

COGNITIVE FLEXIBILITY AND PSYCHOLOGICAL RESILIENCE AS DETERMINATES OF EXTREMIST ATTITUDES IN YOUTH

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Abstract

The aim of the current study was to see the relationship between cognitive flexibility, resilience, and extremist tendencies in young adults with a focus on the mediating factor in resilience. A convenience sample of (N=296) men and women (18-29) and different academic backgrounds was used to study this sample. Due to the goal to measure core variables, the research used standard components. Correlational analysis results revealed that there is definite positive correlation between the combination of cognitive flexibility and resilience and a negative one between these two and extremist beliefs. In hierarchical regression, they found out that the mathematical behaviour of cognitive flexibility on extremism was initially insignificant but on addition of resilience to the model the effect was no longer detected. Mediation analysis substantiated this result whereby resilience was the full explanation of the relationship between cognitive flexibility and extremism. In effect, the more flexible in thinking a young adult is, the more resilient he/she can be and therefore reduces the chances of him/her acquiring extremist ideas. The results of these studies show the importance of fostering resilience and adaptability of thoughts as psychological protective factors against radical ideation. They also provide valuable advice regarding the development of programs of intervention that will help to improve the emotional and cognitive strengths in youth.

INTRODUCTION

The psychological processes of helping form the system of attitudes are still in demand in the modern age of widening polarization around the world. Radicalization to radical visions and actions has become a major point of study. Extremism has tended to be linked with thought rigidity and mental weaknesses (Kruglanski et al. al., 2014). Cognitive is one of the most critical psychological constructs that would be linked with extremism. flexibility and resiliency, which are influential in determining how prone such individuals become to radical Conduct

and ideologies. The cognitive flexibility refers to the power to adjust the way of thinking to new. An executive function that depends on particular processes involving information and changing environments, is monitoring. Working memory, inhibition and switching sets (Artawijaya & Supratiwi, 2024). People who have lower people with cognitive inflexibility are inclined to think in rigid ways, have difficulty with ambiguity and are conformist closer attached to dogmatic belief systems becoming, in the meantime, potentially more susceptible to extremist

ideologies. Resilience however is the ability to respond to difficulty or cope with challenges. It is known as a safeguarding force against extremist recruitment as well. Strong individuals are also predisposed toward a critical mental activity and emotional control that makes them less vulnerable to extremist recruiting (Giller et al., 2019). Cognitive flexibility is important in the development of resilience through its ability to help in problem solving, management of stress. Expression of emotions. Studies have shown that individuals of high cognitive who can avert radicalization are more flexible to face uncertainty and adapt to change (Diamond, 2013).

Cognitive flexibility can be described as an capability to change the cognitive processing strategies in response to new information. Environmental conditions that are not expected. This definition brings out three points. To begin with, it is an acquired skill, which grows in the course of experience. Second, it is changing cognitive strategies and these are chains of actions in problem space. Lastly, adaptation occurs in response to environmental changes after engaging in a task for some time (Cañas, 2006). It plays a crucial role in everyday life, influencing academic achievement, resilience, and overall well-being. Conversely, cognitive inflexibility has been linked to negative outcomes, such as increased risk of anxiety and depression, rigid decision-making, and maladaptive attitudes. The association between flexibility of thought, the other executive functions there is also evidence of cross talk in areas that will involve a task with more mental plasticity like the Stroop task is complex and incorporates inhibitory control, as well as cognitive flexibility (Diamond, 2013). Understanding the the interrelatedness of cognitive flexibility and other executive functions give some knowledge on how they are able to adjust their thoughts and behaviour so as to enable them meet difficult situations with ease. Dynamic environment decision-making (Hohl & Dolcos, 2024). Cognitive flexibility consists of two types: shifting flexibility, which involves switching entirely to new cognitive frameworks, and spreading flexibility, which explores related alternatives within the same framework (Çar et al., 2022). Both types are crucial for creativity and adaptive behavior but operate through different neural pathways. Declines in flexibility with age

highlight its developmental and experiential nature (Park & Lorenz, 2009). Education, lifestyle, and sociopolitical engagement also shape its effectiveness. Reduced flexibility is linked to anxiety, depression, and rigid decision-making, while enhanced flexibility promotes adaptive coping and resilience (Shende & Mudar, 2023). Overall, it serves as a foundation for behavioral adaptation in dynamic environments.

Resilience is the dynamic capacity to adapt, recover, and grow from adversity, shaped by psychological, social, and cultural factors (Chandler, 2014). It involves optimism, emotional regulation, and effective problem-solving, enabling individuals to view setbacks as opportunities for growth. Internal strengths and external support systems, such as family and community, play a vital role in fostering resilience. It is multidimensional, encompassing psychological, physical, emotional, and social aspects that collectively enhance adaptability and coping. Supportive relationships and cultural connections further strengthen this capacity. Resilient individuals maintain a proactive mindset, mental agility, and realistic thinking to navigate challenges effectively. Overall, resilience empowers individuals to thrive despite difficulties (Basheer, 2022).

Extremism refers to rigid ideologies that deviate sharply from societal norms, often marked by intolerance, hostility, and a willingness to harm others, posing threats to social cohesion and democratic systems (Glaesser, 2011). It exists in both violent and non-violent forms, with marginalized groups often resorting to direct violence, while dominant groups may engage in systemic or structural aggression (Freilich et al., 2024). Types of extremism include political, involving opposition to democratic principles; sovereign citizen movements rejecting government authority; anarchist groups targeting coercive institutions; militias resisting perceived constitutional violations; and religious extremism, where rigid beliefs drive efforts to reshape society and governance (Makki & Akash, 2022). In Pakistan, religious extremism has evolved due to historical, political, and social dynamics, with some groups advocating peaceful preaching and others promoting violence to impose their ideology (Glaesser, 2011). While extremism can sometimes highlight neglected grievances or foster group solidarity, its harmful

impacts such as violence, trauma, and deepened divisions are far more profound (Chohan et al., 2021). The factors of psychological resilience and cognitive flexibility are important determinants of how individuals are prone to extremism. The Cognitive Model of Psychological Resilience emphasizes that the ability to easily overcome stress situations with the help of adaptive regulation of cognitive processes (attentiveness and interpretation) contributes to resilience through people (Parsons et al., 2016). Comparatively, Social Movement Theory describes the presence of rigidity of thinking and lack of grievance as making people more susceptible to the extremist discourses, whereas greater flexibility and resilience make individuals more susceptible to these discourses (Staggenborg, 2005).

Literature Review

In this section, a summarised version of literature examining the relationship between cognitive flexibility, resilience, and extremism.

The literature reviewed connection between self-regulation, cognitive flexibility and resilience among students. There was the use of cross-sectional study design to collect data. Self-regulation and cognitive flexibility greatly affect the likelihood of students to not only succeed academically but also feel good emotionally and thus being able to adapt to any arising challenges and be able to accomplish their personal objectives. In a study that was administered on ($N=302$) students, the impact of self-regulation was strong and positive on cognitive flexibility and also cognitive flexibility positively linked with resilience and it had a mediating role between self-regulation and resilience. Although self-regulation was proven to have a positive influence on resilience, the research also revealed a negative indirect relationship between resilience and self-regulation and cognitive flexibility. These results serve to emphasize the role of self-regulation and cognitive flexibility cultivation in learning environments as one of the factors that can help build resilience and an overall high performance of students. (Khayyat et al., 2024).

The research aimed at inquiring about the idea of violent extremism among the university students and analyzing how socio-cultural capital together with community resilience may counter it. A quantitative research design was used to collect data in the form of

an online survey done on ($N=480$) students of public and private universities. The results highlighted the idea that many factors, among which ethnic background, family support, and cultural context play an important role towards supporting and opposing violent beliefs and behaviors. The paper has also proven that community resilience underpinned by the socio-cultural aspects is a key factor that safeguards the youth against radicalization. A conclusion was made that universities ought to integrate peace culture-enhancing and culturally diversified learning behaviors to create tolerance and resistance towards violent conventionalisms (Rehman & Behlol, 2022). The literature reviewed points out the coherent association between cognitive inflexibility and extremist attitudes, with the emphasis on cognitive processes. In a study with more than ($N=1,000$) participants, the researchers determined that cognitive rigidity positively predicted violence to protect the national ingroup and willingness to die to protect the ingroup, which is why cognitive inflexibility could be a neurocognitive correlate of radicalization (Maqsood, 2025). The results enhance the theories that the rigidity in thought patterns contributes to the ideological thinking within and outside the political scene and tends to contribute to the intolerance and intergroup aggression. Both extreme and rigidity hypotheses were supported by empirical evidence which revealed that mental rigidity is linked to both partisan and extreme ideological orientations and there are still debates regarding the hypothesis that such rigidity conditions individuals to adhere strictly to their ideological beliefs (Zmigrod, 2020). These findings were replicated and extended by other studies, with Bayesian analyses confirming that cognitive inflexibility makes a person vulnerable to extremist self sacrifice and violent attitudes, as assessed by measures like the Remote Associates Test and the Wisconsin Card Sorting Test, but a proportion of evidence also indicated in the opposite direction, that cognitive flexibility would buffer the willingness to die on behalf of a group (Arif, 2025).

Rationale

Ideological extremism grows where people are not open to different views. Young adults are especially at risk of adopting extreme beliefs because their thinking and emotions are still developing. Two important

psychological traits **cognitive flexibility** (the ability to think in different ways) and **resilience** (the ability to cope with challenges) may play a key role in either protecting against or encouraging extremist ideas. Research shows that people with rigid thinking are more likely to support extreme ideologies and even sacrifice for them (Zmigrod, 2020). Resilience is usually seen as a positive trait, but in highly divided environments, it might actually make people more committed to their extreme beliefs (Vergani et al., 2020). Although these two traits have been studied separately, little is known about how they work together especially in young adults, who often face intense ideological content online. This study aims to fill that gap and help create programs that build flexible thinking and emotional strength to reduce radicalization in youth.

Objectives

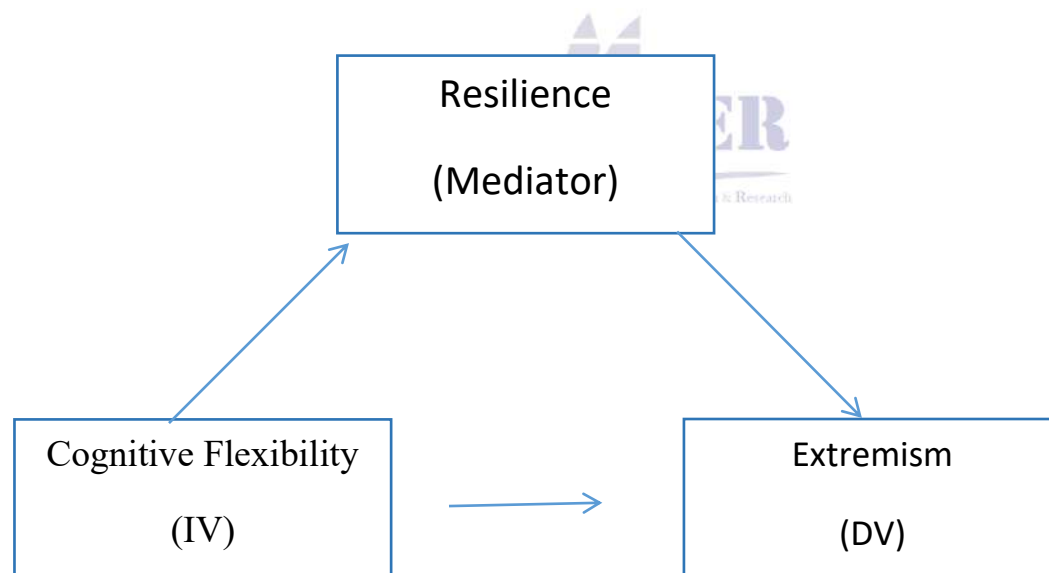
Following are the objectives of the study:

1. This quantitative study intends to evaluate the link between cognitive flexibility and extremism in young adults.
2. To investigate the mediating role of resilience in the relationship between cognitive flexibility and extremism.

Hypotheses

Following are the hypotheses of the study:

1. There will be a negative relationship between cognitive flexibility and extremism in young adults.
2. There will be a positive relationship between cognitive flexibility and resilience in young adults.
3. There will be a negative relationship between resilience and extremism in young adults.
4. It is predicted that young adults with higher cognitive flexibility will show higher levels of resilience, which will significantly reduce their tendency toward extremist beliefs.
5. Resilience will mediate the relationship between cognitive flexibility and extremism.



Methodology

This chapter consists of the research methodology, including study design, sample selection, data collection methods, and analysis procedures.

Research Design and Sample

A correlational research design was used to analyze the relationship between the **cognitive flexibility**,

extremist and resilience in young adults. The sample comprised young adults were (N=296), with an age range of 18 to 29 years (M = 22.787 , SD = 2.611). Data was collected from different private and public universities of Lahore using a convenient and random sampling technique.

Measures

Demographic Sheet. Demographic information were included age (in years), gender (male, female), area of residences (urban or rural), department, birth order, marital status (single, married, Divorced/Separated/Widowed), family system (nuclear or joint), birth order, employment status, and monthly income.

Cognitive Flexibility Scale. The Cognitive Flexibility Scale (CFS) was developed by Martin and Rubin (1995) to assess an individual's ability to adapt to new situations and shift perspectives. The scale consists of 12 items, rated on a 6-point Likert scale. The scale demonstrates good internal consistency, with a Cronbach's alpha value of 0.83, indicating reliable measurement.

Brief Resilience Scale. The Brief Resilience Scale (BRS) use to assess an individual's ability to bounce back or recover from stress. The scale consists of six items, rated on a 5-point Likert scale. The BRS demonstrates good internal consistency, with Cronbach's alpha values ranging from 0.80 to 0.91, indicating reliable measurement (Smith et al., 2008).

Extremism Scale. The Extremism Scale (ES), developed by Ozer and Bertelsen (2018), consists of 14 items designed to measure ideological extremism. It utilizes a 7-point Likert scale. In terms of reliability, the original English version demonstrated high internal consistency with a Cronbach's alpha of 0.92.

Results

This section of research includes preliminary analysis, descriptive analysis and inferential analysis.

Table 1

Cronbachs Alpha Reliability of Study Variables

	α	Mean	Std.Deviation	Range
Cognitive Flexibility	.73	42.88	10.24	72-45
Resilience	.64	18.78	5.10	30-21
Extremism	.72	55.39	12.67	98-58

Note: (M) Mean, (SD) Standard Deviation, (a) reliability

Table 2

Intercorrelation between study variables

	1	2	3
Cognitive Flexibility	-	.66**	-.18**
Resilience		-	-.21**
Extremism			-

Note : * $p < 0.5$, ** $p < 0.1$

Table 3

Hierarchical Regression Analysis

Variables	B	R^2	Adj. R^2	β	P
Model 1					
Constant	65.076	.034	.031		.000***
CFS	-.228			-.185	.001***
Model 2					
Constant	66.984	.050	.044		.000***

CFS	-.089	-.072	.346
BRS	-.420	-.169	.027*

Model 1 showed a significant negative relationship between cognitive flexibility and extremism. In Model 2, resilience emerged as a stronger predictor, rendering the effect of cognitive flexibility non-significant and slightly improving the model's explanatory power.

Table 4

Mediation analysis

Variables	B	SE	p
CFS → BRS	0.33	0.02	.000***
BRS → ES	-0.42	0.19	.029*
CFS → ES	-0.23	0.07	.001***

Note: Level of significance. CFS = Cognitive Flexibility Scale, BRS = Brief Resilience Scale, ES = Extremism scale.

Mediation analysis on cognitive flexibility, resilience, extremism among adults (N=296)

Effect	B	SE(B)	P	95%CI	
				LLCI	ULCI
A	0.33	0.02	.000***	0.29	0.38
B	-0.42	0.19	.029*	-0.79	-0.04
C	-0.23	0.07	.001***	-0.37	-0.09
c'	-0.09	0.09	.319	-0.28	0.09
Ab	-0.14	0.05	.000***	-0.24	-0.03

Note: a= Effect from X (cognitive flexibility) onto M (resilience); b= Effect from M (resilience) onto Y (extremism); c = Total Effect; c'= Direct Effect and ab= Indirect Effect. All coefficients are standardized.

The mediation analysis showed that cognitive flexibility significantly predicts resilience. Resilience, in turn, significantly reduces extremist tendencies, confirming its mediating role. The total effect of cognitive flexibility on extremism was significant, but the direct effect became non-significant after including resilience. This indicates full mediation, suggesting resilience explains the pathway. The indirect effect through resilience was also statistically significant, reinforcing its key role in reducing extremism.

Table 5

Mean Comparison between Urban and Rural area of residence in Cognitive flexibility, Resilience, Extremism (N= 296).

Study Variables	M	SD	Urban (N=221)		Rural (N=75)		P
			M	SD	M	SD	
Cognitive flexibility	42.71	9.95	43.68	11.08	43.68	11.08	.48
Resilience	18.45	4.91	19.86	5.54	19.86	5.54	.03*
Extremism	55.26	12.56	55.24	13.05	55.24	13.05	.98

Table 5 show rural participants showed significantly higher resilience than urban participants, while no differences were found in cognitive flexibility or extremism.

Discussion

The objective of the present study was to investigate the relationship between cognitive flexibility and resilience and extremism among young adults along with the mediation effect of resilience. The results indicate that cognitive flexibility and resilience should be promoted among young adults as an effective intervention strategy to counter radicalization.

The initial significant conclusion of the current study justified the hypothesis of negative dependence between cognitive flexibility and the extremist among young adults. Those subjects that exhibited increased cognitive flexibility also tended to be less inclined to support and subscribe to the ideology of extremists. It is consistent with a prior study by Zmigrod et al. (2019) who defined cognitive rigidity as an important psychological feature underlying ideological extremism and political violence support. Those who have a strict cognitive style prefer to interpret information in terms of black and white, they do not take ambiguity well, and show a tendency to compromise, or even dissenting points of view, all of which are characteristic of extremist thought. Conversely, cognitive flexibility seems to promote critical thinking, receptiveness to a wide range of perspectives, and tolerance of ambiguity, thus undermining the persuasiveness of absolutist stories. Academically, Karakuş (2024) identified that university students who had superior cognitive flexibility tended to exhibit reduced endorsement of extremist ideologies, and went on to indicate that educational interventions with minimal cognitive flexibility may act as a buffer to ideological extremism. These findings endorse the view that cognitive flexibility could be viewed as a mental defense system that results in subtle cognitions, anti-indoctrination, and lesser attachment to strong ideologies by making individuals increasingly thoughtful rather than a reactive system.

Simply put, people who were rated higher on the scale of flexibility were much more resilient they bounced back quicker than other people, coped better with stress and managed to contain their emotions. This is in agreement with previous studies by Soltani et al. (2013) who concluded that people with the ability to think flexibly performed better in employing adaptive coping mechanisms in the face of academic stresses and personal misfortunes. Similarly, Ram et al. (2019) found that, in the case of individuals with a history of

psychological crises, the more flexible they were, the more they robustly reacted to stress by having higher emotional regulation, less impulsive, and less time to respond to stress.

(Asif, 2024) conducted a systematic investigation of the resilience-related traits and identified emotional self-regulation, futuristic outlook, and moral involvement as central to the avoidance of extremist behaviour. Their overall message was that well-resilient individuals are likely to engage in positive coping and prosocial behaviours despite residing in politically or socially unstable environments. This trend is reflected in the intervention of Savage and Fearon (2021) in Bosnia: Organised cognitive-emotional training reduced ethnic hostility and radical views among vulnerable young people in the long term. The focus of the training was on enhancing the capacity to think reflectively and emotionally deal with emotions, providing the participants with the internal resources to resist ideological polarisation.

Mohammadkhani et al. (2022) further emphasised the duality of resilience and flexibility as protective factors, demonstrating that cognitive biases that are commonly used by radical groups fade under these two characteristics. They have found that resilient individuals were more willing to interpret adversity as an opportunity to develop, maintained a coherent personal sense of identity, and were less vulnerable to the influence of extremist messages.

Our mediation analysis revealed that cognitive flexibility did seem to have a positive relationship with a decline in extremism but once we added resilience, this relationship became insignificant. In other words, resilience can serve as intellectual scaffolding: pliable thinking can only become ideological moderation when you have the emotional toughness to support it. Something like that was discovered by Khayyat et al. in their study (2024), which states that resilience is the key intermediary that connects adaptive mental attributes to positive mental health in general. They claim that flexibility increases reflective thinking and the ability to perceive things in new ways, but it is resilience that will determine whether emotional stability and more moderate behaviour is the result of that mental flexibility or not. Mohammadkhani et al. (2022) provided additional support by demonstrating that resilience and cognitive flexibility were complementary fields in mediating the effects of

emotional schemas in inducing psychological distress, and how inseparable the two are in promoting mental health and alleviating ideological rigidity. This intervention research, including Savage and Fearon (2021), proves that with a mix of interventions, resilience training, and the combination will enable you to enhance the benefits of cognitive growth and decrease radical attitudes even among those who were not naturally super flexible. The same effect is visible in our own record, too: mental flexibility is not a high enough guarantee against extremist views except insofar as the individual is emotionally resilient himself or herself.

Implications

The results of the current study have informed useful inferences on theory and practise to avert radicalization of young adults. As shown in the research, mental agility and emotional power should be engineered into the prevention strategies through the expression of resilience as the mediating variable between cognitive flexibility and extremist behaviour. This gives the schools and youth organisations and community initiatives the chance to introduce structured courses that reinforce the open mind, loose thinking and proper management of emotions. These efforts are safety nets, they prune off the appeal of puritanistic, absolutist ideologies at an early stage. I suppose that this may benefit mental-health pros and counsellors by inoculating the therapy with resilience-enhancing interventions, which have the effect of not only reducing the emotional distress, but also counter-influencing the cognitive lapses that the extremist narratives capitalise on. In general, the findings are in line with the holistic mentality that strengthens the mental health and, at the same time, the social stability and cohesion.

Conclusion

The current research study focused on the psychological mechanisms between cognitive flexibility, resilience, and extremism among the young adults. Based on empirical data and the literature review, the results ensured that cognitive flexibility is one of the strongest predictors of reduced extremist tendencies, which is mainly mediated by the outcomes of resilience. People who had a higher cognitive flexibility, i.e., the capability to change one

perspective, develop alternative solutions, and respond to stress adaptively, were more resilient, which further reduced the possibility of sliding towards extremist ideologies. The statistical calculations indicated that there was a strong positive association between cognitive flexibility and resilience as well as a strong negative correlation between resilience and extremism. Mediation analysis also indicated that the connection between cognitive flexibility and extremism was completely mediated by resilience such that the direct influence of cognitive flexibility on extremism resulted non-significant when resilience was added into the model. These results are indicative of the fact that cognitive flexibility also has a role in psychological openness but we must keep in mind that it is a boost to resilience that protects individuals against adopting rigid radical views. The findings correspond to the international and indigenous literature transmission of the importance of psychological flexibility and emotional resilience as protective factors in relation to ideological extremism. Since ideological polarization among the younger generation has grown in intensity, the current study highlights the value of resilience-development measures carried out in educational and social settings as a preventative measure against radicalization. Embracing cognitive flexibility and emotional resilience also can be promoted to enable young adults to withstand the temptation to find a place in extremist narratives and overcome adversity.

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