although subjective stress ratings were taken, stress was not the primary target of manipulation, but the reliance on self-report limits the strength of conclusions regarding stress induction. Considering physiological and behavioural measures will provide more comprehensive assessment of stress-related responses. The study assessed only selected components of cognitive functioning, whereas cognition is multifaceted. Examining additional cognitive domains in relation to stress, meaning, and resilience would be valuable. As outcomes of the study were assessed using self-report measures and the participants were briefed about the nature of the study, demand characteristics and expectancy effects can't be ruled out.

6. Conclusion

The present findings indicate that both meaning in life and resilience exert a positive influence on affective outcomes, emphasizing their main role in emotional regulation and psychological well-being. In particular, the process of meaning-making appears to function as a key psychological mechanism which strengthens resilience, thereby contributing to limiting the negative affect. This suggests that individuals who can construct and sustain a sense of meaning in response to life experiences are better equipped to adapt to stressors and maintain more

favourable emotional states. Although the present results also point to a potential association between meaning, resilience, and memory processes, these relationships should be interpreted with caution. Cognitive and contextual variables, including age, level of education, and the intensity and chronicity of stress exposure, are likely to shape both affective and cognitive outcomes and may moderate the observed effects. Future research should therefore adopt designs that explicitly account for these factors.

A structured intervention comprising a specified number of professionally facilitated sessions that emphasize reflective processes such as values clarification, cognitive appraisal, and the development of adaptive coping skills may enhance resilience. An approach that integrates primarily individual sessions with a limited number of small-group sessions may be particularly effective for young adults with adequate educational attainment and baseline cognitive resources, especially those experiencing mild to moderate levels of stress. Such a configuration is likely to support the development of effective coping mechanisms, thereby promoting resilience and sustained psychological well-being.

Overall, a clearer understanding of the interrelationships among meaning-making, resilience, and affect has important applied implications. Specifically, the findings support the development and refinement of meaning-oriented and resilience-based interventions aimed at strengthening adaptive coping, reducing negative emotional responses, and promoting sustained psychological well-being across diverse populations.

Data Availability Statement

Not Applicable

Ethics approval

Approval was obtained from the ethics committee of the concerned institute. The procedures used in this study adhere to the tenets of the declaration of Helsinki.

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