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## REVIEW

## Resilience: An approach to the concept

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### Abstract

The capacity to recover from extremes of trauma and stress is termed resilience. Resilience reflects a dynamic confluence of factors that promotes positive adaptation despite exposure to adverse life experiences. Resilience is thought to be important as a component of successful psychosocial adjustment and is associated with mental health. In recent years, increasing attention has been drawn to the potential role that personality and neurobiology might play in determining resilience.

This paper presents, from the current knowledge, an overview of the concept of resilience and its implications to the healthcare.

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### Resiliencia: una aproximación al concepto

### Resumen

La capacidad de recuperarse de situaciones traumáticas extremas es denominada resiliencia. La resiliencia refleja la confluencia dinámica de factores que promueven la adaptación positiva a pesar de la exposición a experiencias adversas. Se considera que la resiliencia es un componente de la adecuada adaptación psicosocial y se asocia con la salud mental. En los últimos años, se ha acentuado el interés por el potencial papel de la personalidad y la neurobiología en la configuración de la resiliencia.

Este trabajo realiza una revisión, desde los conocimientos actuales, del concepto resiliencia y sus implicaciones en el ámbito de la salud.

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## Introduction

Despite suffering significant traumatic conditions of extreme deprivation, serious threat and major stress, some people manage to endure and recover fully. This unique ability has been called “resilience”, a term taken from the physics of materials. It has aroused great interest in studying the variables involved.

The concept has been gaining importance in the health field and has expanded to other contexts, such as education and social policy. It has applications in business and public welfare, but always with strong connotations to mental health. Interest in resilience is not limited to the variables that define it but includes those that contribute to its development and strengthening, which no longer refer only to contexts and extreme events.<sup>1</sup>

## Concept delimitation

The concept of resilience has changed from a negative approach of absence of psychopathology to a positive focus on competence and adaptive behaviour.<sup>2-4</sup> However, resilience is still not particularly evident or clearly defined as it involves many factors and has developed in diverse disciplines, including medicine, psychology, education, social work and epidemiology.

Rutter<sup>5</sup> defines resilience as “...the finding that some individuals have a relatively good psychological outcome despite suffering risk experiences.” It is not immunity or imperviousness to trauma but rather the ability to recover from adverse experiences. However, other authors<sup>6</sup> believe it is not just resistance to adversity but rather the ability to grow and develop under difficult conditions.

When defining resilience, it is important to distinguish between the factors that define it and those that modulate it.<sup>7</sup> It is also essential to distinguish resilience from related concepts such as invulnerability, stress resistance, adaptive behaviours and mental toughness.

Invulnerability refers to absolute resistance to the negative impact of adverse situations. It has been frequently likened to resilience, however some authors<sup>8</sup> believe that resilience is not necessarily absolute resistance, but rather recovery. This includes a wide range of responses that vary depending on the nature of the adverse circumstances. Here it is important to differentiate between recovery after an adverse event and better skills and growth after the trauma,<sup>9</sup> defining the first response as resistance to stress and the second as resilience.<sup>10</sup> Therefore, resilience goes counter to vulnerability but covers all areas of personal competence (emotional, cognitive and social).

Adaptive behaviours are necessary for facing these situations but are not enough to define resilience.

Mental toughness is another concept that is closely related to resilience. There has been a prolonged debate on whether this is a state of mind, a set of psychological characteristics or a predisposition to a response.<sup>11,12</sup> Jones et al<sup>13</sup> identified four dimensions of mental toughness: attitude (beliefs and orientations), training (long-term goals as a source of motivation, control over the environment, personal standards), competition (pressure management,

conviction, self-regulation, goal maintenance, awareness and control of thoughts and emotions, context management) and postcompetition (managing failure and success). The correlation between mental toughness and personality traits seems to come about through common genetic and environmental factors that are not shared.<sup>14</sup> Mental toughness refers more to stress resistance than to its management.<sup>15</sup>

Some authors<sup>16</sup> distinguish three main aspects within the concept of resilience: 1/ the ability to achieve positive results in high risk situations, 2/ the ability to function competently in situations of acute or chronic stress and 3/ the ability to recover from trauma.

Resilience may be modulated by risk and protection factors. Risk factors represent personal and environmental variables that increase the likelihood of negative responses in adverse situations. Protection factors are the set of variables of the subject or the context that boost the ability to resist conflicts and manage stress. The effect of these factors is manifested when the risk is present, and acts as a compensator (modulation, reduction and elimination). Families and schools play an obvious protective role when they exhibit characteristics of caring, cohesion, openness, commitment, support, positive role models and an absence of risk factors.<sup>17</sup>

For many authors,<sup>7,18-20</sup> resilience is not a concept defined by a single indicator but rather requires the inclusion of different domains and areas of expression.

In education, resilience is studied both from the student (their profile and possible development strategies) and teacher perspective (their own capacity for resilience and the attitudes and strategies for developing resilience among their students).<sup>21</sup>

In the social sphere, resilience not only refers to the profile of those affected by adverse situations but also to the socio-political strategies for enhancing resilience and the degree of resilience in the community. This is linked to either the community's protective nature or to its exacerbation of adversity, and the resources available for its management.<sup>22-24</sup>

The first phase of research on resilience focuses on identifying resilient factors and qualities while the second phase focuses on the processes for building resilience. The third phase concentrates on developing measuring instruments.

## Characteristics of resilience

Harvey<sup>25</sup> pointed out a number of characteristics of resilience whose integrity or damage indicates resilient capacity: 1/ control over the process of remembering traumatic experiences, 2/ integration of memory and emotions, 3/ regulation of emotions related to trauma, 4/ control of symptoms, 5/ self-esteem, 6/ internal cohesion (thoughts, emotions and actions), 7/ establishment of secure links, 8/ understanding the impact of the trauma and 9/ developing a positive meaning.

Werner<sup>17</sup> believes that resilience in children has three major components: personal, family structure and environment outside the family. Among the most

noteworthy variables for children are the level of autonomy and empathy, and problem-solving ability. Among the family and environmental variables are peer support networks, safety networks and protection inside the family, school and social life.

Consequently, the first question is whether to focus the analysis of resilience on the response in adverse situations, which would limit the study to the presence of a stimulus, or to approach it from the perspective of a personality variable, which would provide an answer as to why an individual is resilient. In the latter case, the next question is whether the trait is relatively stable and consistent and therefore measurable or it is a process and thus dynamic, able to be developed at any point in a person's lifetime and dependent on the context.

Using a structural or personality trait point of view, Waugh et al.<sup>26</sup> identified some traits that appear to contribute to a positive adjustment when faced with loss or harm: 1/ balanced view of one's life, 2/ perseverance, 3/ self-confidence, 4/ personal autonomy and 5/ meaning of one's life. We talk about the resilience of the self (ego resilience) as a trait that reflects an individual's ability to adapt to changes in the environment. The most significant elements of this ability are the identification of opportunities, adaptation to restrictions and growth following adversity.<sup>27</sup> Some studies show that people with resilient egos experience more positive emotions in stressful situations than those who are less resilient, even though they experience similar negative emotions. This is because they show a greater capacity for overcoming adversity and growth.<sup>28</sup> A correlation has also been found between high self-worth, as a variable of resilience, and personality domains: extroversion, friendliness and openness to new experiences. There is also a correlation between positive coping mechanisms and mechanisms to compensate for anxiety and emotional instability, showing differences in resilience resources and the personality profile.<sup>29</sup>

However, other authors<sup>5,30</sup> believe that resilience is linked to adverse situations and is a learning process that changes according to the context, within a vulnerability-resilience continuum, associated with risk and protection factors. From this perspective, basic psychological qualities (self-efficacy, self-esteem, problem solving) act as buffers against adversity, enabling the development of positive behaviours<sup>5,31</sup> or serving as reserve capacity.<sup>32</sup> However, the question of whether these qualities are the cause, consequence or elements of a circular feedback process remains unanswered.<sup>18</sup>

Recently, Knight<sup>33</sup> proposed a three-dimensional construct for understanding resilience as a state (what is it and how does one identify it?), a condition (what can be done about it?) and a practice (how does one get there?). Resilience as a state incorporates emotional competence, social competence and orientation towards the future. Emotional competence would consist of a positive self-concept, internal locus of control (self-control and regulation of emotions), personal autonomy and sense of humour. An internal locus of control is considered critical for resilience.<sup>32,34,35</sup> Social competence would be defined as the ability to form stable social relationships. Communication, sense of belonging and empathy are also relevant to

resilience.<sup>36-39</sup> Orientation towards the future represents a strong sense of purpose and a clear idea of the meaning of life with an optimistic approach, a sense of commitment to resolving problems, flexibility and an ability to adapt to situations. An optimistic outlook for the future is an important element of resilience.<sup>38,40,41</sup>

## Measuring resilience

The measure of resilience is strongly affected by the absence of an agreed upon definition and the difficulties in identifying its characteristics. However, even when these issues are resolved, other no less complex questions arise: What is the baseline? What is the reference? What are the most appropriate data sources? Are they external reporting, behaviours, performance, self-reports, etc.? How many should be used? Are they valid for all ages, socio-cultural contexts and adverse stimuli? When should the evaluation be performed? Is it possible to determine the previous profile?

A major obstacle in measuring resilience is the qualitative nature of the data, even though they may be more direct indicators than quantitative data.<sup>42</sup> The use of different data sources according to age also poses problems: competence, in children and adolescents, and self-reports in adults.

Another difficulty comes from the vagueness of some terms linked to resilience, such as "trauma", particularly in relation to post-traumatic stress.<sup>43</sup> Some tools that are potentially useful in situations of abuse require further definition of the variables they measure.<sup>44</sup> The Brief Resilience Scale (BRS) seems to be a reliable means of measuring resilience, such as the ability to recovery from stress, while suggesting ways of coping with stressors.<sup>10</sup>

These issues relating to the measure of resilience are still under debate for the reasons already mentioned. In order to clarify these issues, there will be needed greater agreement, better definition of the actual concept of resilience and broader studies, with rigorous and agreed-upon methodology, capable of controlling the variables involved.

An important aspect in the development of tools for measuring resilience is the definition of the relationship among different psychological resources (self-esteem, self-efficacy, control, etc.) and the ability to test their factorial validity as indicators.<sup>45</sup> Recent studies attribute great importance to factors such as the transcendent meaning of life and religion as indicators of resilience.<sup>46</sup> It is essential to better specify the constitutive and modulative character of these factors.

In any case, indicating the level of resilience requires the measurement of internal (personal) and external (environmental) factors, taking into account that family and social environment variables of resilience play very important roles in an individual's resilience.<sup>33</sup>

## Processes for developing resilience

There are three important questions on this issue: Is the ability innate or acquired? Can everybody have it? Is it

stable or does it change over time? There is no doubt that situational and personal variables influence each other, and that the individual's interactive process modulates these variables in such a manner that the questions asked may have different answers for each person.

Actually, many of the characteristics linked to the alleged development of resilience are a complex and extensive group of concepts: cognitive and attributional styles, self-control, self-concept, etc.

Strong attachment,<sup>23</sup> the effect of stress responses and the ability to challenge,<sup>47</sup> controlled exposure to risk and avoidance limitation<sup>5</sup> and the different coping strategies<sup>48</sup> have been related to the development of resilient capacity.

The positive psychology movement promotes the teaching of positive mental attitudes, especially in children and adolescents, thus building resilience.<sup>49,50</sup> Positive experiences influence health directly through healthy behaviours and social support, and indirectly as a buffer against stress.<sup>51</sup> Protection factors seem to be more important in the development of resilience than risk factors.<sup>33</sup>

Available evidence suggests that resilience not only changes over time but also requires adjustments of the operational definition, the data sources and the evaluation method.<sup>52,53</sup> It is therefore a process that lasts a lifetime, with periods of acquisition and maintenance, and reduction and loss could even be assessed.

Cultural and contextual factors induce specificity and uniqueness to resilient capacity.<sup>54</sup> At the same time, as discussed below, variables of temperament, with their large biological impact, are also predisposing factors for the development of resilience.

## Enhancing resilience

Constructing or enhancing resilience is an ambitious goal that aims to promote mental health and develop socio-emotional competence.<sup>55</sup> The scope of study and application is broad, encompassing prevention and reduction of harm due to drug use by creating strong bonds with the family, peers, school and the community. It also includes the mitigation of risk factors in extreme situations<sup>56</sup> and traumatic events,<sup>57</sup> throughout a person's lifetime.<sup>33,58</sup>

When talking about family resilience from a highly interactive approach, the family plays a significant role in the development of the resilient capacity of its members. The resilience of the most important members contributes to the family's capacity to properly face adverse situations with cohesion and caring.<sup>59</sup> With regard to the family, the protection and the promotion components of the family still remain to be differentiated. Most important among the family factors that shape the family's resilience are a positive outlook, a spiritual sense, communication and agreement among its members, flexibility, family time, sharing fun and the existence of rules and routines.<sup>60</sup>

A key aspect of resilience, as mentioned previously, is self-control,<sup>61,62</sup> and therefore strategies designed to improve self-regulation are of great interest.<sup>63,64</sup>

The accumulation of positive and negative experiences influences an adult's resilience. Protective factors (achievements, links, self-esteem, etc.) change a person's response to risk, and some one-off and specific changes (an important mentor, a balanced personal relationship, a job, integration into a social or religious group) may positively change a person's path.<sup>65</sup> Variations in resilience seem to influence the relationship between positive emotions and increased satisfaction with life, suggesting that people who experience happiness do so not because they feel better but because they develop resources for living well.<sup>27</sup> This shows that the relationship between everyday positive emotions and increased satisfaction is established through resilience. Therefore, satisfaction is derived more from resilient capacity and not so much from positive emotions.

Some authors have identified a close relationship between resilient capacity, a sense of humour and openness to hope,<sup>66</sup> an interesting path for development and enhancement.

The characteristics of the environment are of great importance in personal development and family wellbeing because they contribute to build resilience. These characteristics include health conditions, home stability, positive role models and available resources, both formal and informal.<sup>20,24</sup>

However, we must not forget that resilient capacity does not exclude the need for therapeutic support. Resilience is not the same as mental health, so for example, it is possible to express oneself as competent and yet still have self-esteem issues.<sup>67</sup>

In any case, the question remains open as to whether it is possible to construct resilience without currently having any evidence as to that possibility.

## Neurobiological substrate

Studies on the relationship between resilience and neurosciences are the focus of most recent research.<sup>22</sup> Various interesting hypotheses have been formulated that are not being easy to verify. Among these is the proposal by Cicchetti and Blender<sup>68</sup> linking resilience with neuroplasticity.

For some time now, the involvement of the neurohypophysis-adrenal system, particularly through cortisol, in coping with adverse situations has been known. The increase in alertness when faced with a threat suggests an increase in cortisol levels, while the appropriate management of stress leads to a reduction in those levels. It shows, therefore, the need for fine and precise regulation of the system, which may be the basis for resilience.<sup>15,69</sup>

The right hemisphere has been associated with the management of negative experiences and privation, while the left handles positive experiences and achievements.<sup>70</sup> Some data suggest that different brain activation is related to resilient capacity and base their neurobiological substrate, which involves limbic structures, on a certain hemispheric lateralisation.<sup>71</sup>

Various studies indicate that there is no direct linear association between gene-environment interaction

and mental health consequences. Instead, the genetic variations indicate differences in responses to adversity<sup>72,73</sup> in such a way that the genes confer a different susceptibility to environmental situations. This possibly depends on the modulation of 5-HTT and MAO-A, two neurotransmitters particularly involved in regulating mood and stress responses.<sup>74</sup> In particular, the levels of dehydroepiandrosterone and neuropeptide Y are meaningful when studying the relationship between resilience and post-traumatic stress, along with coping strategies.<sup>75</sup>

Overall, currently available data on resilience suggest the presence of a neurobiological substrate, based largely on genetics, which correlates with personality traits, some of which are configured via social learning. These traits provide varying degrees of vulnerability to stressors and a certain predisposition to the development of some psychopathologies, particularly, personality disorders, anxiety and emotional disorders. These are noted in future versions of the DSM and ICD.<sup>76</sup>

The research in this field calls for multiple levels of interdisciplinary analysis, focusing primarily on the processes of interaction with the situation.

## Concluding remarks

The numerous studies on resilience attempt to define the attributes that would identify people who can resist stress (or recover quickly) and excel in adverse situations. They also recognise the most appropriate strategies for enhancing these capabilities.<sup>77-79</sup>

The preferred environments for application of resilience are health, education and social policy.

The major questions about resilience revolve around properly defining the concept, identifying the factors involved in its development and recognising whether it is actually possible to immunise against adversity. In the clinical field, it may be possible to identify predisposing factors or risk factors for psychopathologies and to develop new intervention strategies, both preventive and therapeutic, based on the concept of resilience.

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