



The Power of Resilience: A Multidisciplinary Overview in Psychology

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Abstract

Background: Resilience is an essential psychological trait that helps individuals adapt to distressing periods of stress. Its meaning has been conceptualized in different forms because of which resilience has overlapping meanings across different disciplines.

Objective: This review attempts to shed light on understanding the effectiveness of resilience through the wide empirical evidences across neuropsychology, applied psychology, and social psychology. Some of the diverse methodologies for measuring resilience include EEG and fMRI, inventories, questionnaires, narratives, and interviews across the three sub-domains of psychology. Through this review, attention of experts in different fields and readers is brought upon to utilise the power of resilience in resolving different societal issues.

Method: These evidences were obtained from google scholar and published by researchers across the world. Keywords like “Resilience and Neuropsychology”; “Applied psychology research in Resilience”; “Social Psychology and Resilience” were entered for this research.

Results: Review of diverse studies in psychology on resilience showed that brain parts like amygdala, insula, and left and right hemispheres, adequate cognitive performance, mental health functioning, self-efficacy, practicing mindfulness, and accessing support groups were some of the factors strongly associated with resilience across diverse populations.

Keywords: Resilience; Applied Psychology; Social Psychology; Neuropsychology; Society; Empirical Research

Introduction

Most academic subjects today have a multidisciplinary focus and are not restricted to a single point of view. Resilience is one of the favourite topics for psychological researchers from different sub-domains like Neuropsychology, Applied psychology, and Social Psychology. The field of psychology is itself very diverse and has multidisciplinary elements, each of which have contributed to research on resilience. Multidisciplinary research is not restricted to theoretical understanding of a particular subject, but it also encompasses its practical significance. Researchers from these above-mentioned academic domains have been applying different methodologies to foster our wholesome understanding about resilience. This essay deconstructs the different empirical evidences

and contexts in studying resilience. Following account clarifies the academic stance on resilience.

Resilience

Simply defined, resilience refers to an individual's ability to bounce back from an unfortunate event or illness by using mental, emotional, and physical resources [1]. Resilience can be naturally adapted as well as inculcated through training. There are different perspectives that describe the essence of resilience. For instance, the ecological school of thought emphasizes upon the community and societal networks that help the individual rebuild himself or herself. The school of biology and psychiatry suggests that resilience is a product of genetic disposition, prevention from psycho-

pathology, and normal functioning of neurotransmitters. Finally, the psychological school of thought stresses upon the personality traits and one's personal abilities to fight back during the time of adversities [2].

There are different theoretical frameworks that cover the topic of resilience. One of the most prominent of them is Richardson's metatheory of resilience and resiliency. According to this theoretical conceptualization of resilience, there are three waves of resilience that grew out of phenomenological accounts of survivors of different traumas in life. The first wave represents their ability to effectively bounce back in the society using social support systems, thereby predicting personal success. The second wave refers to effective identification of coping strategies and protective factors that enable the individual to thrive in the stressful situations. The third wave actually grounds the essence of resilience, which involves motivational energy and force required for the individual to rejuvenate from the past traumatic experiences [3].

This brief theoretical account gives an empirical picture of resilience across different psychological domains. It is clear that resilience is one of the most important tools that helps individuals in stressful or traumatic times. In these volatile times, it is essential that maximum resilient support in the form of counselling and training programs is reached out to different communities. However, there is still overlapping conceptualization concerning the concept of resilience. The following section gives a detail account about the different methodologies in the broad field of psychology that scholars have relied upon in measuring resilience under different situations and using wide range of techniques.

Methodological approaches in studying the effectiveness of resilience.

In this section, following major psychological approaches will be reviewed, namely: neuropsychological, applied psychological, and social psychological approaches.

Neuropsychological approach

Bulk of neuropsychology research in resilience has focused on the neurological correlates of stress, fear, and trauma. Brain is the central point of all researches in neuropsychology. Hence, various events associated with stress, fear, and trauma are also associated with the functioning of brain's systems. In a stressful situation, the brain releases a hormone called 'cortisol' that enhances release of

glucose into bloodstream, thereby preparing the individual to deal with the stress⁴. Furthermore, Waddington (1957) emphasized upon an organism's unique trait adaptability that allows it to deal with a difficult environment in an adaptive manner. Pressing upon this argument, resilience can be understood as a unique ability that one possesses that helps him/her to adapt better with a stressful situation.

There are different methods of data investigation in neuropsychology such as EEG, fMRI, and neuroimaging. For instance, Lee, *et al.* (2019) [5]. assessed the neurophysiological mechanisms of resilience among people who suffer from Internet Gaming Disorder (IGD). The researchers cognitive resting state Electroencephalography (EEG) and compared data of participants with IGD with healthy controls. EEG data was collected by making participants sit in resting position without getting drowsy or moving. Participants also filled other clinical assessments like Beck Depression Inventory and Psychosocial Well-being scale in addition to the resilience inventory. Results indicated participants with IGD who exhibited lower resilience, had higher alpha activity in the right hemisphere. Moreover, there was strong positive correlation between depression and alpha coherence in right hemisphere among participants with IGD. Finally, a moderating effect of resilience on the relationship between participants with IGD and depression was also found.

Another interesting line of research in neuropsychology concerning resilience involves Functional magnetic resonance imaging (fMRI) method. Neuroimaging studies have proven that brain parts like amygdala and insula are involved with processing of emotional information. Previous fMRI research has shown that people with high resilience often have high activation in the insula region [5]. Continuing on this research, Reynaud, *et al.* (2013) [6]. investigated the relationship between neural correlates of affect or emotional experience and resilience using fMRI method. The study was conducted on 36 firefighters as they are often exposed to high stressful situations. Participants filled the Dispositional Resilience Scale (DRS15) to check their resilience level, which was found to be high on average.

The participants were then made to listen trauma induced scripts (such as an accident scene) followed by relaxation induced scripts (relaxation voice) that were presented via PELTOR electrodynamic system. They were also asked to vividly imagine themselves in each of the situations. During the presentation of these

scripts, Skin Conductance Response was treated as the indicator of emotional arousal for each participant. Results like the *t-test* analysis clearly indicated significant increase in Blood-Oxygen-Level-Dependent Imaging (BOLD) in the right amygdala, right insula, and left orbito-frontal cortex during script narration of the traumatic event. Furthermore, a positive correlation was found between right amygdala peak activation, orbito-frontal cortex, and resilience scores.

Another study by Curtis and Cicchetti (2007) [7], assessed emotional regulation and differences in resilience between maltreated and non-maltreated children through a measure of their hemispherical activity using EEG. In this study, children were divided into two groups, some of which were maltreated for few weeks by trained counsellors. Participants also filled several measures like Emotion Regulation Checklist, Composite measures for adaptive functioning (resilience), and Children's Depression Inventory (CDI). Their EEG recording were also collected and results indicated greater activation of left-hemisphere activity among children who exhibited higher resilience, and emotional regulation predicted resiliency among maltreated children.

Applied psychological approaches

In more recent times, cognitive approaches to studying resilience have also come to the surface. These approaches mainly look at the relationship between cognitive mechanisms and resilience on different tasks. For instance, Wingo., *et al.* (2010) [8] explored the link between neurocognitive performance and resilience among people with history of trauma. This cross-sectional study was conducted on 226 African American men and women with a history of severe trauma. Data on childhood abuse and trauma were collected from participants through measures like the Childhood Trauma Questionnaire (CTQ) and the Traumatic Events Inventory. In addition, their levels of depressive and PTSD symptoms were also assessed.

Neurocognitive performance was measured using the Reynolds Intellectual Assessment Scales (RIAS), which included components like 'Guess what', 'Odd-item out', and 'Verbal and Non-verbal memory'. Resilience was indicated by being exposed to at least one traumatic event and mild to none depressive symptoms. Results indicated higher performance on nonverbal memory component amongst the resilient group as compared to the non-resilient group. Performances on rest of the domains were not significantly different.

Another cognitive research points to the effectiveness of resilience in cognitive functions in the geriatric population. For instance, an empirical study by McDaniel., *et al.* (2022) [9] was based on measuring the link between cognitive function and resilience among military veterans, aged between 52-101 years. The study was conducted on 150 military veterans who served in the U.S. army. The cognitive performance was assessed using modified Telephone Interview of Cognitive Status (TICS), which included cognitive domains like memory, attention, orientation, and language. The questions involved simple mathematical calculations, awareness of the environment, and general knowledge. Resilience was measured using the 12 item Health and Retirement Study Interview Scale. Descriptive and inferential statistical analyses clearly indicated that veterans with higher scores on resilience, scored higher on most cognitive functions, indicating a cause-effect relationship between psychological resilience and high cognitive performance.

Psychological research on resilience has also given crucial insights into the effects of trauma, stress, and other negative events on one's well-being. In most of these studies, resilience was proved to be one of the most important personality traits that enhances coping with such events. One of the most common approaches in psychology to study resilience is the survey research. Lee., *et al.* (2013) devised a survey tool based on comparison of resilience of different organizations. This survey is based on four factors: Situation awareness; Management of vulnerabilities; Adaptive capacity; and Commitment to resilience, which further embedded 23 indicators. The survey was conducted on 249 participants who belonged to different industrial organizations in New Zealand.

Based on this conceptualization of resilience, Nyaupane., *et al.* (2020) [10] explored the relationship between skillsets of employees, organizational traits, and organizational resilience amongst 300 employees from Bureau of Land Management, Arizona. The survey instrument included sets of questions based on employees' self-perceived skills and questions measuring fourteen traits of the organization. Results were indicated using hierarchical regressions, which indicated employees' high self-perception of skillsets, but lower trust in the organizational skills and resilience. Another survey research by Dennehy., *et al.* (2021) [11] demonstrated associations between mindfulness and resilience amongst employees of humanitarian aid organizations across Africa and Europe. Results indicated that relationship between mindfulness and resilience is

essential for successful implementation of humanitarian services within such organizations.

As far as organizational research in resilience is concerned, military organizations are often contextualized to understand the implications of resilience in minimizing traumatic experiences, suicide rates, and task effectiveness amongst servicemen and service-women. There are empirical case analyses of army and resilience research. Sefidan., *et al.* (2021) [12] measured resilience as a protective factor during the stressful military training in Swiss armed forces. In this longitudinal research, about 525 male recruits filled a series of questionnaires measuring their perceived stress, resiliency, and mental trauma during first week and 11th week of the training. Superiors also gave ratings for the performance of these recruits during week 13. Results showed a strong association between higher scores for resilience and lower scores on perceived stress. Higher scores on resilience were also strongly correlated with higher rating on their military performance. This showed resilience as a major protective factor during military training.

Effectiveness of resilience was also noted during the Covid-19 pandemic. Two empirical evidences provide crucial insights into resilience during health emergency. First evidence sheds light on resilience amongst frontline workers and security personnel who worked extensively during both phases of the pandemic. Among the military personnel, higher time spent in the service during pandemic predicted higher levels of resilience.

For instance, Garrido., *et al.* (2022) [13] studied the relationship between time spent in military and resilience within the Peru military, specifically during the Covid-19 pandemic. The study was conducted on about 500 military personnel that were employed in different units. The two major variables assessed were Exposure (time spent in service during the first phase of the pandemic) and Resilience (measured by Connor-Davidson Resilience Scale). Results indicated that military personnel who spent more than 18 months working in this pandemic reported higher resilience than those who spent lesser months, thereby validating the notion that exposure to training and service often strengthens resilience.

Along similar lines, Mitchell., *et al.* (2022) [15] assessed relationship between psychological distress, resilience, and covid anxiety among Irish Defence Forces (IDF) that aided domestic authorities with logistic and medical support. The study was conducted on 231 employed members of the IDF and they filled a series of

questionnaires like Connor-Davidson Resilience Scale, Generalized Anxiety Disorder-7, Perceived Coronavirus Threat Questionnaire, Brief Trauma Questionnaire, and Post-traumatic Stress Disorder Checklist-5. Multiple regression analyses revealed that higher levels of depression and anxiety had a negative relationship with resilience, while recurrent exposure to traumatic events enhanced resilience.

Other empirical researches point to the mediating role of resilience that impacted the relationship between quality of life and vulnerability to depression and anxiety among frontline workers. For instance, Son., *et al.* (2022) [15] assessed the relationship between psychological issues like anxiety and their organizational commitment among healthcare workers in South Korea. Researchers also measured the mediating role of resilience on this association. About 9000 workers had filled the online survey that included sets of questionnaires like the Brief Resilience Scale, Stress and Anxiety to Viral Epidemics-9 Items, and Organizational Commitment Questionnaire. Results clearly indicated a significant impact of resilience on the relationship between anxiety and organizational commitment during the pandemic.

The second evidence comes from research conducted on non-worker frontline citizens who were impacted by the pandemic. Few empirical researches in clinical psychology highlighted the role of resilience in coping with mental health issues like stress, anxiety, and depression that were prevalent during the Covid-19 pandemic. Skalski., *et al.* (2022) [16] examined the links between resilience, persistent thinking about Covid-19, well-being, and Covid anxiety. An online cross-sectional survey was conducted on 1547 adults in Poland during the spring of 2021. Following measures were filled by the participants: The Brief Resilience Scale; The Obsession with COVID-19 Scale; The Coronavirus Anxiety Scale; and The World Health Organization's 5-item Well-being Index. Statistical analyses revealed a strong positive relationship between resilience and well-being along with a negative relationship between resilience and persistent thinking about Covid.

Social psychological approach

Social Psychological Approach is another arena that has given crucial insights into the effectiveness of resilience. Most psychological approaches in resilience involve a specific social and natural context such as disaster situations, gender inequality, or domestic violence (Estêvão., *et al.* 2017) [17]. Resilience has been

assessed with respect to these domains mostly qualitatively. Following section gives a detailed account.

Natural disasters like earthquake often lead to post-traumatic disorder and other forms of negative emotions that leave a lasting impression on an individual's psyche. Ikizer, *et al.* (2015) [18] explored multiple factors associated with resilience amongst the survivors of a series of earthquakes that occurred in Turkey in 2011. In this survey research, variables like religiosity, personality, life satisfaction, and self-efficacy were assessed in relation to resilience. Results indicated extraversion and coping abilities were strongly linked with resiliency in these survivors.

A qualitative study by Levey, *et al.* (2016) [19] on assessing factors associated with resilience within the children in Liberia, post the war. They interviewed 75 school children who were affected by the war in the country. Results from their narratives suggested that various factors like emotional regulation (being tolerant of others and active participation in recreational activities); cognitive flexibility (self-reflection and optimistic imagination); agency (belief of self-control and strong sense of self-esteem); and social intelligence (empathy and altruism) lead to the development of resilience in these children.

Refugee crisis in Europe garnered significant attention from the world. Many scholars, NGOs, global organizations like the United Nations, celebrities, and media houses voices their concern regarding civil wars in Iraq, Syria, and Pakistan and sudden influx of refugees in European countries. The academic community in social sciences assessed the extent of post traumatic symptoms and resilience among these refugees who survived in harsh circumstances. A qualitative study by Walther, *et al.* (2021) [20] on assessing resilience within adult refugees in Germany showed that refugees adapted cognitive coping strategies like acceptance and strong locus of control along with behavioural coping strategies like finding jobs and taking counselling sessions. Some refugees also volunteered to take care of other refugees and maintaining hygiene within the camps. This study was conducted on 54 refugees from Syria and Afghanistan while the data was collected using semi-structured interviews and analysed using thematic analysis.

Domestic violence by families and living with a violent partner are some of the understudied topics in resilience. This type of violence too can leave a lasting traumatic expression in an individual

which might be difficult to cure. A few studies have shown the role of resilience in minimizing these traumatic experiences from domestic violence. Fuentes and Calvete (2015) [21] qualitatively assessed protective factors that helped build up resilience among Spanish women who underwent interpersonal partner violence. Semi-structured interviews were conducted on 22 women, which included narrations of the abuse as well as their coping strategies. From participants' narratives, researchers concluded various personal factors like engaging in physical activities and spirituality, along with external factors like community programs and social support helped them build resilience to deal with the effects of their traumatic relationship.

Conclusions

From this in-depth review of different academic approaches and empirical studies on resilience, it can be concluded that resilience is one of the most important psychological and personal resources that helps individuals deal with difficult circumstances. The article looked at four major approaches namely, Neuropsychology, Applied Psychological, and Social Psychological approaches to study resilience. In neuropsychology, researchers rely on EEG and fMRI scans to understand which parts of brain are most active during traumatic events and resilience. From the review, activation of amygdala and orbito-frontal cortex was found to be most closely associated with resilience.

Next, the applied psychology school of thought stresses upon a strong positive relationship between high resilience and high performance on cognitive tasks amongst both clinical and non-clinical populations. Mostly experimental methodologies are quantitative in nature and data is collected experimentally. Other psychological studies focused on factors like stress in organizations that enhance resilience, along with prevalence of resilient resources among frontline workers during the Covid-19 pandemic. Data in these studies is usually collected through questionnaires and scales. Finally, the social psychological school of thought showed powerful role of resilience in coping with domestic violence, wars, natural disasters, and resettlements. The data is usually in the form of narratives and experiences of individuals.

In all these approaches, researchers adopted different methods and garnered large amounts of data in different contexts and using wide variety of methodologies. The converging argument in all these findings points to the effectiveness of resilience during chal-

lenging times. Most of the empirical evidences found strong role of resilience in times of adversities which brings optimism and hope regarding strong foundations for building resilience programs in different settings like schools, hospitals, and social care centres.

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