

Cognitive Flexibility, Resilience and Quality of Life in Young Adults

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Abstract

The main objective of this study is to look into how cognitive flexibility, resilience and quality of life in young adults plays important role in their lives. A sample of 300 young adults including males and females from different universities of Lahore. The study was conducted through by using random sampling technique. The Brief Resilience Scale (Smith, B. et al., 2008), Cognitive Flexibility Inventory (Dennis, et al., 2010). The World Health Organization Quality of Life (S.M. Skevington et al., 2004) were used as assessment measures. Findings of the study revealed that there will be significant positive relationship between Cognitive flexibility, resilience and quality of life. Results indicated that resilience mediates the relationship between CF and QOL among males and females. Cognitive Flexibility among male and female participants while there were observed no significant differences on Resilience among male and female participants. Further, results indicated that there were significant differences on QOL and all four dimensions of QOL including Physical Health, Psychological, Social Relationships and Environment between male and female participants. Multivariate investigates female main and interaction effect of socioeconomic status and Education on Cognitive Flexibility, Resilience and Quality of Life showed insignificant. the main effect of Education on Quality of Life was significant while there were observed no significant differences on socioeconomic, Resilience and cognitive flexibility. The interaction between Education and Socioeconomic status on Resilience was significant while there were observed no significant differences on Cognitive Flexibility and Quality of Life among males.

Keywords: *Cognitive Flexibility. Resilience, Quality of Life*

Introduction

The goal of study is to look into how cognitive flexibility, resilience and young adults' quality of life plays important role in their lives. Some major factors contribute

like enhancement of coping skills, adaptability, psychological well-being, social relationships and overall satisfaction. Cognitive flexibility and resilience both contribute to better coping skills. When faced with challenges or changes, individuals who are cognitively flexible can consider multiple solutions, while resilient individuals can persevere and maintain their well-being.

Cognitive flexibility enables young adults to adapt to changing life circumstances, such as transitioning to college, starting a career, or forming new relationships. Resilience helps them navigate setbacks and maintain their quality of life despite obstacles. Both cognitive flexibility and resilience are linked with greater levels of psychological health, including reducing anxiety and despair, as well as increased life satisfaction. Combined influence of cognitive flexibility and resilience tends to contribute positively to overall life satisfaction and perceived quality of life. Cognitive adaptability, resilience, and quality of life of young people across various contexts, including academic stress, childhood adversity, adolescent development, and chronic illness. They underscore the importance of fostering these psychological attributes to enhance well-being and adaptive functioning in young adulthood.

According to White, Kleinman, Fischer, Schlimmen, and London (2013), that higher levels of cognitive flexibility and resilience were associated with better psychological well-being in adolescents. Specifically, adolescents who demonstrated greater cognitive flexibility were better able to cope with stressors and challenges, while those with greater resilience were more probable to maintain positive mental health outcomes despite adversity.

Cognitive flexibility, a complex cognitive skill essential to adaptive functioning, is investigated using experiments that measure one's capacity to switch focus and mental resources between various activities or mental models. Understanding it is essential for a variety of sciences, including psychology and neuroscience, since it provides insights into how people think and behave in dynamic contexts.

Cognitive adaptability refers to the capacity to deploy resources in a dynamic environment to process and organize information Diamond, et.al (2013). For example, in group interactions, we employ cognitive flexibility to shift our attention from one speaker to another. Cognitive flexibility is typically measured as the capacity to switch between mental sets or tasks Cañas et al., (2003)

Cognitive flexibility, as defined by neuroscience researchers Scott (1962), is the capacity to modify behavior in response to changing conditions. Functional magnetic resonance imaging (fMRI) in humans. Studies show that cognitive flexibility—which is necessary for task switching—activates certain brain regions, including the prefrontal, and basal ganglia (Leber. et al., 2008). Our cognitive flexibility decreases with ageing, making We have a tougher time adjusting to new settings and places. According to Boone et al. (1993), the Wisconsin card sorting test, which includes adapting to new rules, indicates that cognitive flexibility diminishes with age. Other symptoms can be present in adults with moderate cognitive impairment (MCI), which falls between normal aging-related memory loss and Alzheimer's disease. The ability to manage one's own goal-oriented thoughts and actions is referred to as executive function. such as prioritizing tasks and managing time. It also involves organization.

Drag and Bieliauskas (2010) suggest that using a vast amount of information can aid decision-making. According to Drag and Bieliauskas (2010), executive skills, verbal fluency, inhibition, planning, and set-shifting all decline nonlinearly with age. The decline is most noticeable after 60 years. Executive functions included attention, motor function, emotional processing, sensory functions.

According to Payne et al. (1993), a strategy is a set of procedures used to search a problem space. Cognitive flexibility refers to changes in complicated behaviors, not just single responses. After completing a work for a while, individuals may adjust to unforeseen environmental changes. The ability to adapt and be flexible is considered a valuable skill for individuals, according to Payne et al. in 1993, but not everyone can easily adapt. Cognitive inflexibility occurs when a person is unable to be flexible in situations requiring adaptation to environmental changes, leading to the persistence of actions that were effective in the past but are ineffective in new situations. An illustration of this inflexibility is when we continuously attempt to pull a door open while being inside a room. The door is still shut. Rather than attempting to push it open, we might consider that the door is malfunctioning. Why is it not opening? It's likely that we are not acknowledging the limited space inside the room or that we are unaware that doors in these types of buildings operate differently. Investigations into cognitive flexibility and cognitive inflexibility have resulted in the development of explanatory theories for these occurrences.

In recent years, the notion of resilience has grown in relevance in the field of mental illness, defined as the constructive adaptation to an obstacle such as sickness. In this context, resilience is described as the ability to sustain or restore mental health in the face of major obstacles, trauma, or adversity. Individuals who suffer from anxiety disorders and/or depression are more prone to feel as failure or have lower levels of resilience than non-affected participants, according to mental illness researches. Furthermore, another research found that strong resilience lowered the chance of suicide in people with schizophrenia and mood disorders, as well as having a favorable influence on long-term recovery from schizophrenia. According to a study, individuals with bipolar illness who had lesser resilience also experienced more depressive episodes and were more impulsive. Throughout life, resilience is a dynamic, time-specific process that can take many forms. Examining resilience in individuals with mental illness is necessary because its play's important function in the management and prevention of mental illnesses.

Luthar et al. (2000) define resilience as the process of restoring normal function is dynamic and participatory. following exposure to adjustment a danger, like a severe event or stressor occurrence. Although it is associated with strong mental fitness and social skills, resilience a distinct notion. However, the specific nature of resilience is still unknown. Some studies define Resilience is a condition that changes according to a person's personal features and own experiences, the nature of danger, the environment in which it happens, and the period of life in which it occurs (Campbell-Sills et.al 2007). Some contend that biological processes triggered by difficulties and inheritance are the main sources of resilience, which is a well-established trait. According to these

viewpoints, resilience might consist of two different elements the ability to adapt in a dynamic and state-like manner and the static, trait-like aspects of personality.

Resilience has been linked to improved physical function and quality of life in the elderly. (Olson et al., 2023). capacity to self-manage, a positive evaluation style that can sustain a good quality of life, a notable impact on quality of life (Brinkhof et al., 2021). Furthermore, resilience facilitates social skills and access to various resources throughout life (Klokgieters et al., 2020). Other studies suggest that resilience improves physical and psychological responses in older people with chronic conditions (Tecson et al., 2019).

Quality of life (QOL) is an interesting study topic. This term is linked to positive psychology. In this context, study topics include over own experiences, nature, favourable positive personality qualities, and any other characteristic that improves a person's quality of life. Numbers of studies say the positive aspect of nature is much noticeable than the negative side. Positive psychology emphasizes humanity's qualities, as well as luxury and pleasure. Thus, there is a noticeable emphasis on the psychological strengths of individuals that might encourage healthy development, such as the study of qualities and good sensations (Bast, 2008).

Authors' definitions of quality of life vary greatly. Rogdan et .al (1990) explained quality of life defines as an individual's pleasure with his life's circumstances, as well as feelings of enjoyment and convenience. Like Moorjan et.al (2004), who described (QOL) as a person's perception of pleasure with a variety of areas of life, primarily with those that are most important to them. Quality of Life was described by Good (1990) as an opportunity to acquire meaningful aims. The (WHO, 1995) Quality of life is defined as a person's acknowledgment of his societal value in terms of connecting with his surroundings and values in relation to his goals, aspirations, and hobbies.

A variety of labels, most notably welfare and well-being are intimately related with the concept of quality of life. It significantly influences the choices that are made regarding things like knowledge and human rights as essentials for survival, welfare advancements brought about by advances in science and cognition, enhancement, comfort and satisfaction brought about by demands being met, Once needs and motives are fulfilled, security and poverty (including economic disparity, poverty, and a lack of human resources development) put a burden on the optimum use of financial and human resources at the same time. Suliman et al (2010).

The term "quality of life"(QOL) refers to the vast range of methods that people use to assess the "goodness" of various elements of their lives. Reviewing the QoL literature reveals, however, that there is a surprisingly narrow consensus about the elements that fall under QoL. The evaluations may cover a person's personality, emotional reactions to life's events, sense of fulfillment and contentment in life, and level of satisfaction with relationships, both personal and professional (Diener, Suh, Lucas, & Smith, 1999).

Literature Review

This chapter provide a clear understanding of the studies that link to cognitive flexibility, Resilience, and quality of life in young adults. Kazemi.et.al (2019) investigate the association between cognitive flexibility, psychological well-being and resilience in mothers of ASD children in Zanjan. The sample of the study was 180 women. Using Convenience sampling, 180 moms of these children were chosen as a sample. Three measures were used to gather the data the Reef Psychological Well-being Scale, the Conner-Davidson Resilience Scale, and the Dennis & Vander Wal Cognitive Flexibility Inventory. Findings of the study shows that psychological well-being of mothers was positively correlated with the components of cognitive flexibility This was a correlational form of descriptive-analytic investigation. The study's statistical population comprised all mothers of students with ASD who attended primary schools for exceptional children in Zanjan during the 2018-19 academic year.

Malkoç, A. et.al (2019) This study investigated the association among cognitive flexibility and self-assurance in psychological mental health. The purpose of the study was to determine if cognitive adaptability affects the association among psychological mental health and own confidence. 284 university students including, 192 females and 92 males—studying in the department of Education at a public private institute situated in Istanbul, Turkey were among the research participants. The Self-Confidence measurement, Flourishing, and Cognitive Flexibility measures were used to collect data. Self-assurance and cognitive flexibility (CF) are statistically significant determinants of mental wellness, according to our multiple regression study. It has been demonstrated that self-assurance and cognitive adaptability defines 38% of the change in psychological well-being. Additionally, the association among psychological wellness and self-assurance was moderated by cognitive flexibility.

Huang, Chien-Lung et.al (2023) findings of study aim to relation among dignity, resilience, and health related quality of life among patients with heart problem. This cross-sectional study employed a deliberate sample of individuals with heart disease. To obtain data, four structured questionnaires were employed. There was conformity in the reporting with the checklist for strengthening the reporting of observational studies in epidemiology. Among the 101 individuals, the average age was seventy-two point two years, eighty-eight% had coronary artery disease, and 43.0% had heart failure. Resilience was connected to both dignity and (QOL) in patient with heart issues, and patients' feeling of dignity was substantially correlated with health related QOL. Resilience was found to have a mediation impact between dignity and health related QOL, accounting for 73.0% of the variation in health related QOL. Dignity is an emerging topic in heart illness research, influencing patients' perceptions of sickness and health related QOL. Patients with heart illness who are more resilient likely to have a better health related QOL.

Boškailo, E. Et.al (2021) The most frequent type of cancer among women is breast cancer. Current studies aim to explore the connection between psychological emotional factors and breast cancer patients' survival duration. Designing psychological therapies that would hasten recovery and enhance the quality of life for cancer patients can be guided by an understanding of the elements that contribute to a higher level of resilience. These findings may have significant therapeutic consequences. to investigate

the connection between breast cancer patients' resilience and quality of life. There were sixty participants in the trial, which was carried out at the University Clinical Hospital Mostar's Oncology Clinic. Radiotherapy-treated subjects scored much higher on quality-of-life subscales such as mental health, social interactions, and the environment. There were no statistically significant associations between resilience levels and quality of life outcomes.

Nur Widayati, et.al (2024) This study findings the association among resilience and quality of life in type two diabetes patients with chronic problems. The development of complications in people with type 2 diabetes has a major influence on their quality of life. Resilience as part of self-coping may be related to the quality of life and the severity of difficulties. The study was conducted using an observational, cross-sectional design. In this study, 35 respondents were recruited using a sequential sampling strategy. There was a considerable positive link between resilience and quality of life. Increased resilience score equals higher quality of life for type 2 diabetes patients with chronic problems. Providing therapies to boost resilience is critical for improving the quality of life in type 2 diabetes patients with chronic problems. Increased resilience can help DM patients live a better life by improving their capacity to survive and increasing positive coping methods and self-care skills. Resilience may increase quality of life by lowering depression, boosting positive coping strategies, increasing the ability to survive and practice proper self-care and self-management, and improving bodily and psychological reactions. Based on these findings, it is vital to develop resilience in order to preserve the quality of life of type 2 diabetes patients with chronic problems. Resilience may be enhanced through cognitive behavioral therapy and family empowerment.

Rationale

Rational of the study is to finds out the relationship among cognitive flexibility, resilience and quality of life in young adults. Purpose to investigate the gender differences in cognitive flexibility, resilience and quality of life in young adults. To explore the moderating role of gender in the association between cognitive flexibility, resilience, quality of life in young adults. To explore the effect of demographic variables on cognitive flexibility, resilience, quality of life

Hypotheses:

There would be a significant association between cognitive flexibility, resilience and quality of life in young adults.

There would be a significant gender differences in cognitive flexibility, resilience and quality of life in young adults.

Gender will be significant Mediating role in the association between cognitive flexibility, resilience, quality of life in young adults.

There would be the significant effect of demographic variables on cognitive flexibility, resilience, quality of life.

Method

Variables	M	SD
Age (18-30)	23.39	3.68
	F	%
Gender		
Male	150	50
Female	150	50
Education		
Matric	29	9.3
Intermediate	66	22.0
Graduate	206	68.7
Residential Area		
Urban	255	85.0
Rural	45	15.0
9	4	1.3
Socioeconomic Status		
Higher	17	5.7
Middle	279	93.0
Lower	04	1.3

This study followed a correlational research strategy. In this study we have used sample of 300 young adults including male and females from Lahore. The total sample size is N=300 Convenient sampling technique was used for selection of participants.

Table 1

Socio demographic characteristics of participants at baseline (N=300)

The analysis shows that 50% of the participants were males while 50% were females. The data was collected from Government colleges and Universities. All these students belonged to the age range of 18-30 years. Majority of the students belong to middle class; few belong to higher class and only few belong to lower class. In terms of Residential status and educational level, majority of the students living in urban areas studying at graduation level and few living in rural areas studying in matric and intermediate.

Measures

To gather information about participants a self created questionnaire was used, i.e., Name, age, gender, education, and no of siblings, locality/residential area and socioeconomic status.

Cognitive Flexibility, Inventory (CFI)

Dennis et.al (2010) CFI is a self-assessment tool with 20 items. The test assesses the perception of controllability in challenging situations, the ability to identify various alternatives, and the ability to develop multiple solutions. Each statement is rated by the participant on an inventory. one (strongly disagree) to seven (strongly agree). When evaluated twice (test-retest), Dennis found a two-factor structure Control and Alternatives with strong internal consistency. The scale's Cronbach's alpha is.91-time two and.90 time one. To score the CFI, select items are reverse-scored and numerical a

total score is calculated by adding the response values. Higher results were meant to show better cognitive flexibility, which was expected to be connected with greater cognitive adaptation in stressful settings. Lower scores were supposed to indicate increased cognitive rigidity, which was expected to be related with less cognitive adaptability in stressful conditions.

Brief Resilience Scale (BRS)

The scale consists six items of the (BRS) Smith et al. (2008) are listed below: item one, three, and five are positively written, whereas item two, four, and six are negative. Scoring procedure of BRS is by using reverse coding items two, four, and six, then averaging the six components. To use scale, follow the steps below: "Use the scale below to rate your degree of agreement with the following statements first statement indicates extreme disagreement, second statement indicates disagreement, third statement indicates neutrality fourth statement indicates agreement, and fifth statement indicates strong agreement. The BRS measures resilience, or the ability to recover from stress, and can provide useful insights into how people deal with health-related stressors.

Quality of Life WHO-QOL -BREF

Skevington S. M, et.al (2004)The QOL-BREF is a twenty-six-item evaluation that contains questions about QOL and general health, as well as four domains physical state it consists seven statements psychological contains six statements and social connections contains three statements, and environmental health fourth domains eight statements. Every item in the QOL-BREF has a response scale that ranges from 1 to 5. After that, the ratings are linearly transformed into a zero-hundred scale sixteen, seventeen. The realm of physical domain covers topics such as energy, pain, sleep, mobility, everyday activities, and functional capability. A person's mental condition, learning capacity, memory focus, religion, self-image, negative and positive thoughts, and self-esteem are all indicators of their psychological state. The social relationship's part includes questions about sexual behavior, social support, and personal connections. Environmental health is concerned with the physical living environment, chances to acquire new knowledge and skills, leisure, safety, health and social services, financial resources, and the environment as a whole.

Procedure

Prior permission was taken from the researchers own department. The researcher explains the purpose and importance of the research to the participant. Confidentiality of participants were ensured and it was also ensured that information provided will be used only for academic research. Participants were provided informed consent. They were request to read the instruction carefully and then fill the questionnaires. Participant took 20 to 25 minutes to fill the questionnaires. Scoring of questionnaires was done according to the scoring Manual. Data was gathered after gaining their consent to take part in the study. Students were extremely cooperative and agreed to complete the questionnaires.

Brief explanations of the study's objectives and simple guidelines for completing the surveys were provided to participants. An informed permission form that outlined the study's goals, ensured the privacy of their personal data, and enabled them to withdrawal at any point throughout the research was taken from all participants. The absolute confidentiality of the information was guaranteed to the participants. All the ethical considerations according to APA code of ethics were followed.

Results

The descriptive statistics are presented below in Table 2. The results indicated that reliability of the scales used was satisfactory.

Table 2

Descriptive Statistics and Psychometric Properties of the Scale (N=300)

Variables	k	M	SD	Range		Cronbach's Alpha
				Actual	Potential	
CFI	20	96.67	13.10	51-140	20-140	.76
BRS	06	18.93	3.42	7-30	06-100	.71
WHOQOL	26	94.75	13.98	41-127	26-130	.92

Note: K=No. of items, M=Mean, SD=Standard Deviation, α =Cronbach's Alpha, CFI=Cognitive Flexibility Index, BRS=Brief Resilience Scale, WHOQOL=World Health Organization Quality of Life

Correlations among study variables were computed and are presented below in Table 3.

Table 3

Intercorrelations Among Study Variables for Males (N=150)

Variables	1	2	3
CFI	-		
BRS	.399**	-	
WHOQOL	.512**	.295**	-

*Note. CFI=Cognitive Flexibility Index, BRS=Brief Resilience Scale, WHOQOL=World Health Organization Quality of Life, * $p < .05$, ** $p < .01$, *** $p < .001$*

The results from Table 3.2 indicate that Cognitive flexibility shows significant positive relationship with Brief Resilience and WHO Quality of life while Brief Resilience shows a significant positive relationship with WHO Quality of life. Further, results indicated that higher the cognitive flexibility and resilience higher will be the Quality of life of men's.

Table 4

Intercorrelations Among Study Variables for Females (N=150)

Variables	1	2	3
CFI	-		
BRS	.494**	-	

WHOQOL	.366**	.458**	-
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Note. CFI=Cognitive Flexibility Index, BRS=Brief Resilience Scale, WHOQOL=World Health Organization Quality of Life, * $p < .05$, ** $p < .01$, *** $p < .001$

The results from Table 3.3 indicate that Cognitive flexibility shows significant positive relationship with Brief Resilience and WHO Quality of life while Brief Resilience shows a significant positive relationship with WHO Quality of life. Further, results indicated that higher the cognitive flexibility and resilience higher will be the Quality of life of women's.

Table 5

Independent Sample t-test to measure Mean Differences on Study Variables Among Young Adults (N=300)

Variables	Male	Female	t(df)	p	95%CI		Cohn's d
	M(SD)	M(SD)			UL	LL	
CFI	98.80(9.96)	94.54(15.3)	2.84(298)	.00	7.20	1.31	.32
BRS	9.90(1.53)	9.02(1.76)	4.61(298)	.71	1.25	.50	.53
DOM1	112.2(13.3)	98.2(18.2)	7.57(298)	.00	17.5	10.32	.87
DOM2	88.00(12.1)	80.6(18.0)	4.16(298)	.00	10.87	3.89	.48
DOM3	44.42(6.15)	42.70(9.73)	1.81(298)	.00	3.55	-.14	.21
DOM4	118.1(15.3)	112.5(21.6)	2.56(298)	.00	9.84	1.30	.29
WHOQOL	98.67(10.5)	90.84(15.7)	5.04(298)	.00	10.88	4.77	.58

Note. M=Mean, SD=Standard deviation, df= degree of freedom, UL=Upper limit, LL=Lower limit, CFI=Cognitive Flexibility Index, BRS=Brief Resilience Scale, WHOQOL=World Health Organization Quality of Life, Dom1= Physical Health, Dom2=Psychological, Dom3=Social Relationships, Dom4=Environment * $p < .05$, ** $p < .01$, *** $p < .001$

The results form table 3.4 indicate that there were significant differences on Cognitive Flexibility among male and female participants while there were observed no significant differences on Resilience among male and female participants. Further, results indicated that there were significant differences on Quality of Life and all four dimensions of QOL including Physical Health, Psychological, Social Relationships and Environment between male and female participants.

Table 6

Hierarchical Regression Analysis was run to assess the impact of Resilience on Quality of Life after controlling the demographics, Cognitive flexibility Among Males (N=150)

Variables	B	SE	B	t	p	R ²	ΔR ²
Model 1						.03	.03
Age	.15	.27	.05	.56	.57		

SES	-.53	2.7	-.16	-1.9	.05		
Edu	1.56	1.8	.07	.83	.40		
Model 2						.30	.27
Age	.00	.23	.00	.01	.99		
SES	-5.7	2.3	-.17	-2.50	.01		
Edu	2.49	1.6	.11	1.55	.12		
CFI	.55	.07	.52	7.51	.00		
Model 3						.29	.00
Age	.01	.23	-.18	.05	.95		
SES	-5.9	2.3	.10	-2.59	.01		
Edu	2.19	1.61	.10	1.35	.17		
CFI	.51	.08	.48	6.32	.00		
BRS	.72	.52	.10	1.38	.17		

Note. B=Unstandardized beta, SE=Standard error, β =Standardized beta, SES=Socioeconomic status, Edu= Education, CFI=Cognitive flexibility Index, BRS=Brief Resilience Scale, * $p < .05$, ** $p < .01$, *** $p < .001$

A hierarchical multiple regression was done to see how demographics (age, education, SES) and two other things (Cognitive flexibility and Resilience) affect Quality of life in men. We did it in three steps. First, we put in the demographics. That model was significant, $F(3,146) = 1.71$, $p < .01$, and it explained only .01% of the change. In the second step, we added Cognitive flexibility, while controlling for demographics. This model was also significant, $F(4,145) = 56.45$, $p < .01$. It explained 30% more change, and together all variables explained 27% of the total change. In the third step, we added Resilience, while controlling for everything else. This was significant too, $F(5,144) = 1.90$, $p < .001$. It explained 29% more change, but overall all variables together explained just .09% of the change in Quality of life. So, both Cognitive flexibility and Resilience are significant predictors, but the overall explanation is very small.

Table 7

Hierarchical Regression Analysis was run to assess the impact of Resilience on Quality of Life after controlling the Demographics, Cognitive flexibility Among Females (N=150)

Variables	B	SE	B	t	P	R ²	ΔR^2
Model 1						.03	.03
Age	.62	.34	.15	1.8	.06		
SES	-.10.4	7.00	-.12	-1.4	.13		
Edu	-.35	1.70	-.01	-.20	.83		
Model 2						.16	.12
Age	.37	.32	.08	1.1	.25		
SES	-11.9	6.57	-.13	-1.82	.07		
Edu	-.00	1.60	.00	-.00	.99		
CFI	.36	.08	.35	4.62	.00		
Model 3						.27	.10

Age	.44	.30	.10	1.4	.14
SES	-13.1	6.1	-.15	-2.13	.03
Edu	.61	1.5	.02	.40	.68
CFI	.17	.08	.16	2.02	.04
BRS	3.4	.73	.38	4.64	.00

Note. *B*=Unstandardized beta, *SE*=Standard error, β =Standardized beta, *SES*=Socioeconomic status, *Edu*= Education, *CFI*=Cognitive flexibility Index, *BRS*=Brief Resilience Scale, * $p < .05$, ** $p < .01$, *** $p < .001$

A hierarchical regression was run to see how demographics (age, education, SES) and two variables (Cognitive flexibility and Resilience) affect Quality of life in women. We used three steps. First, we put in just the demographics. That model was significant, $F(3,146) = 1.92$, $p < .01$, and it explained 3% of the change. Second, we added Cognitive flexibility, while controlling demographics. This was significant, $F(1,145) = 21.36$, $p < .001$. It explained 16% more change, and together all variables explained 13% of the total change. Third, we added Resilience, controlling for everything else. This was also significant, $F(1,144) = 21.59$, $p < .001$. It explained 27% more change, and overall all variables together explained 24% of the change in Quality of life. So, both Cognitive flexibility and Resilience are significant predictors.

Table 8

Mediating Effect of Resilience on the Association between Cognitive Flexibility and Quality of Life for Male (N=150)

Measures	<i>B</i>	<i>SE</i>	<i>p</i>
Step 1 (Path c)			
Outcome: QOL			
CFI	.06	.01	.00
Step 2 (Path a)			
Outcome: BRS			
CFI	.74	.52	.01
Step 3 (Path b)			
Outcome: QOL			
BRS	.49	.08	.00
(Path c')			
Mediator: BRS			
Predictor: CFI	.54	.07	.00

Note. *QOL*=Quality of Life, *CFI*=Cognitive Flexibility Index, *BRS*=Brief Resilience Scale, * $p < .05$, ** $p < .01$

The results from Table 8 indicate that direct effect of X on M was significant ($b = .06$, $SE = .01$, $t = -5.28$, $p = .001$). The value of R^2 was significant ($f(1,148) = 27.94$, $p = .001$) and indicated that 15% change in Y can be explained by X. The results further indicate that direct effect of X on Y was significant ($b = .74$, $SE = .52$, $t = 1.40$, $p = .16$), whereas direct effect of M on Y was significant ($b = -.49$, $SE = .08$, $t = 6.10$, $p = .001$). The model was significant ($f(2,147) = 27.44$, $p = .001$). The value of R^2 was significant and

indicated that 27% variance in Y can be explained by X and M. The results of indirect effect indicated that the mediated effect of M in the relationship between X and Y was significant ($b=.54$, $SE=.07$, 95% CI [.39, .69]).

Table 9

Mediating Effect of Resilience on the Association between Cognitive Flexibility and Quality of Life for Female (N=150)

Measures	β	SE	p
Step 1 (Path c)			
Outcome: QOL			
CFI	.05	.00	.00
Step 2 (Path a)			
Outcome: BRS			
CFI	3.27	.74	.00
Step 3 (Path b)			
Outcome: QOL			
BRS	.19	.08	.02
(Path c')			
Mediator: BRS			
Predictor: CFI	.37	.07	.00

*Note. QOL=Quality of Life, CFI=Cognitive Flexibility Index, BRS=Brief Resilience Scale, * $p<.05$, ** $p<.01$*

The results from Table 9 indicate that direct effect of X on M was significant ($b=.05$, $SE=.00$, $t=-6.90$, $p=.001$). The value of R^2 was significant ($f=1,148$) =47.67, $p=.001$) and indicated that 24% change in Y can be explained by X. The results further indicate that direct effect of X on Y was significant ($b=3.27$, $SE=.52$, $t=4.79$, $p=.00$), whereas direct effect of M on Y was significant ($b=-.19$, $SE=.08$, $t=2.23$, $p=.02$). The model was significant ($f=2,147$) =22.67, $p=.000$). The value of R^2 was significant and indicated that 23% variance in Y can be explained by X and M. The results of indirect effect indicated that the mediated effect of M in the relationship between X and Y was significant ($b=.37$, $SE=.07$, 95% CI [.22, .53]).

Discussion

The study's goal was to look at the connection between Cognitive Flexibility, Young adults' Resilience and Quality of Life. First hypotheses of my study were There would be a significant association between cognitive flexibility, resilience and quality of life in young adults. It was predicted that there is a strong significant association between cognitive flexibility, resilience and quality of life in young adults. Cognitive flexibility shows significant positive relationship with Brief Resilience and WHO Quality of life while Brief Resilience shows a significant positive relationship with

WHO Quality of life. Further, results indicated that higher the cognitive flexibility and resilience higher will be the Quality of life of men and women. results of my study supported by existing literature.

Al-Zoubi, Emad. (2020). The relationship between students in higher education and their quality of life (QOL) and cognitive flexibility (CF) According to this research, the academic year significantly affected the disparities in time management, emotional life, mental health, education and learning, and life quality. Additionally, students seeking higher education showed preference for male students and gender-based variations in time management and health. The quality-of-life dimension and the spontaneous cognitive flexibility score showed positive statistically significant relationships, as did the adaptive cognitive flexibility score on Health, social and family life, education and learning, emotional life, mental health, and time management are all aspects of quality of life. The overall quality of life and cognitive flexibility scores also did this.

Brinkhof, L.et .al (2021). In later life, the link between resilience factors and quality of life plays a role. An Examination of Networks Problems and changes associated with aging can have detrimental effects on one's physical and mental, social well-being as well as significantly lower quality of life (QoL). Therefore, exhibiting resilience may be essential to maintaining excellent quality of life in later age. The current findings sought to investigate the interaction of numerous resilience characteristics and how they help to realize and preserve (different facets of) quality of life. Drawing from previous studies, we recognized behavioral coping, and self-talk, and physical activity as crucial resilience traits.

Soltani, Esmail (2013) Cognitive flexibility is a significant factor connected with mental health concerns. The current study aimed to determine the Cognitive flexibility has a moderating function in coping methods and resilience with depression, as well as to assess relationships between depression, coping styles, and resilience. Cognitive flexibility and its subscales were shown to correlate adversely with depression and favourably with resilience ($P < 0.001$). Furthermore, Cognitive flexibility subscales were found to predict depression, coping, and resilience by regression analysis. Soltani, Esmail & shareh, Hossein & Bahrainian, Seyed & farmani, Azam. (2013).

Second hypotheses of the study were there would be a significant gender differences in cognitive flexibility, resilience and quality of life in young adults. Results indicate that there were significant differences on Cognitive Flexibility among male and female participants while there were observed no significant differences on Resilience among male and female participants. Further, results indicated that there were significant differences on Quality of Life and all four dimensions of QOL including Physical Health, Psychological, Social Relationships and Environment between male and female participants. According to results of my study supported by existing literature. The data were examined using by independent sample t-tests.

Wang, C.et .al (2022) It has been discovered that disparities in gender are related to people's levels of enjoyment. The relationship between enjoyment and gender differences may be significantly influenced by cognitive, flexibility, and emotional

expressivity. The focus of the current research is to investigate how emotional expressivity and cognitive flexibility mediate the link between gender differences and enjoyment. An independent T-test revealed that while men exhibited more cognitive flexibility than women's. Expressivity of emotions, anticipation of pleasure, and consummation of pleasure were all observed to be higher in women. Using a bootstrapping technique, it was possible to determine how, Emotional expressiveness and cognitive adaptability respectively, partially mediate the effects of both genders difference in anticipatory and consummatory pleasure. According to the study's findings, emotional expressiveness and cognitive flexibility have a somewhat moderating role in understanding the disparities between anticipatory and consummatory pleasure between genders.

Phaguni Kataria (2022) Resilience and Gender Differences to look into how resilient men's and women's are. The results demonstrate no discernible difference in men's and women's levels of resilience. The t value in resilience score analysis was .975, as shown in the table above, which is significantly lower than the t value for the alpha value of 0.05 at 184 degrees of freedom, suggesting the null hypothesis. I.e., no substantial difference in resilience between men and women. To investigate the causes for the disparity between genders and to find the impact of resilience on males and females. According to our research, there is no discernible variation in the level of resilience between men's and women's.

Mustapha Amoadu (2024) Students in high school are susceptible to stressors and negative experiences that might impair their health and cause attrition. Effective student functioning is linked to psychological attributes such as academic resilience and well-being. Gender disparities were investigated in this study. Hierarchical regression and independent sample t-tests were used to analyze the data. There was no discernible gender difference in either well-being or academic resilience according to the study. Resilience and academic well-being were shown to be substantially correlated by the study. This study highlights how important it is to provide funding for gender-sensitive intervention programs strategies that increases SHS students' academic resilience and overall wellbeing while also raising their chances of success in the classroom. An improvement in SHS students' well-being and academic resilience.

Third hypotheses of the study where Gender will be significant Mediating role in the association between cognitive flexibility, resilience, quality of life in young adults. According to results of my study supported by existing literature Mediating Effect of Resilience on the Association between Cognitive Flexibility and Quality of Life for Male. The results indicate that direct effect of X on M was significant. The value of R^2 was significant and indicated that 15% change in Y can be explained by X. The results further indicate that direct effect of X on Y was significant whereas direct effect of M on Y was significant. The model was significant. The value of R^2 was significant and indicated that 27% variance in Y can be explained by X and M. The results of indirect effect indicated that the mediated effect of M in the relationship between X and Y was significant

Mediating Effect of Resilience on the Association between Cognitive Flexibility and Quality of Life for Female (N=150) The results indicate that direct effect of X on M was significant. The value of R^2 was significant indicated that 24% change in Y can be explained by X. The results further indicate that direct effect of X on Y was significant whereas direct effect of M on Y was significant. The model was significant. The value of R^2 was significant and indicated that 23% variance in Y can be explained by X and M. The results of indirect effect indicated that the mediated effect of M in the relationship between X and Y was significant.

Jebraeili H, et.al (2019) Substance use and the tendency to addiction were found to be significantly positively correlated, resilience and the tendency to addiction were found to be negatively correlated, male gender and the tendency to addiction were found to be negatively correlated, and male gender and the tendency to addiction were found to be significantly positively correlated. Furthermore, the suggested model made the data fit. Despite a propensity for addiction, those with high resilience scores are less likely to use drugs because They are able to manage difficult situations and adjust to daily obligations. One major factor in preventing drug use is resilience. We might conclude that resilience's moderating effect on the association between drug use and the propensity for addiction may be caused by resilience's improvement of mental health.

Ozcan, N. (2020). This study goals to explore the role that cognitive flexibility and mindfulness play as mediators in the link between university students' perceived stress and distress tolerance. The Serial Mediator Model has been used in this work to explore the mediating roles of Mindfulness and cognitive flexibility in the relationship between distress tolerance and perceived stress. According to the findings, those who sense more stress have lower levels of cognitive flexibility. Since people Lower levels of mindfulness are associated with a reduced capacity to bear discomfort, and those who are less flexible also typically exhibit lower levels of attentiveness. Additionally, the complete model demonstrated statistical significance of the variation.

Fourth hypotheses of the study were there would be the significant effect of demographic variables on cognitive flexibility, resilience, quality of life. investigates the main and interaction effect of socioeconomic status and Education on Cognitive Flexibility, Resilience and Quality of Life of males. The results indicated that the main effect of Education on Quality of Life was significant while there were observed no significant differences on Resilience and cognitive flexibility. The main effect of Socioeconomic Status among males showed no significant differences on Cognitive Flexibility, Resilience and Quality of Life. The interaction between Education and Socioeconomic status on Resilience was significant while there were observed no significant differences on Cognitive adaptability and Quality of Life among males. the main and interaction effect of socioeconomic status and Education on Cognitive Flexibility, Resilience and Quality of Life of females. The results suggests that the main effect of Education and Socioeconomic Status among females showed no significant effect on Cognitive adaptability, Resilience and Quality of Life. The interaction

between Education and Socioeconomic status on Cognitive adaptability, Resilience and Quality of Life among females were also non-significant.

Ahmet. B et.al (2019) The current findings of this research is to finds out how demographics and cognitive flexibility levels relate to the psychological resilience of college students. The findings of the regression analysis on cognitive flexibility (CF) and variables that are believed to have an impact on university students' psychological resilience—gender, class level difference, SES status, fathers/mothers' educational history, and parent' association status—were statistically significant. Cognitive flexibility, the independent measure, was a important predictor. Additionally, it was observed that children' psychological resilience was not predicted by their parents' educational background, relationship status, gender, class level, socioeconomic situation, or parents' educational background. Furthermore, it was discovered that demographic characteristics did not predict students' psychological resilience groups.

Caretti, v et.al(2024) intends to assess the impact of adaptive learning technologies on special needs students' cognitive flexibility. Using a purposeful selection technique, participants were chosen from special education schools. According to research, different kinds of adaptive learning technologies exhibited varying degrees of effectiveness; Tech A shown the most notable positive influence. It was surprising to find that changes in cognitive flexibility levels were not significantly correlated with demographic characteristics like age, gender, or educational achievement.

Conclusion

The current research sought to investigate the association among Cognitive Flexibility, Resilience and Quality of Life in Young Adults. In addition, this research sought to investigate the gender differences in cognitive flexibility, resilience and quality of life in young adults. Results indicate that there were significant differences on Cognitive Flexibility and QOL among male and female participants while there were observed no significant differences on Resilience among male and female participants. the main and interaction effect of socioeconomic status and Education on Cognitive Flexibility, Resilience and Quality of Life of females. The results indicated that the main effect of Education and Socioeconomic Status among females showed no significant effect on Cognitive Flexibility, Resilience and Quality of Life. results indicated that the main effect of Education on Quality of Life was significant while there were observed no significant differences on Resilience and cognitive flexibility. The main effect of Socioeconomic Status among males showed no significant differences on Cognitive Flexibility, Resilience and Quality of Life. Mediating Effect of Resilience on the Association between Cognitive Flexibility and Quality of Life The results of indirect effect indicated that the mediated effect of M in the relationship between X and Y was significant for male and female.

Limitations and suggestions

The sample consisted of only young or middle adults whose age range was 18 to 30. In future the study should be conducted on larger sample with diverse age group.

The data was collected from single city i.e., Lahore. In future data should be collected from other cities of Pakistan.

Implications

Further study may look into how these characteristics interact across different groups and cultures, and how they affect long-term results in mental health, academic performance, and professional satisfaction.

Measuring cognitive flexibility and resilience can improve quality of life assessment tools and provide a more thorough knowledge of the elements influencing well-being. Investigating these characteristics helps to elucidate how cognitive flexibility allows people to adjust to adversity and build resilience. This understanding can help to develop models that explain how these processes contribute to overall well-being.

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