Review Article

A Theoretical Review of Psychological Resilience: Defining Resilience and Resilience Research over the Decades

Shae-Leigh Cynthia Vella, Nagesh B. Pai[1]

School of Medicine, Faculty of Science, Medicine and Health, University of Wollongong, [1]The Wollongong Hospital, Illawarra Shoalhaven Local Health District, Wollongong, New South Wales, Australia

Abstract

Recent times have seen a shift in interest from a focus upon the deficits of individuals to a focus upon individual's strengths. Resilience is a positive psychology construct that has been investigated for decades, prior to this paradigm shift. This article reviews definitions of resilience over time. Although there is no single agreed definition; resilience is commonly described as the ability to bounce back. The risk of stress and negative life events in triggering mental illness has long been recognized. Similarly, the positive outcomes of some individuals to highly adverse situations have also been of interest for a long time. These positive responses or outcomes in the face of significant risk or adversity are generally known as resilience. This article provides a review of definitions of resilience and resilience related phenomena as well as a historical review of the focus of resilience research across the decades in order to inform future research and theorizing. The article concludes with recommendations to researchers to explicitly define their definition and conceptualization of the construct as well as the imperative to move towards a unified view of the construct of resilience. Further, it is clear that research on resilience has progressed and evolved over the decades however this does not denote that research in the area is complete. As such researchers should still seek to understand the complexities of resilience, how to build resilience in different populations, or in individuals experiencing similar adversities.

Keywords: Definition, research, resilience, review

Introduction

Recent years have seen a paradigm shift within the mental health sphere from a focus upon an individual's deficits to a more enlightened focus upon an individual's strengths. This paradigm shift has resulted in increased interest in the positive aspects of human functioning and more recently how these positive factors can assist with an individual's resolve and optimal functioning. This shift has resulted in a plethora of literature exploring positive psychology constructs such as resilience, optimism, and happiness, to name a few. In relation, specifically to resilience, this concept has evolved over decades of research, with research on the concept of resilience preceding the paradigm change. This article reviews different definitions of the concept of resilience in order to provoke forethought between readers and researchers alike as to the most suitable definition of the concept. A brief discussion of the neurobiology of resilience is presented and trends across the decades in resilience research are also discussed.

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Defining Resilience

Although the concept of resilience has been studied for decades there remains a lack of consensus on the definition, conceptualization, and measurement of resilience.[1] These issues are even more evident in relation to resilience in the context of serious mental illness.[1] Even though there is no agreed definition of resilience, all definitions of resilience are fundamentally comprised a reference to both adversity and positive outcomes. That is resilience is commonly described as the ability to bounce back or overcome some form of adversity and thus experience positive outcomes despite an aversive event or situation. Debate continues as to whether resilience

Address for correspondence: Ms. Shae-Leigh Cynthia Vella, School of Medicine, Faculty of Science, Medicine and Health, University of Wollongong, Wollongong, New South Wales, Australia.
E-mail: vella@uow.edu.au

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is best conceptualized as a state or trait phenomenon;[2] when resilience is considered as a personal characteristic.[3] In addition to being considered as a personal characteristic, resilience is also conceptualized as a process as well as an outcome.[3,4]

The term resilience derives from the Latin verb *resilire* which means to rebound or "leap back."[5] Resilience is a term used in many fields originally coming from ecology; with resilience denoting the ability of an ecosystem to recover or avert damage when disturbed. Commonly now the term resilience connotes a psychological meaning. Even though there remains a lack of consensus regarding how resilience is best defined, conceptualized and operationalized recent reviews have sought to identify the commonalities apparent in the definition of resilience.[2,3,5,6]

As highlighted above although there is no agreed definition and conceptualization of resilience; the majority of definitions of resilience are comprised of adversity or risk paired with positive outcomes.[7] Fletcher and Sarkar[5] highlight that most researchers agree that a definition of resilience is contingent upon both of these elements. Thus for an individual to be said to be resilient they must be resilient against some form of adversity or risk. Rutter[7] even contends that resilience cannot be developed without exposure to risk or adversity. This conceptualization of resilience is illustrated in Figure 1. The notion of risk and positive adaptation are fundamental to both personal characteristic- and process-based conceptualizations of resilience. While outcome-based definitions of resilience hold positive adaptation post adversity as central. Both adversity and positive outcome interact with the individual and what constitutes adversity and a positive outcome to a specific individual. What equates to an adverse situation or risk for one individual may be different to another individual. Further the individual also brings certain individual factors and predispositions both positive and negative that interact with both the adversity and the propensity for a positive outcome. Further what equates to adversity and what can be considered a positive outcome is also dependent upon the individual. Therefore what is meant by adversity and positive outcomes or adaption?

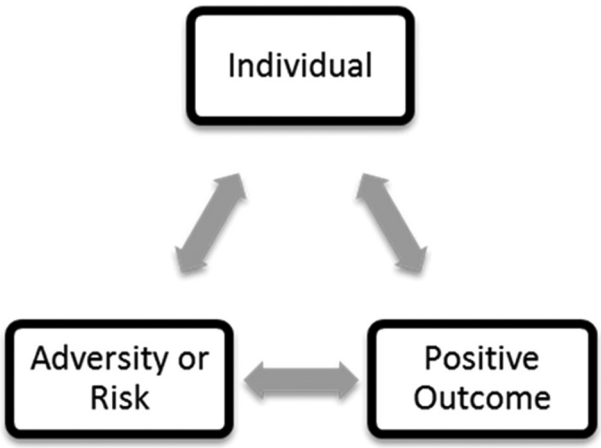

Figure 1: The interaction between risk, outcomes, and the individual in resilience

Adversity has been defined as negative life events or circumstances that are quantitatively associated with adjustment issues.[8] Thus Lutha and Cicchetti[8] definition of adversity denotes a specific statistical magnitude. Whereas other researchers have defined adversity without reference to a statistical threshold; defining adversity as any suffering that is associated with difficulty.[5] While others have taken a broader view of adversity; rather to be inclusive of the larger negative life events or adversities as well as the general setbacks that we encounter within our everyday lives.[9]

Moving on, what is denoted by a positive outcome or adaption in the context of resilience? Traditionally and still commonly utilized today is the conceptualization of a positive outcome or adaption equating to an individual retaining their mental health and not succumbing to a mental illness after being challenged by adversity or risk. This conceptualization is representative of an outcome-based definition of resilience. In regards to positive adaptation that is not explicitly defined by mental health, in the context of resilience being a personal characteristic or process a positive outcome or adaptation would be an individual maintaining, regaining or surpassing their prior level of functioning prior to exposure to the risk or adversity.

Bonanno[10] proposed that resilience is the ability to "maintain a stable equilibrium" (p. 20). It was proposed that resilience is distinct to recovery and that resilience is common. Bonanno[10] report that resilience is the most frequent or modal outcome in response to adversity.[11,12] Whereas Infurna and Jayawickreme[13-15] strongly refute Bonanno[10-12] assertions that resilience is common and is the modal outcome. Rather Infurna and Luthar[13-15] assert that it is inappropriate to make comments in regards to the rates of resilience.

Ahern *et al.*[16] define resilience as a personal characteristic as being an; *"adaptive stress resistant personal quality"* (p. 32). While Connor and Davidson[17] define resilience as a personal characteristic as being; *"the personal qualities that enable one to thrive in the face of adversity"* (p. 76). Similarly proponents of trait resilience define resilience as *"a personal trait that helps individuals cope with adversity and achieve good adjustment"* (p. 18).[18] Thus it is apparent that personal characteristic conceptualizations of resilience are quite narrow in scope and centrally focused upon the inherent qualities of the individual.

In contrast process-based definitions of resilience are broader in scope and recognize that resilience derives from a number of sources not merely from personal attributes. Curtis and Cicchetti[19] define the process of resilience as; *"a dynamic process that is influenced by both neural and psychological self-organisations, as well as the transaction between the ecological context and the developing organism"* (p. 811). More simply Luthar *et al.*[20] have defined resilience as; *"a*

dynamic process encompassing positive adaptation within the context of significant adversity" (p. 543). Both of these definitions highlight that resilience is both a dynamic process as well as contextually based. Being a dynamic process; highlights that resilience in this conceptualization is characterized by constant change, activity or progress. Further being contextually based demonstrates resilience is context specific with an individual potentially being highly resilient in one context but not in another.

It is apparent that resilience is best conceptualized as a dynamic interactive process. Moreover resilience is known to operate and interact across multiple systems or levels. Therefore Hill *et al.*[21] have offered the following definition of resilience as *"the dynamic process by which a biopsychosocial system returns to a previous level of functioning, following a perturbation caused by a stressor"* (p. 367). This definition highlights that resilience is a dynamic process that operates across multiple systems.

Moreover the process-based views of resilience highlight that resilience is an interactive concept with interaction occurring between the adversity, the individual, the outcome and the environment.[7] This is important as an individual does not demonstrate resilience in isolation. Following it is important to note that resilience is best conceptualized as occurring on a continuum; rather than being merely present or absent in a binary sense.[22] That is individuals will demonstrate differing degrees of resilience within different contexts.

The above review of the definitions of the concept of resilience highlight just how differently the concept of resilience has been conceived in previous research. However, the review also highlights the central commonalties in the definitions of resilience, namely; that resilience requires adversity or risk and a subsequent positive outcome. Clearly, studies of resilience would be more comparable if researchers were firstly explicit in regards to the definition and conceptualization of resilience adopted. Secondly that researchers work towards a unified definition of resilience; a definition that comprises of both adversity and a positive outcome. Preferably with the positive outcome not being dependent on mental health as this excludes a subset of the population that potentially have a lot to gain from resilience interventions.

The Neurobiology of Resilience

To understand the exact neurobiological mechanisms of resilience in humans is complex and difficult and resilience phenotypes in animals (or positive aspects of animal wellbeing) are equally very difficult to identify and assess. The effects of stress have been investigated using a range of experimental paradigms in various phases of life in different animal species. Most animal research thus far has used experimental paradigms that may model disruption in secure social attachment using exposures such as prenatal maternal restraint stress, maternal deprivation in early life, maternal nurturing behavior, social isolation, and chronic social defeat stress.

An appropriate response to stress is a prerequisite for sustained health in the face of adversities, and thus reduces mental health disturbances after exposure to severe adversities. The hypothalamus–pituitary–adrenal axis, the sympathetic nervous system, and the dopaminergic and serotonergic neurotransmitter systems are major neural systems that govern the stress response. The neurocircuitry mediating reward experiences revolve around activation and regulation of mesolimbic dopaminergic projections from the ventral tegmental area to the nucleus accumbens. Differences in genetic endowment explain why people respond differently to the same environment. Genetic moderation of environmental sensitivity gives rise to synergism, or interaction, as the biological effects of genes and environment are dependent on each other in such a way that exposure to neither or either one alone does not result in the outcome in question, whereas exposure to both does.

Involvements of distinct biological mechanisms that mediate and moderate the imprinting of experiences have been suggested. These experience-dependent mechanisms regulate the sensitivity and plasticity of the central nervous system and act at several biological levels (likely partly in parallel with each other): (i) cellular changes such as neurogenesis, pruning and sprouting of synapses, myelination of axons and alterations to the number of dendritic spines[23,24] (ii) subcellular changes, such as alterations to the cytoskeleton and the extracellular matrix and changes in the levels of intracellular signaling molecules[25] and (iii) molecular (epi) genetic changes such as DNA methylation and chromatin changes.[26]

Although human studies clearly show that an extended social network and positive experiences are important factors contributing to resilience; these aspects are difficult to model and to measure in animals. The building blocks of resilience are not merely the positive ends of a continuum with risk, but that they are separate (biological and psychological) qualities of wellbeing and mental health that enable successful adaptation or swift recovery from life adversity. The psychological domains of secure attachment, positive emotions, and purpose of life may impact on resilience by enhancing mental health in general, by preventing or attenuating mental health disturbance after exposure to adversity, or by bolstering the recovery from adversity-related mental health disturbance.

Thus a combination of various adverse environmental exposures throughout development (such as pre-and perinatal stress, low maternal care and childhood trauma) can sensitize the behavior and central nervous system of an individual, thereby giving rise to a trajectory of risk for psychiatric disorder, starting with subclinical symptoms that become abnormally persistent when synergistically combined with further adversities.

Resilience Research Over the Decades

The role of adversity, stress, and negative life events in the genesis of mental illness has been recognized since the dawn

of psychiatry.[27] The nature and strength of the adversity could be large or small and the individual may or may not succumb to subsequent mental illness. That is the individual's reaction to the stressor and their subsequent adaption (or lack of adaption) is highly idiosyncratic and contextualized. Specifically, an individual may adapt to a particular stressor or negative life event but fail to adapt to another. Thus, it was noted that not all individuals exposed to adversity and negative life events go on to develop a mental illness and have poor outcomes. Moreover, it was apparent that some individuals could suffer the most devastating negative events or circumstances and recover or even prosper after the adversity. Thus it became apparent that the phenomenon of resilience had a protective effect for some individuals. Hence, the study of resilience began. This article reviews research on resilience over the decades in order to delineate the potential future focuses for resilience research and theorizing.

A Summary of Resilience Research Over the Decades: The Three Waves of Resilience Research

The construct of resilience has been studied since the early 1970s. Initial research in this area investigated the concept of resilience in poor and neglected children; noting that not all children exposed to neglect and poverty have the same outcomes.[28] Specifically; some children grew up and prospered despite the adversity while others languished. Initially, these children were referred to as being 'invulnerable' as oppose to resilient.[29] As at this time the concept was conceived as being either present or absent in individuals and global as oppose to relative and contextualized.[8] As research further evolved it became apparent that resilience was both relative and contextualized, consequentially the term invulnerable lost favor.

This first wave of resilience research asked "what" questions focused upon identifying factors associated with resilience.[29] Two approaches were utilized to identify these factors namely; person-focused and variable-focused methods. The person-focused methodology determined the characteristics of those identified as being resilient in comparison to those who were not resilient in the same situation.[29] While the variable-focused approach assessed relationships between characteristics of individuals and their environments that led to resilient outcomes despite adversity.[29] Thus the first wave of research focused upon the individual and their environment and resulted in descriptions of resilience phenomena; characteristics, personality traits and supportive environmental factors that were associated with better outcomes.[8,29] Thus this first wave of research identified protective and promotive factors that were associated with resilient outcomes. Factors related to the child, the family, the community and cultural and societal characteristics were ascertained.[8] To illustrate an easy temperament and positive affect are a couple of child characteristics identified that are associated with resilient outcomes.[9] While factors that represented a generally supportive environment for the child were identified as important to resilience.[8] This first wave of research generated comprehensive lists of factors associated with resilience after exposure to adversity or risk.[30]

The second wave of resilience research sought to investigate how to acquire the protective factors identified as being associated with resilient outcomes in the first wave of resilience research.[30] Thus the research focus shifted to questions pertaining to "how" and the processes involved in developing factors that promote resilience and protect against risk or adversity.[29] Moreover during this time research and theory also sought to understand how the factors ascertained in the first wave of research contribute and interact to produce resilient outcomes.[8] The factors that were found to both promote resilience and protect the individual from adversity in the first wave of research were found to operate in both high- and low-risk environments.[29] This suggested the importance of an innate system that facilitates development and operates to keep development progressing even in the face of risk and adversity.[29]

During this wave of resilience research models of resilience emerged. Flach[31] described the process of resilience as a two-step model with the law of disruption and reintegration. That is stress and adversity leads to disruption and the individual deals with this disruption through reintegration.[31] Similarly, Richardson *et al.*[29] proposed the resiliency model which further develops Flach[31] law of disruption and reintegration. Richardson *et al.*[32] resiliency theory is described by the authors as a metatheory as it incorporates aspects from many other theories.

The resiliency model is a simple linear model depicting an individuals' level of homeostasis, disruption, reintegration and a range of possible outcomes the most advantageous being resilient reintegration.[32] Resilient reintegration is comprised of developing insight as well as personal growth as a result of the disruption/s.[32] Other possible outcomes range from dysfunctional reintegration the poorest outcome to reintegration back to the point of homeostasis the outcome just preceding resilient reintegration.[30] The theory postulates that progression through life occurs as a function of recurring reintegrations as a result of disruptions, for example, either planned starting a new job or unplanned an accident.[32]

The third wave of resilience research started to explore how resilience could be fostered when it was not naturally occurring.[29] This is not meant to indicate that all research pertaining to the processes involved in resilience (second wave of research) or the protective factors associated with resilience (first wave of research) was complete. Rather as Masten[33] notes that there were children who were growing up with risk and adversity that could not wait for basic science to run the course. Hence, the third wave of resilience research began the task of translating the findings from the first two waves of research in order to develop prevention and intervention strategies to bolster resilience.[29,33]

Thus researchers began to use interventions to foster positive adaptation among those who were identified as being at a high risk of having an adverse outcome.[29] At the outset, these interventions were primarily driven by theory before moving on to randomized controlled trials.[29] During this time researchers began to grapple with issues such as whether risk or adversity needs to be present and the optimal timing for such interventions.[7,29] Rutter[7] amongst others ascertained that the effective development of resilience requires exposure to risk or adversity albeit controlled exposure to risk and adversity. Similarly, when is the best time to implement an intervention aimed at the development of resilience; as better timing of the intervention may strengthen and prolong the effects.[29] O'Dougherty-Wright *et al.*[29] note that there are more superior times to intervene for example; during a developmental transition. This of cause is dependent on the specific nature and aims of the intervention.

The majority of researchers view the focus of the third wave of resilience research as specified above whereas others such as Richardson[34] takes a different but still complementary perspective. Viewing the third wave of resilience research as the point at which resilience began to be investigated as a motivational force that pushes us towards reintegration and assimilation after disruption from an adverse event or situation.[34] This perspective of the third wave of research, viewed resilience as an innate motivational force that pushes us towards achieving high-level goals; such as the force that drives us towards the higher-order goal of self-actualization in a Maslowian sense.[34] Thus it is apparent that this perspective of third wave of research integrates with the perspective that the third wave was marked by the translation of research from the first two waves of research. As Richardson[34] view of the third wave of resilience research denotes how the construct of resilience was being conceptualized by researchers involved in prevention and intervention studies.

Current and Future Resilience Research: The Fourth Wave

Since this time research pertaining to resilience has continued to evolve; moving on to what is termed the fourth and current wave of resilience research. This is not meant to denote that all possible knowledge from the first three phases of research have already been acquired. Rather that research is progressing either due to an imperative as was the case with the third wave of research as mentioned above. Or because research is moving into areas where there is potential for acquiring additional knowledge due to advances in research methodologies and technologies; such as the advancements in measuring genes and different brain functions.[35] The development of new animal models for studying behavior[35] and new statistical techniques for analyzing data and modeling growth.[29]

Masten and Obradovic[35] ascertained that the fourth wave of research has the potential to garner a more thorough understanding of resilience across multiple levels. While Masten[33] ascertains that the fourth wave of research has the potential to consolidate upon and integrate previous research and theory acquired over the first three waves of research. Further, Masten[33] highlights that such research should regard resilience as a multidimensional phenomenon. As resilience is now known to be a multi-level phenomenon as resilience operates across multiple systems as well as interacting between these multiple systems. For example, for a child, resilience derives from and operates across all of the levels indicated in Figure 1. The meso-level denoted by school and sports clubs in this model can also incorporate other intermediate level organizations or groups that are specific to the child. Moreover some of these levels such as the individual can be further divided for analysis; for example gene versus environment contributions to resilience at the individual level. In sum, it is important to be aware that resilience for a child as illustrated in Figure 2 or any individual depends upon the dynamic interaction between multiple interconnected levels or systems.

O'Dougherty-Wright *et al.*[29] note that the majority of recent work in the fourth wave of research have focused on the biological and neuroscientific basis of resilience. For example research involving; gene and environment interactions, the theory of differential susceptibility, interventions aimed at regulating maladaptive systems in the individual for example maladaptation in response to stress and integrative models of resilience.[29] These topics are just a few examples of current research on resilience and are not meant to be exhaustive, what is apparent from the above topics is that resilience is conceived as both interactive and dynamic. Similarly, Kalisch *et al.*[36] recommend that future research focuses upon the dynamic processes involved in the successful adaptation to adversities or stressors. They recommend the use of prospective longitudinal studies to uncover the processes involved.[36]

More recently, Bryan, O'Shea, and MacIntyre[37] stipulate that it is necessary to move away from trait-based approaches to resilience and embrace the dynamic conceptualization of resilience in order to further understand the processes involved in resilience. Firstly, they contend that there is a need to adopt process-based dynamic definitions of resilience that align with the multifactorial nature of the processes involved.[37] Bryan *et al.* (2018) also note that resilience goes beyond just being dynamic and there is a need to consider other concepts such as

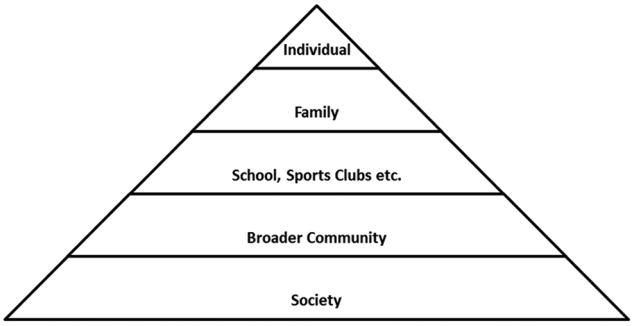

Figure 2: Resilience from a multilevel perspective for a child

self-regulation.[37] Similarly, others have contended that there is a need to consider other concepts and how they differentiate from and interact with resilience for example concepts such as coping and self-efficacy.[38-40]

Further recently, Infurna and Jayawickreme[13] have highlighted the current limitations inherent in resilience research specifically with regard to the most appropriate outcomes for studying the concept. They note that future research needs to focus on this area. They also emphasize the need to study the relationship between growth and resilience. They propose that longitudinal research designs would be the most appropriate for studying these issues.

It is apparent that research on resilience has progressed and evolved over the decades however this is not to denote that all possible avenues of research have been exhausted. As mentioned above just because a new wave of research was initiated it does not denote that research in the prior wave is complete and as such researchers should still seek to understand the complexities of resilience.

Specifically, future research can investigate protective factors and how to acquire and strengthen such factors; especially while conceptualizing resilience as a multi-level phenomenon. As well as research exploring the complexity of resilience through multi-dimensional research models in order to inform multi-level prevention and intervention strategies for developing resilience in different groups or in individuals experiencing different adversities. While also continuing to investigate the biological and neurological basis of resilience and how such findings interact with the other areas specified above.

Conclusion

In sum, future research on resilience needs to explicitly define their conceptualization of resilience. Further efforts need to be made to forge a unified conceptualization of the concept of resilience. As highlighted above although resilience research has evolved over the decades this does not denote that all areas of research have been exhausted and future research into all facets of resilience is necessary, particularly; research investigating resilience at multiple levels. As well as research seeking to understand the neurobiological correlates of resilience and importantly how such correlates interact with environmental factors.

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Conflicts of interest

There are no conflicts of interest.

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