

Psychological Resilience in Children and Adolescents: The Power of Self-Recovery

Çocuklar ve Ergenlerde Psikolojik Sağlamlık: Kendini Toparlama Gücü

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ABSTRACT

Many children in the world grow up without good enough opportunities under challenging conditions such as poverty, violence, neglect, abuse, family discord and diseases. These conditions hinder the mental, emotional and social development of children and young people, making it difficult for them to reach their potential to become healthy adults. In addition to all these, there are children who can survive even in the most severe conditions and continue their development with health and functionality. Psychological resilience is a resource that protects and develops the psychological well-being of children and adolescents, rather than an invariable, innate feature, it is a dynamic process that can be developed, continuous and shaped by the interaction of the individual with his own internal factors and environmental factors. The aim of this study is to present a review of the literature on resilience research from past to present. The article includes the definition of resilience, the history of resilience research, components of resilience, models, measurement, interventions, and future directions in resilience research. Investments in the development of resilience in children and adolescents will produce health-promoting outcomes that balance individual and community-based psychological well-being throughout life, including positive outcomes and potential improvements.

Keywords: Psychological resilience, self-recovery, childhood, adolescence

ÖZ

Dünyada pek çok çocuk yoksulluk, şiddet, ihmal, istismar, aile uyumsuzlukları, hastalıklar gibi zorlayıcı koşullar altında büyümektedir. Bu koşullar, çocukların ve gençlerin zihinsel, duygusal, sosyal gelişimlerini engelleyerek sağlıklı birer yetişkin olma potansiyeline ulaşmalarını güçleştirebilmektedir. Bütün bunların yanında, en ağır koşullarda bile hayatta kalabildiği gibi gelişimlerini sağlıklı ve işlevsellelikle sürdürebilen çocuklar da vardır. Psikolojik sağlamlık, değişmez, doğuştan gelen bir özellikten ziyade çocuklar ve ergenlerin psikolojik iyi oluşunu koruyan ve geliştiren bir kaynak, bireyin kendi iç faktörleri ve çevresel faktörlerle etkileşimiyle şekillenen ve süreklilik arz eden, geliştirilebilen dinamik bir süreçtir. Bu çalışmada amaç, geçmişten bugüne psikolojik sağlamlık araştırmalarına dair uzanan bir alanyazın gözden geçirmesi sunmaktır. Makalede psikolojik sağlamlık tanımı, psikolojik sağlamlık araştırmaları tarihçesi, psikolojik sağlamlık bileşenleri, modelleri, ölçümü, müdahaleleri ve psikolojik sağlamlık araştırmalarında gelecek yönelimlere yer verilmiştir. Çocuk ve ergenlerde psikolojik sağlamlık gelişimine yapılan yatırımlar, pozitif sonuçlar ve potansiyel iyileşmeler dahil olmak üzere yaşam boyu birey ve toplum temelli psikolojik iyiliği dengeleyici, sağlığı teşvik eden sonuçlar ortaya koyacaktır.

Anahtar sözcükler: Psikolojik sağlamlık, kendini toparlama gücü, çocukluk, ergenlik

Introduction

Living brings with it many difficulties. Unexpected events, losses, natural disasters, wars, poverty, violence, failure, exclusion are just a few of the challenges individuals face in any period of life. It is an accepted phenomenon that each individual encounters a difficulty throughout his life, and the possibility of experiencing one or more difficulties (Grotberg 1995, Seery and Quinton 2016). Studies have shown that, in addition to the negative effects of challenging childhood experiences on the physical, psychological and social development of the individual in adulthood (Beiser et al. 2002, Knutson et al. 2005, Anda et al. 2006), positive childhood experiences include exposure to nurturing and supportive social environments, secure attachment, strong child and parent relationships also predict lifelong psychological well-being, psychological resilience and health (Boden et al. 2016, Narayan et al. 2018, Doğan and Yavuz 2020). Along with these, many children are considered healthy while maintaining their well-being despite the difficulties they face with negativity (Zolkoski and Bullock 2012). There are studies on how some children and adolescents, unlike others, maintain their psychological well-

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Received: 06.01.2022 | **Accepted:** 09.08.2022

being and cope with life in a healthy way as if they are immune, and show positive results (Sameroff 2005, Embury and Saklofske 2014).

Research on psychological resilience examines why some individuals fall apart under high stresses, how some individuals who have a parent with a psychiatric disorder and who have been exposed to traumatic life events such as abuse and death can adapt, and what causes this heterogeneity (Rutter et al. 2010, Masten 2014). The pathology model, which is carried out with the perspective of the science of psychology focused on disease and psychopathology, the backgrounds of individuals who develop schizophrenia or alcoholism have been examined with retrospective studies (Werner 1990). In the following years, with the contribution of the power-based perspectives of Positive Psychology research (Seligman and Csikszentmihalyi 2000), more positive processes such as psychological functionality and adaptation will begin to come to the fore in the development of individuals (Rutter 2012).

When the Turkish literature is examined, it is observed that there are many studies on resilience (Gizir 2006, Kararımak 2006, Öz and Bahadır-Yılmaz 2009, Arslan 2015a, 2015b, Arslan and Belkıs 2016, Eraslan-Çapan 2017, Bostan and Duru 2019, Söner, Turgut and Turk 2020, Gültekin 2021). Especially, recent studies aimed to evaluate the psychological resilience levels and risk factors of children and adolescents during the pandemic period (Türk 2020, Söner and Gültekin 2021). This study aims to review the resilience literature and present an overall assessment. In the mentioned studies, resilience is mostly evaluated from a biological point of view, and it is handled within the framework of relatively permanent personality structures such as temperament. However, resilience is also defined as the recovery power of the individual (Smith et al. 2010). The present study aims to contribute to a holistic understanding of resilience in children and adolescents by considering resilience more in terms of recovery.

Definition and Structural Features of the Concept of Psychological Resilience

Psychological resilience is a concept that has been studied by researchers in different disciplines such as psychiatry, sociology, genetics, and endocrinology, as well as being studied with transitions in different fields of psychology such as developmental psychopathology, traumatology, neurobiological psychology, and humanistic psychology (Graber et al. 2015). The concept of resilience, which comes from the Latin *resiliere* root, corresponds to definitions such as quick recovery, overcoming difficulties, showing flexibility (Masten and Gwirtz 2008) (bounce back) and jumping back (Hunter and Chandler 1999). In the Turkish literature, resilience is studied with the concepts of “yılmazlık” (Gürgan 2006), “kendini toparlama gücü” (Işık 2016), “psikolojik sağlamlık” (Kararımak 2006), “ego sağlamlığı” (Önder and Gülay-Ogelman 2011).

Psychological resilience is a process that includes being able to get rid of traumatic effects by showing social competence to achieve positive results in the face of difficulties (Masten et al. 1990), the regulation of the functional balance of a dynamic system in the direction of survival after turmoil, the potential to adapt to a disorder that threatens development (Masten 2014). Psychological resilience is not a personality trait or quality of the individual (Masten et al. 1999, Luthar and Cicchetti 2000), but a process that results in exposure to negative situations and positive adaptation to this situation (Luthar et al. 2000, Fergus and Zimmerman 2005). Luthar et al. (2000) argue that the most important disadvantage of considering resilience only as an internal feature is the risk that some individuals will be identified as vulnerable and stigmatized. Debates on whether to evaluate resilience as a feature or as a process in resilience research have been going on for years (Rutter 1979, Luthar 2006, Bonanno and Diminich 2013). The main problem arises from the difficulty of evaluating the state of a partially dynamic system according to certain clear criteria (Zolkoski and Bullock 2012).

While resilience is seen as an unchanging and stable personality trait in early studies, and children with high resilience are seen as invincible (Winders 2014, Leys et al. 2020), with the consensus reached in current studies, resilience is an internal feature of the child's nature; rather, it is considered as a dynamic process that emerges with positive results from the combination of internal resources and environmental interactions (Luthar and Zelazo 2003). According to Masten (2014), who defines resilience as Ordinary magic, resilience is not a feature that some people have, and others do not. Psychological resilience is evaluated as a complex, multifactorial (Southwick et al. 2014) functional structure (Kalisch et al. 2015), which has neurobiological and psycho-social foundations in the areas of emotional, cognitive, behavioural, social, and psychological functionality.

When the conceptualizations made in resilience research are evaluated, it is seen that a consensus has been reached in three components to talk about resilience. These components, shown in Figure 1, are exposure to a risk factor, a protective factor against risk, and positive outcomes and positive adaptation despite risk.

Psychological resilience is both a result and a process that occurs with the interaction of this process (Masten et al. 1990, Luthar et al. 2000, Masten 2014).

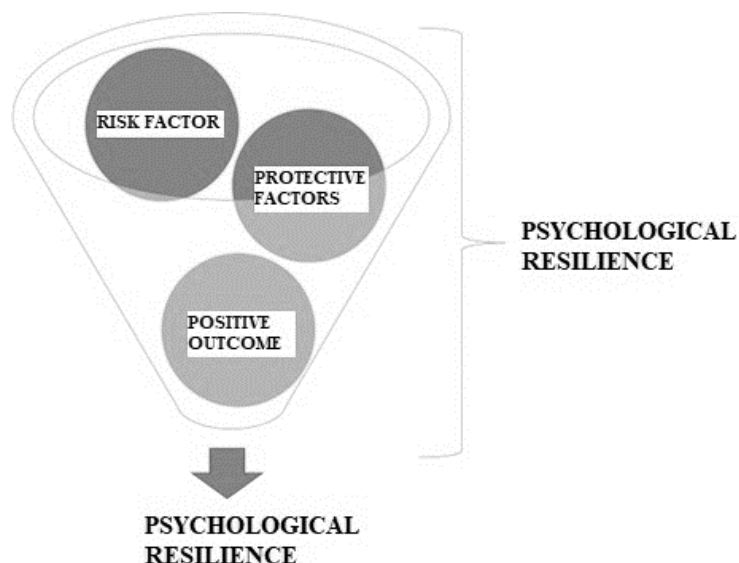


Figure 1. The three components of resilience

In summary, there has been an important paradigm shift in the conceptualization of resilience in recent years, and this concept is a dynamic process rather than a fixed feature (Leys et al. 2020), and it is thought to be determined by the interaction of both internal (genes and temperament) and external environmental factors (Rutter). 2012).

Risk Factors

Children and young people are exposed to many risk factors on the way to adulthood (Brooks 2006). Risk factors are expressions of probability that increase the probability of a negative outcome (Durlak 1998) and increase the vulnerability of individuals (Almeida 2005) and vary depending on time and place (Zolkoski and Bullock 2012). Risk indicators are variables that differ according to individual differences in children's responses to the changing context of care conditions (Werner 1986). Risk factors are often associated with another adverse outcome, with one risk increasing the likelihood of another risk occurring. According to Masten (2014), risk factors progress with a snowball effect on developmental processes. For example, a risk factor that negatively affects the development of a child's self-regulation skills may result in consequences such as attention-impulse control that affect the child's educational life, learning skills, and relationships with teachers (Diamond and Lee 2011, Masten et al. 2012). When risk factors occur cumulatively, they increase the number and severity of negative outcomes (Rutter 1979). The accumulation of risks over time has been associated with an increase in substance orientation (Resnick 2000, Brooks 2006), violence and aggression behaviors (Fergus and Zimmerman 2005).

Low birth weight (Rak and Patterson 1996), poor nutrition of the mother during pregnancy, inability to receive medical support or substance abuse of the mother are shown as biological risk factors (Zolkoski and Bullock 2012). Among the environmental factors, the highest risk, low socioeconomic status, poverty, lack of education of the mother, intra-familial conflict (Rak and Patterson 1996), extended family, single parenthood, and ethnic minority status (Sapolsky 2005). Emotional, physical, and sexual abuse (Margolin and Vickerman 2007), neglect, lack of relationship, mental and physical disability, negative peer group, lack of parental support, growing up with a parent with mental illness, divorce, wars, and natural disasters (Desjarlais et al. 1996, Luthar 2006).

The developmental direction of children and adolescents is determined by the interaction of threatening stressors and protective factors. Although it is not possible to classify growth conditions as positive or negative, in some cases the same factor may be a protective factor, while in another case it may be a risk factor (Masten and Barnes 2018).

Protective Factors

No child succumbs to difficulty, it is important for the child to understand why this is the case (Rutter 1979).

There is a need to understand the effect of life experiences on children and why they give rise to different responses in different individuals (Garmezy et al. 1984, Rutter 1986). Psychological resilience is hindered by risk factors and supported by protective factors (Benzies and Mychasiuk 2009). Protective factors prevent negative outcomes by changing individuals' responses to challenging events. Resilience is the child's ability to navigate through their own resources (Ungar 2021).

Longitudinal studies have revealed that the characteristics that distinguish children with high psychological resilience from those who succumb to risk factors are related to personality factors (Murphy and Moriarty 1976, Garmezy et al. 1984, Werner 1984). According to Werner (1984), children with strong psychological resilience have temperament features that receive positive reactions from their families and environments, such as a strong sense of independence, optimism, sociability combined with a sense of independence, and active participation in helping action. The child's intelligence (Alvord and Grados 2005), coping skills, temperament, health, gender (Benzies and Mychasiuk 2009) and internal motivation are also protective factors that contribute to resilience.

In resilience research, four specific attributes have been generalized as protective factors: social competence, problem-solving skills, internal locus of control, and autonomy (Zolkoski and Bullock 2012). Social competence is related to the skills of empathy, being open to communication, and establishing active positive relationships (Luthar and Cicchetti 2000). Children with high psychological resilience can change challenging situations with their mental flexibility and problem-solving skills. Even children involved in armed conflict have flexible problem-solving skills (Betancourt and Khan 2008). Internal locus of control relates to the individual's belief that he has control over his decisions and efforts about his life (Rotter 1966). Autonomy and strong independence (Garmezy and Masten 1986) are associated with self-esteem, self-efficacy (Benzies and Mychasiuk 2009), and self-control (Rutter 1985).

Research has shown that self-regulation skills (Benzies and Mychasiuk 2009), setting goals and a positive sense of the future (Benzies and Mychasiuk 2009, Sapienza and Masten 2011), using the resources and opportunities around, seeking mentors, asking for and helping, humour (Sapienza and Masten 2011) shows among the protective factors

Considering the environmental protective factors, parenting style, Baumrind (1991), positive emotional expression of the mother (Eisenberg et al. 2003), family structure, family harmony, parent-child interaction and social support are among the factors that contribute positively to resilience (Benzies and Mychasiuk 2009). In the context of protective factors that affect the psychological resilience of children and adolescents, their culture, and developmental stages (Alvord and Grados 2005) and belief serve as an important function (Grotberg 1995). In a recent study conducted by Yavuz (2022) on 752 adolescents, it was concluded that basic psychological needs (connectedness-autonomy-competence) play a mediating role in the relationship between adolescents' self-control levels and resilience. The same research revealed the effect of self-control level on adolescent psychological resilience, both directly and indirectly.

Positive Outcomes

According to Masten (2001) to talk about the existence of resilience, it is necessary to look at the short- and long-term effects of adaptive functionality and development along with risk factors and protective factors. As a living organism, the human being can achieve positive results at different levels and in different directions. Behavioural studies in resilience focus on two criteria related to positive and negative functionality (Masten 2014) which are the performance of developmental tasks and the absence of psychopathology. Developmental tasks are expectations that must be achieved at different age periods. The realization of developmental tasks for positive functionality is an idea that has deep roots in education and psychology (Masten et al. 2006). Developmental tasks are the success steps that can be observed such as sitting, walking, talking, playing, impulse control, adaptation to school, academic success, appearing in line with the expectations of the family and society (Masten 2014).

Four Waves in Resilience Research

In psychological resilience research, four waves guide the scientific knowledge that lasted for nearly fifty years in the literature (Masten 2014). Murphy's (1962) longitudinal study with 32 infants was one of the first to examine models of coping with internal stress arising from weaknesses (Murphy and Moriarty 1976). In the following years, Gottesman, using his biological and foster families and his own diathesis-stress theory in his research on schizophrenia, suggested that the genetic and psycho-social sensitivity, risk, and protection levels

combined throughout the development process, individual phenotypic development affects the development of twins towards the disorder or away from the disease (Gottesman 1974). According to Gottesman (1974), evolutionary mechanisms stabilize selection and shape developmental mechanisms by buffering, genes can be switched on and off depending on environmental factors. According to Masten (2007), these ideas of Gottesman were ahead of the technology available at that time to test certain hypotheses at the level of neurobiological, genes or brain function processes, and these ideas formed the basis for road models in the following years (Masten 2021).

Scientists who want to understand the development of psychopathology and prevent negative consequences in first-wave research have reached consensus on the importance of children who make good progress under risky conditions (Masten and Obradovic 2006, Masten 2011). One of his early studies, Werner's longitudinal study of 698 babies born on the island of Kauai is a landmark that sheds light on resilience research (Werner 1984). This research began as a study aimed at documenting mothers' pregnancies and children's outcomes into adulthood. Analyses were carried out on children who cope better in terms of psychological resilience, have a strong sense of worthiness, and have prominent features such as family support. The study focused on individual and family-level characteristics that predict resilience among high-risk children, such as perinatal stress, poverty, lack of maternal education, abandonment, and divorce (Werner and Smith 2001). 42 babies from Kauai, babies who are psychologically sound despite the risk, are more active in infancy and childhood, less disturbing to their parents, more regular sleep and feeding habits, autonomy, and a tendency to seek new experiences are positive, social relations and communication skills are positive compared to their peers. It has been reported that girls are more affectionate, and boys are more good-natured.

Werner (1984), who argues that there is a changing balance at every stage of development and that changes occur due to stressful life events and protective factors, brought an ecological perspective to psychological resilience, and stated that the more stress people experience, the greater their need for protective factors.

Another first-wave resilience research is Rutter's (1979) Write Island research. Rutter (1979) concluded in his research that more than one risk factor rather than a single risk factor weakens the probability of positive outcomes in children placed in state care due to parental and marital conflicts, low socioeconomic status, parental crimes, and that the probability of positive outcomes can be increased by limiting or reducing risk factors. One of the prominent results of Rutter's (1979) research is the study conducted with twins whose mother was schizophrenic. When a twin has a loving and caring relationship with one or both parents, the probability of experiencing a psychiatric disorder is 25%, while this rate is 75% in twins who cannot communicate with their parents. continued. In her studies on Romanian orphans, children who were adopted without deprivation in 1990-1992 and children who were adopted in orphanages after experiencing deprivation were compared. It has been demonstrated that the long-term effects of early psychological deprivation are more negative than nutritional deprivation (Rutter 1998). In the study, it was emphasized that the genetic biological program is effective on the neural structures, so it is necessary to better define the environmental risks that change the functioning. Although Romanian orphans were well cared for and raised in good environmental conditions, they continued to experience negative consequences. According to Rutter (2013), individual differences in genetics, personality, and temperament cause differences in the responses of everyone to risk and protective factors.

In resilience research, second-wave researchers studied how protective factors function in risky situations, focusing on the function of protective factors that result in positive adjustment despite adverse conditions. The second wave contributed to the creation of resilience models and to elucidate regulatory systems (Masten and Obradovic 2006). The first two waves of research began with the question of What is important and then proceeded to the question of How (Masten 2014).

The third wave of resilience research focused on the development of prevention and intervention systems and focused on enhancing resilience through certain policies, drawing attention to work for growing children. The first three waves of research led to the development of the fourth wave by providing important contributions to the understanding of concepts, methods and findings, discussion of problems and clues (Masten 2014). Fourth wave resilience research has added a contemporary dimension to resilience research by taking a systems perspective and utilizing the development and analysis technologies of multiple levels of functioning. Innovations and multidisciplinary perspectives in the fields of fourth wave genetics, statistics, neuroscience, and neuroimaging and systems-oriented towards gene-environment interaction. What role do genetic differences play in resilience? How can the brain be protected from the damage caused by stress and stress hormones? (Wright et al. 2013). Research has shown that the learning systems of the human brain (problem solving, information processing), attachment system (emotional processes), mastery, motivation system (self-efficacy

processes), stress-response systems (alarm and recovery), self-regulation systems (emotion and emphasizes the importance of school-peer-society and cultural systems, especially in the development of resilience for children and adolescents (Nolte et al. 2011). Compas (2006), one of the fourth wave researchers, suggests that coping with stress in emotional and physiological arousal, impulsive action, intrusive thoughts, and some escape behaviours are part of the general executive functions regulated by the prefrontal cortex in reviewing the psychological processes of individuals in coping with stress.

Psychological Resilience Models

To understand the concept of resilience, many models have been developed to explain how individual and environmental factors function to reduce or balance the negative effects of risk factors (Garmezy et al. 1984, Rutter 1985, Fergus and Zimmerman 2005). Resilience models suggest resilience theories by recognizing the importance of trajectories that surprisingly lead individuals towards adjustment and recovery despite the challenging factors in their lives (Zolkoski and Bullock 2012). In this study, five different resilience models are discussed in terms of the perspectives they propose.

Compensatory and Challenger Model

Garmezy (1987), one of the first wave researchers of resilience, defined resilience in the Project Competence study, which is a longitudinal study of positive outcomes in children at risk, as the capacity for recovery and sustained adaptive behaviour that can come from withdrawal or disability after the onset of a stressful event. Garmezy (1991) argues that all children have experiences of stress in their lives, all of them experience withdrawal, inadequacy and disorder, and that children with psychological resilience are not heroes but functional children. The focus of the study was determined as the determination of competencies rather than psychopathology in the children of parents with schizophrenia. The scores of children with other behavioural disorders and psychopathologies were found to be lower, although their mothers did not have schizophrenia. As a result of the research, it was revealed that there are unknown protective factors in some children, although their mothers have schizophrenia.

According to Garmezy (1987), resilience is associated with protective factors rather than risks. He drew attention to the protective effects of social participation in school, high socioeconomic level, IQ level, problem solving, and sense of humour on psychological resilience, and that children with low socioeconomic status show more destructive behaviours. Garmezy et al. (1984), while drawing attention to the importance of the existence of at least one supportive person in an individual's life in the formation of resilience, suggested that resilience would increase as a supportive relationship approaches the individual's life and developed three models (Garmezy et al. 1984).

Table 1. Compensatory model		
Compensatory model:	Model of vulnerability to guardian: (Immunity-vulnerability)	Difficulty model:
It is a model that improves competence and harmony with personal characteristics by reducing the effect of stress factors. A child growing up with grandparents in a high-conflict home environment can make up for the warm and close relationship they provide.	This is about the interaction between stressors and individual characteristics. A child living in poverty may have a home environment compatible with poverty.	If the stress factors are not at very high or very low levels, it increases adaptation and improves coping skills. High levels of stress reduce an individual's adaptability and competence. It can also be beneficial for children and young people, as challenges can encourage individuals to mobilize their internal and external resources.

The Challenge Model with Existential Perspective

Kobasa (1979), who deals with resilience from an existential perspective, suggested that individuals who participate in life with the belief that they can control the events in their lives can transform their challenging experiences into change and an exciting challenge. According to Maddi (2006), who works with an existential perspective, resilience includes the courage to make choices that can add meaning to an individual's life. Maddi (2006) evaluated resilience as a personality pattern, which is a combination of attitudes that provide courage and motivation that enable individuals to develop strategies and skills that play an active role in transforming the stress and tension created by potential disasters into growth opportunities.

Maddi (2006) suggested that resilience has dimensions of control, challenge, and dedication, and that these dimensions serve individuals to protect their selves in stressful, challenging and tension situations and add meaning to the individual's life (Maddi and Khobasa 1994). In situations that cause compelling stress in psychological resilience, individuals show existential courage by choosing to dedicate themselves despite alienation, to self-control against weakness, to challenge instead of seeing tension as a threat with these attitudes. While this courage paves the way for the potential traumatic event to turn into an opportunity for growth and development rather than a disaster, it also contributes to individuals to maintain their motivation under stress (Maddi 2017).

Attitudes and strategies, which were evaluated as resilience attitudes because of a 12-year longitudinal research with IBT company employees in the Resilience Institute, were explained as dedication, control, and challenge with the 3C (Commitment, control, challenge) that facilitates and encourages resilience under stress (Maddi 2002). Individuals who approach stressful situations with a challenge, which is the attitude that includes the first C of difficulties, accept stress due to the nature of life and try to turn the changes brought by stress to their advantage and evaluate it as an opportunity to grow in wisdom and abilities. Individuals who approach the stressful situation by challenging them think that they can learn from failures as well as their successes. The second C (commitment) is about dedication. Individuals with an attitude of dedication act with the belief of participating in what is happening instead of being disconnected and alienated when the going gets tough. The third C is about control. Control paves the way for the individual to switch to self-control rather than being powerless or passive. The individual demonstrates existential courage through dedication, challenge, and control (Matdi 2013).

Road Models and Impact Models

According to Masten (2014), who works on pathway models and impact models in resilience research, resilience is the capacity to successfully adapt to significant changes that threaten the stability, viability, or development of a dynamic system, which occurs with basic human adaptation systems.

In a ten-year longitudinal study conducted by Masten et al. (1999) with 205 children, parenting quality, psychological well-being, positive/negative moods, and competence were measured when children reach puberty. It was concluded that the group of maladjusted children had significantly poor psycho-social resources, and the main variable for adolescents with psychological resilience was psycho-social resources. Although the modest effect of IQ in childhood, socio-economic status, and the effects of parental education levels on psychological resilience have been revealed, it has been observed that the processes associated with protective factors have not been sufficiently clarified (Masten et al. 1999).

Masten proposed two models of resilience, variable-focused and individual-focused (Masten 2001, Masten and Reed 2002). Individual-oriented approaches aim to define the characteristics of individuals who are psychologically sound (resilient person), and to understand what the differences are that distinguish vulnerable and non-adaptive individuals from others (Masten and Reed 2002). Individual-oriented models serve intuitive purposes, as they show natural phenomena, rather than construct conceptual models based on a case. These models encompass the life-course paths of cases that reveal positive patterns of adaptation despite adversity over time, and that have a very interactive effect on the development of these cases.

The pathway models proposed by Masten and Reeds (2002) from the perspective of developmental systems are rooted in research in behavioural genetics, embryology, and developmental psychology to shape individual development through the interaction of genes and experiences with environmental stimuli. In the first path models, it has been shown that the traumatic collapse of the adaptive functions of the individual during life, which is formed as ups and downs, and the subsequent deterioration patterns in which the resilience is not yet evident, and then post-traumatic growth (Masten and Narayan 2012).

Path models take the form of patterns such as stress resilience, recovery, collapse, and post-traumatic growth in terms of adaptation to difficulties. Path models in resilience research include clues to positive change or differentiation throughout development by progressing over the differences observed in the individual's behaviour and development process over time. While path models are central topics in developmental psychopathology in terms of revealing the paths leading to or away from psychopathology, they continue to attract attention in terms of resilience research (Masten and Kalstabakken 2018). Below are a few classic models that have been widely tested in resilience research in figure 2. As seen in a pathway model showing pathways following acute-onset trauma, A indicates resistance to stress, B indicates deterioration and recovery, and C indicates post-traumatic growth.

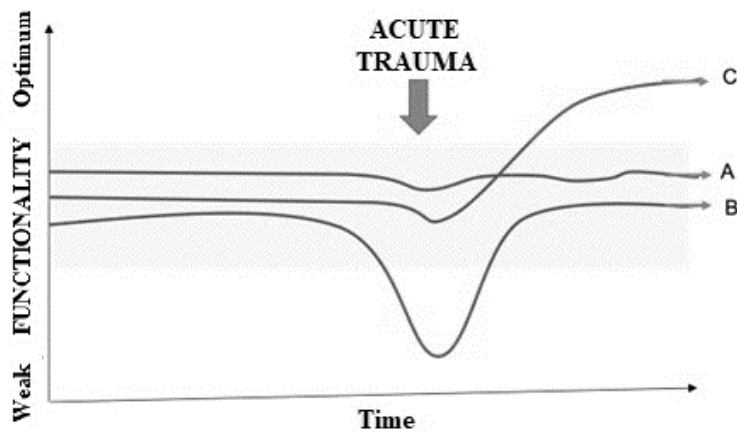


Figure 2. Example of Road Model (Masten and Narayan 2012)

In the variable-centered approaches proposed by Masten (2014), the relationships between risk, compliance, efficacy, and individual, familial, and protective factors were studied with multivariate statistical methods for understanding resilience. Variable-focused approaches, in which statistical power comes to the fore, are disadvantageous in capturing the prominent values and characteristics in the lives of individuals who are considered psychologically sound, while revealing results in the direction of interventions for psychological resilience. These studies suggest that resilience is based on some structures. According to Masten and Reeds (2002), varifocal models are classified as main effect, interactive and indirect models. Main effect models have guided the development of intervention programs for resilience. Intervention programs prepared in line with these models suggest the prevention of risk factors and the development of variables that will reduce risk.

In the main effect models, the risk factors shown in figure 3 directly affect the positive results negatively, some personal characteristics affect the positive results positively, or the inadequacy or excess of some continuous variables negatively affect the results. For example, a child's ability as well as a risk factor such as child abuse can positively affect positive outcomes. Persistent variables such as insufficient attention skills or excessive parental protection may also have the potential to affect development negatively (Masten 2014).

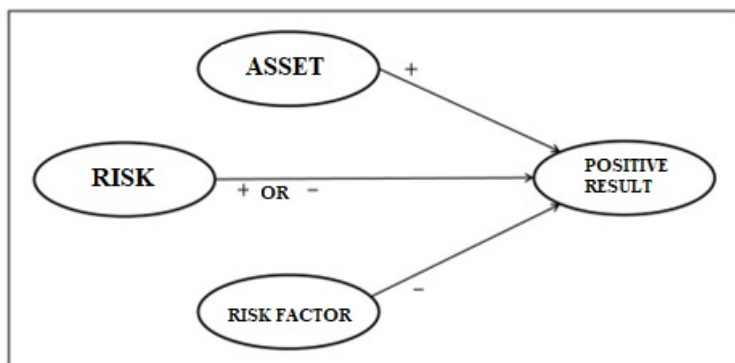


Figure 3. Main effect models (Masten 2014)

One of the interactional models is the mediator model shown in Figure 4. Conger et al.'s (2002) research conducted with families living in Iowa farms after the economic crisis as a risk factor, saw parental approaches and emotional changes in the family as variables, and it was concluded that these variables affected the adolescent behaviours of children raised on these farms. These results indirectly revealed the effects of the economic crisis on families negatively on adolescent behaviour. Intervention programs developed within the framework of the mediator model work to support the development of children who have experienced bereavement and divorce by supporting factors such as parenting quality, which is a mediator factor in cases where risks and crises cannot be prevented (Forgatch and Patterson 2010).

Another of the interactive models is the moderator model shown in Figure 5. In this model, there is a moderator variable that causes change in the face of risks (Masten and Reed 2002). In indirect models, a protective factor prevents negative consequences in the case of a strong risk factor. For example, parental care in premature birth can contribute to the elimination of risks related to premature birth.

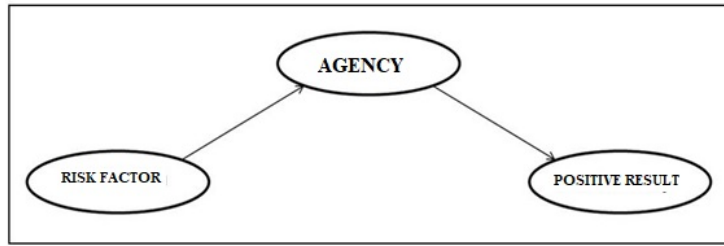


Figure 4. Interactive model (Masten 2014)

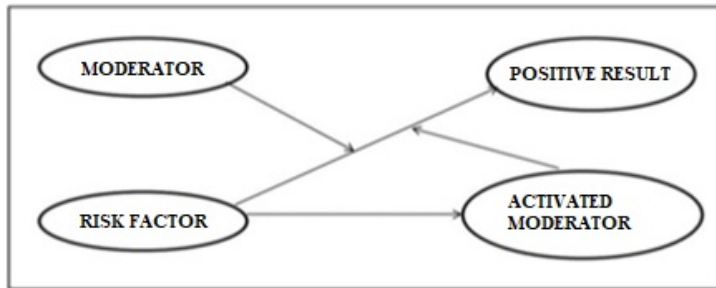


Figure 5. Moderator model (Masten 2014)

It is assumed that developmental change in pathway and impact models, the interaction of stimulating/protective effects and vulnerability/sensitivities results in multiple adaptation pathways in the context of acute or chronic traumatic experiences (Masten and Narayan 2012).

Multicultural Psychological Resilience Model

According to the multicultural resilience model put forward by Michael Ungar (2013), a social worker, resilience is more than a set of traits. According to Ungar (2013), resilience is individuals taking a trip to their own resources to experience feelings of well-being while creating socially and culturally meaningful ways in the context of being exposed to psychological or environmental difficulties.

Ungar et al (2007) studied data from 14 international communities experiencing high-risk factors such as war, poverty, social disruption, genocide, violence, marginalization, drug and alcohol abuse, family collapse, mental illness, and early pregnancy. In this study, they revealed that adolescents are exposed to at least three risk factors for acceptance of resilience. As a result of the research in which 89 young people between the ages of 12-23 participated, 7 tensions related to psychological resilience were determined:

Table 2. Seven tensions related to psychological resilience
Access to material resources: Availability of education, health, employment resources, access to food, clothing, and shelter resources
Relationships: Being in contact with adults, friends, and others in the extended family.
Identity: Being able to reveal a spiritual identity in which the individual's strengths and weaknesses, beliefs, spirituality, religion and meanings, goals and values can be self-evaluated.
Power control: The ability to change the social and physical environment with the value that the individual places on himself and others.
Social justice: Having meaningful experiences in different roles in the name of community and social equality
Cultural commitment: Commitment to cultural traditions, beliefs, and values
Cohesion: Social and spiritual belonging to something larger than oneself, a feeling of being part of a larger whole.

Resilience tensions can exist in all cultures, and young people resolve these tensions in accordance with the culture they live in. As each tension is handled separately, it is necessary to consider their interactions together, as well as their interactions. Navigating these tensions contributes to resilience by interacting with context, culture, and individual strengths in adolescents (Ungar 2007).

The psychological well-being and health of parents, caregivers, teachers, and education personnel caring for a child, and the coordinated collaborative efforts of socialization agents for the child, have significant effects on children's development and resilience. Parent education programs, peer interactions, peer groups and

community resources of the child are important in improving resilience. Rather than helping children with resilience, there is a need for homework, parental health, and educators' self-help interventions (Ungar 2013).

Ungar (2013) mentions a social and ecological understanding of resilience by emphasizing the cultural environment's facilitating power of growth and the importance of the environment. If there are meaningful resources in the environment, the individual interacts with them, and individual motivation, temperament, personality variables or certain behaviours are triggered or suppressed by the environment. If a child can make a positive change at a turning point, it is a change in social ecology. Resources within social ecology either liberate or restrict the choices that youth can make (Ungar 2013).

One of the prominent ideas that Ungar has contributed to resilience research is the need for guidance and facilitating ways of young people on how to access health resources during their growth process. Ungar (2008) refers to this situation as navigation.

Psychological Resilience by Ecosystem Model

The ecosystem model emphasizes the relationship of micro and macro systems to the individual and each other for the development of the individual. According to Bronfenbrenner (1977), who proposes the ecosystem model, the individual needs appropriate systems and social environments to realize his potential. According to the ecosystem model, resilience is a multidimensional phenomenon, and the two-way interaction of the five systems underlying the theory affects the development of the individual (Bronfenbrenner 1977).

The first system around the individual, the Microsystem, is the interacting environment in the primary environment of the individual, such as family, friends, and school environment. Mesosystem is the system formed by micro systems and the interaction of the individual with this system and the combination of two or more systems (Bronfenbrenner and Morris 2006). An exosystem is a system that is formed with a certain intention or that continues to be formed, includes the neighbourhood, local government and certain institutions and organizations, and affects the individual indirectly, not directly. The macrosystem includes the culture, economy, social events, and legal structures that shape the micro, meso and exosystems. Each of these systems may contain specific risk and protective factors and trigger elements. For a child, risk factors can be created by the family with whom he interacts in the microsystem, and protective or risk factors can occur within the macrosystem with the legal and cultural structures of the society (Waller 2001). According to the ecosystem model, it is suggested that risk factors can be controlled, and coping strategies can be developed if environmental systems and structures are controlled in the development of resilience. These interactional systems play an active role in the development of the child's well-being (Bronfenbrenner and Morris 2006).

Neuro-Circular Model

In recent years, there has been a significant increase in the number of studies on the genetics and biology of resilience (Hornor 2017). A basic view of understanding epigenetics makes it easier to understand resilience. Although epigenetics does not involve changes in the underlying DNA sequence, it occurs through the study of heritable but modifiable changes in gene expression (Gershon and High 2015). These changes occur as part of natural selection to maximize survival over generations. While epigenetic mechanisms can prepare the individual for future responses to risk factors, epigenetic changes can sometimes cause negative consequences for individuals. Measurable genes (G) and measurable environmental environments (C) and their interactions (GXÇ) have enabled resilience research (Sapienza and Masten 2011). When identifying genes at risk and vulnerability, the experiences of children with these genes were examined. While it was essential to identify children who are vulnerable to the development of psychopathology in the gene-environment interaction, in the following years, there is also evidence of positive events caused by genetic polymorphisms associated with vulnerability, through neuroplasticity, and therapeutic interventions (Rutter 2013).

Malhi et al. (2019) proposed a model of resilience by considering neurobiological mechanisms and psycho-social foundations together in their research. Malhi et al. (2019) argue that the developmental perspective is neglected in the development of resilience, and adolescence is an optimal developmental period in understanding how resilience develops and emerges.

In recent studies, resilience is not seen as an individual feature (Bowes and Jaffie 2013), it continues to be seen as a useful concept (Hu et al. 2015), nor is it conceptualized as the absence of psychopathology. Because individuals with psychopathology can also maintain their functionality (Zannas and West 2014). There are two main internal factors that drive resilience: personality and genetic factors (DiFabio and Palazzeschi 2015). Based on these explanations, the model proposed by Malhi et al. (2019) proposes an understanding of the components

that include gaining resilience skills through processes called tempering and reinforcement, along with intrinsic characteristics. According to Malhi et al. (2019), since personality and genetic factors together create the individual's stress response, it is thought that polymorphism, which is determined as the risk genes previously accepted as a diathesis stress model, determines the trajectory of the emergence of psychopathology and adaptation, and is one of the main determinants of resilience by nature. Since individual experiences change gene expression through epigenetic mechanisms that affect individual adaptation in resilience (Zannas and West 2014, Osorio et al. 2017), both personality traits and susceptibility to genetic differences are accepted as intrinsic characteristics of resilience (Malhi et al. 2019).

According to the model proposed in Figure 6, negativity is placed at the centre of the processes that lead to robustness. The distress created by the challenge puts pressure on the neural integrity and function of neurosensitive systems and related processes, and without this pressure it is assumed that there can be no resilience. Psychological resilience consists of a set of previously learned skills in the neural, biological, cognitive, emotional, and social areas. The model suggests that individuals with low intensity of internal factors such as genetic and personality factors will have negative consequences, and it suggests that individuals with low levels of neuroticism are likely to perform better in coping with negativity due to protective allelic variants in those with high levels of extroversion, openness, and conscientiousness. The neuro-circular model suggests that not only genetic structure and personality, but also psycho-social and environmental resources are not sufficient, and that factors such as daily life routines, activities, and social supportive environment may be the keys to resilience. With all these factors, if the allostatic load is excessive in the difficulty faced by the individual, the internal and established psychological resilience structures do not function adequately and become insufficient. As a result, disruptions in stress-sensitive systems may manifest as sub-threshold symptomatology or overt psychopathology. The sensitive systems that make up psychological resilience can be adapted to the new difficulty situation by easing the burden and allocating additional resources, and the individual's development of new skills can be supported by tempering and empowerment. With these support mechanisms, cortico-limbic networks strengthen the repair and modification of certain neural structures, functions and connections, and thus adaptive flexibility can be achieved (Malhi et al. 2019).

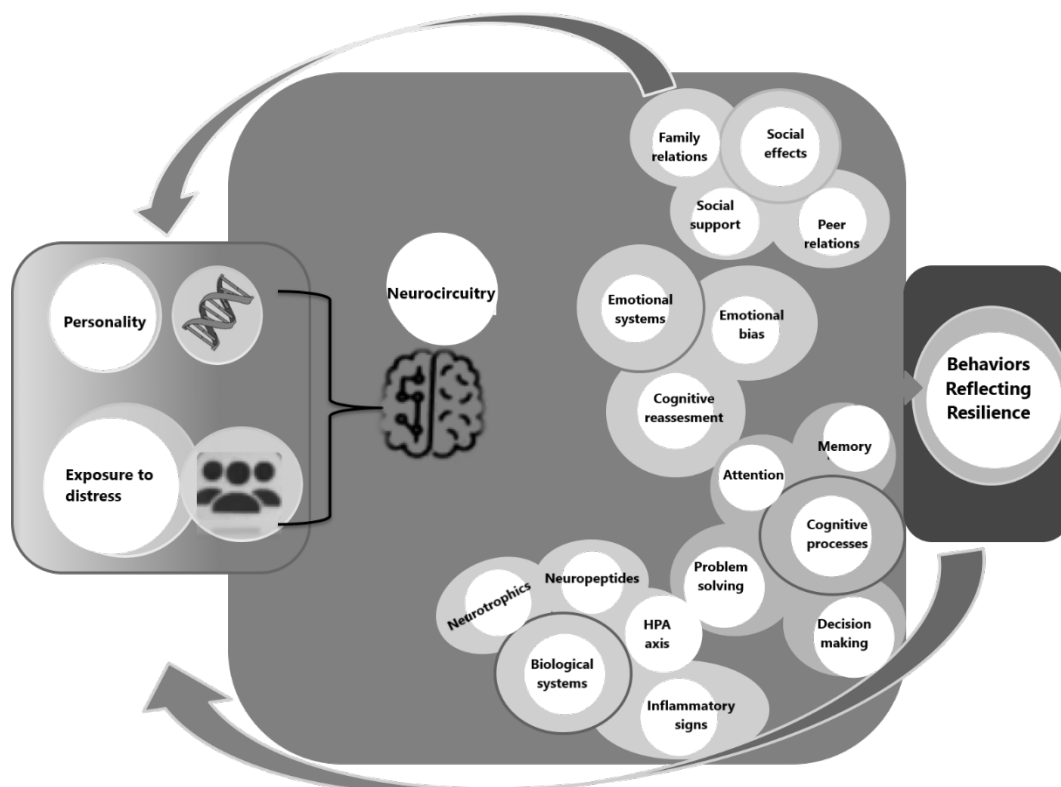


Figure 6. Schematic model of neurobiological and psychosocial determinants interacting with each other to reveal adaptive behaviour reflecting resilience after challenge (Malhi et al. 2019)

While the neuro-circular model captures the dynamic structure of resilience, it aimed to explain how it emerges especially during adolescence, and how neurobiological and psycho-social factors affect each other to create and strengthen resilience. It sheds light on health promotion, preventive early interventions, and treatment

methods. Experiential learning, which results in the strengthening and tempering of stress-sensitive cognitive structures, paves the way for positive adaptation.

In summary, although the above-mentioned models and theories have suggested different dimensions of the concept of resilience in the development of the concept of resilience, they agree that resilience is not an innate special quality, that a serious risk factor is experienced, and a positive functioning emerges. Looking at these models, the Multicultural Resilience Model differs from other models in terms of the context and cultural perspective it proposes. Masten (2021) mentions that individuals with resilience are active individuals who invest in resilience forever. There is evidence that resilience, like conscientiousness, is a structure that is consistently shaped by the individual's temperament and environmental characteristics (Masten 2013).

Measuring Psychological Resilience

Psychological resilience, as a product of complex interactions that is a combination of personal characteristics, environmental conditions, and internal mechanisms, includes measurement and evaluation difficulties by nature. (Luthar et al. 2000). Resilience theorists have divided the construct to be measured into two as the Interactional and contextual aspect and the personal characteristics aspect (Masten 1994, Luthar and Zelazo 2003). It is suggested that the measurement tools to be used in measuring psychological resilience should be short, useful, easy-to-apply field-friendly applications (Masten 2001, Masten & Powell, 2003), while relying on power and information, they do not include pathology away from stigma (Embury-Prince 2013).

In the evaluation of psychological resilience, it should first be clarified which aspect will be evaluated (Kaplan 2005). Many resilience studies have identified a long list of family, school, and social protective factors alongside personal characteristics. Ecological perspective researchers have considered the impact of complex interaction on the child. How to evaluate which factors and complex interactions in research presents a measurement challenge. Despite these difficulties, some researchers have suggested numerous ways of assessing resilience (Vance et al. 1998, Baruth and Carroll 2002), some of them addressing competencies in one or more areas (Ewart et al. 2002). Assessments in resilience research in children and adolescents focus on behavioural, emotional, and educational functionality and competence in universally determined developmental areas.

When the psychological resilience scales prepared for children and adolescents are examined, different scales are encountered. Devereux Early Childhood Assessment (DECA), a standardized scale for assessing psychological resilience as part of the mental health promotion program in children aged 2-5 years, works in two dimensions: protective factors and behavioural concerns. A scale was also developed by Mayr and Ulich (2009) to measure the level of Social-Emotional Well-being and Psychological Resilience for Preschool Children. Ahern et al. (2006) developed the Resilience Scale (RS) for adolescents to measure resilience. This scale works in two dimensions: personal competence and self-acceptance to life. RS is a two-factor, 25-item scale: (a) personal competence and (b) acceptance of self and life (Wagnild & Young, 1993). The Resilience Attitude and Skills Scale was developed by Hurtes (1999) as a self-report style scale developed to measure internal protective factors. Zolkoski and Bullock (2012) mention the importance of scales developed to measure resilience in terms of identifying difficulties and risk factors for children and adolescents, developing potential supportive and protective factors, and promoting healthy adaptation trajectories.

Psychological Resilience Intervention Programs

Research on resilience, effective intervention programs for children and adolescents proceeds through questions such as What does it do? What works better for whom? (Khanlou and Wray 2014). Third and fourth wave resilience studies draw attention to the importance of developing intervention programs for children and adolescents (Masten and Cicchetti 2010). Psychological resilience develops over time. Childhood and adolescence are a period of opportunity windows with high flexibility and transformation potential in terms of contextual changes (Masten 2014, Malhi et al. 2019).

Masten and Coatsworth (1998) drew attention to the importance of three strategies in intervention programs for resilience: risk-focused, resource-focused, and process-oriented. Risk-based studies involve interventions to reduce risks, while resource-oriented programs work on the development of certain skills and qualifications rather than directly removing risks. Process-oriented interventions, on the other hand, are programs for the support and development of certain skills that will have a positive effect on strengthening resilience and, if not, will negatively affect resilience.

Resilience interventions aim to support and optimize protective factors in the lives of children and adolescents with high vulnerability when it is not possible to reduce the effects of exposure to risk factors and stressful life

events. In intervention programs, the factors that are considered genetically based among individual-oriented protective factors cannot be changed, but the supportive effects of environmental factors can be changed (Benard 1991).

Most of the intervention programs for the development of resilience focus on the development of cognitive, emotional, and social skills such as causal reasoning, emotion understanding, and communication skills of children and adolescents (Durlak et al. 2011). Resourceful Adolescent Program (RAP) intervention program is one of the programs aimed at increasing the psychological resilience of adolescents, promoting positive mental health, and preventing adolescent depression. Shochet et al. (1997), which includes three main elements such as individual, family and school, as protective factors, is school-based and has been prepared for adolescents aged 12-16. In each session, aiming to integrate behavioural and interpersonal approaches, elements such as recognition of existing forces and resources, self-control and self-regulation skills, cognitive restructuring, problem-solving model, empathy were included in the program. As a result of the interventions made to promote resilience with RAP, it was concluded that the program prevented the symptoms of depression in adolescents.

Another intervention program, The Penn Resilience Program (PRP)-Penn, Psychological Resilience Program (Gillham et al. 2008), was administered to adolescents aged 11-13. The school-based program included skills such as problem solving, emotional literacy, self-regulation, emotion management, positive peer relations, self-efficacy, optimism, empathy, and assertiveness. It has been concluded that PRP reduces the level of anxiety and depression in the participants, reduces behavioural problems, and promotes well-being and well-being. Poverty was chosen as a risk factor in a recent psychological resilience intervention program conducted in Turkey by Akar (2018). Elements such as stress management, optimism/pessimism, autonomy, and humour were included in the program, and it was concluded that the program was effective in increasing the psychological resilience of adolescents.

Studies reveal evidence that supportive parent education and school-based intervention programs provide recovery in children and adolescents at risk (Furlong et al. 2012). While resilience, which Masten (2014) defines as ordinary magic, not invincibility, is a structure that can be developed and encouraged, Bonanno (2004) evaluates resilience as the ability to maintain a balance that is prone to immunity, even if it is not invincible. Accordingly, interventions can be developed to restore this balance. It is argued that using these interventions holistically, such as community and teacher support, not just for a short period of time, will be more effective (Luthar and Cicchetti 2000).

Ongoing Debates and Future Directions in Resilience Research

Psychological resilience research continues at certain stages in the historical process, along the lines of risks, protective factors, and positive compatible results. (Wright et al. 2013). According to Fergus and Zimmerman (2005), there are many issues that slow down the development of the concept of resilience, which causes confusion in the field of resilience research. Luthar et al. (2000) suggest that this confusion is not converging on the focal terminology.

According to Ungar and Teram (2000), the diversity and uncertainties of concepts such as risk, protective mechanisms, vulnerability, and resilience are the limitations of resilience research. One of the ongoing debates in resilience research is about positive adaptive outcomes despite risk factors. Absence of psychopathology and adequacy sign are accepted as positive results as two indicators of functionality symptoms, which are accepted as indicators of psychological resilience. These criteria show the developmental trajectory followed by the individual despite the risk (Shean 2015). Psychopathology and lack of competence are not sufficient for adolescents to produce positive compatible results. For example, the teenager may not be depressed, have limited friends but be unemployed, or be severely depressed and friendless and academically competent. Results that reveal positive adjustment in resilience studies may highlight only one dimension of young people's lives and identify individuals who do not experience positive adaptive outcomes. Masten calls this discussion the internal/external debate. Can a young person with good academic and social competence be psychologically sound while experiencing depression? The answers to these questions have not been clarified yet (Masten and Tellegen 2012).

Fourth wave resilience research focuses on biological effects supported by genetics and neuroscience research. The fourth wave works towards understanding resilience by focusing together on genetic structures, brain development, behaviour, and contexts that encompass neurobiological adaptation dynamics at multiple levels (Masten 2007). Although it is suggested that social support and psycho-social interventions will reduce stress hormones, there are many unanswered questions in understanding biological processes (Shean 2015). As

progress is made along these lines of inquiry and as the resilience structure is developed, data may be multiplied that the ability to explain the heterogeneity observed in individuals responding to stressors, which is a natural part of life, can increasingly be demonstrated.

When we look at the developmental history of resilience that spans more than half a century, studies of descriptive analysis of psycho-social processes have been replaced by bio-psychosocial and neurobiological processes that have contributed to resilience in recent years. Although reducing resilience to only a biological structure can create debates, the principles of equifinality, finiteness and resilience as a process require analyses at both psycho-social and biological levels together (Masten 2021)

While the assets and resources that help children and young people overcome the negative effects of risks vary by sample, context, and outcome (Fergus and Zimmerman 2005), themes such as parental factors such as support, monitoring and communication skills are similar. Research on resilience has the potential to guide the development of effective interventions for a variety of at-risk populations (Luthar and Cicchetti, 2000). Technological developments enable the identification of high-risk individuals through multidisciplinary psychobiology and genetic research and the development of pharmacological and behavioural intervention programs for these individuals (Wu et al. 2013).

Resilience is essentially the study of how a system can respond successfully to disturbances that destroy or threaten its function, survival, or well-being. At the point reached in all fields of science, it is accepted that human and natural systems must survive, but well-being is in danger (Masten 2021). (Graber et al. 2015) In the coming years, resilience studies will continue to attract attention with the clarification of protective factors, developmental and contextual factors, and neurobiological mechanisms.

Conclusion

While psychological resilience was once the marvellous invincibility trait, it is now recognized as a fundamental human adaptability system. In this paper, child, and adolescent psychological resilience, as a prominent concept in the field of child and adolescent mental health in recent years, has been discussed in many ways. All the researchers who have worked in the development of resilience science have reached a consensus that resilience is not an innate quality of some children. The idea that resilience is an invariable trait seems to have disappeared. Psychological resilience is not an innate feature or a personal quality, but a human-specific adaptation system because of the environment and child interactions.

Although resilience research continues to increase with neurobiological and advanced statistical techniques in the fourth wave, there are still discussions about terminology, measurement, and methodology in current research. It is seen that the definitions started to differ, especially after the models proposed for culture and contextual features. Although a consensus has been reached on the criteria accepted as indicators of positive results in terms of psychological resilience, the absence of psychopathology, competence, developmental tasks and life functionality, positive results can be perceived very differently for the individual when the context of children and adolescents is evaluated. Looking at the literature, it is striking that adolescents' voices are inadequate in adolescent resilience studies and that qualitative studies are quite limited. It can be seen from the possible results that future research will move towards focusing on the multidimensional nature of the concept of resilience. The ongoing wave in resilience research will carry resilience research into the future with strong evidence, with high statistical and technology-supported analysis of all developed models and collected data.

If life goes on from birth to death, negative life events will continue, some people will move towards unhealthy emotional and physical results, while others will use their ordinary resources by using their resources as all genetic heritage and personality traits in their souls interact with the environment, and they will continue to walk by growing and developing their unique individual path.

When the results of studies evaluating cultural differences related to resilience are examined (Cameron, Ungar, and Liebenberg 2007, Norris and Anbarasu 2017), it is seen that there is no significant emphasis on cultural difference. However, no study was found in which the data collected in the sample of Turkey and the data collected in another country were evaluated comparatively. It is anticipated that the studies to be carried out on this subject will contribute more to the understanding of the cultural dimension of psychological resilience.

Finally, because it is not possible to control the risks and challenging experiences that individuals may encounter throughout their lifetime, it is thought that psychological resilience is an important structure to protect the mental health of children and adolescents and to prevent risks, and a buffer against threats they may encounter throughout life. The perspective on health promotion and promotion, what works, what brings well-being is a

valuable search. Investments in psychological resilience, which is one of the basic concepts of positive psychology, which focuses on the strengths of individuals instead of focusing on negative consequences and psychopathologies, will contribute to the promotion of public health with its socioeconomic stabilizing functions, as well as potential improvements in children and adolescents.

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Authors Contributions: The author(s) have declared that they have made a significant scientific contribution to the study and have assisted in the preparation or revision of the manuscript

Peer-review: Externally peer-reviewed.

Conflict of Interest: No conflict of interest was declared.

Financial Disclosure: No financial support was declared for this study.