Resilience: Building immunity in psychiatry

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ABSTRACT

The challenges in our personal, professional, financial, and emotional world are on rise, more so in developing countries and people will be longing for mental wellness for achieving complete health in their life. Resilience stands for one’s capacity to recover from extremes of trauma and stress. Resilience in a person reflects a dynamic union of factors that encourages positive adaptation despite exposure to adverse life experiences. One needs to have 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?). Evaluating 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. Protection factors seem to be more important in the development of resilience than risk factors. Resilience is a process that lasts a lifetime, with periods of acquisition and maintenance, and reduction and loss for assessment. 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. The major questions about resilience revolve around properly defining the concept, identifying the factors involved in its development and recognizing whether it is actually possible to immunize mental health against adversities. 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. The preferred environments for application of resilience are health, education, and social policy and the right approach in integrating; it can be developed only with more research and analysis with focus on resilience. Be it patient or family member or caregiver, advocating resilience will empower psychiatrists in India.

Key words: Clinical application, environment, neurobiology, protective factors, resilience, risk factors

INTRODUCTION

Respected seniors, President of Indian Psychiatric Society (IPS) and Chairman of this session, all my friends and fellow psychiatrist of IPS, ladies and gentlemen; it is indeed a great honor, my privilege and pleasure to be chosen for the DLN Murthy Rao Oration Award for 2012. I am highly grateful to the IPS for giving me this honor, which is also its highest award in the field of psychiatry in India.

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How to cite this article: Shastri PC. Resilience: Building immunity in psychiatry. Indian J Psychiatry 2013;55:224-34.
for the growth and development of children with multiple disabilities. It was while working with this group of special children and their families that I realized that resilience is a dynamic process involving a strong interaction between both causative as well as negative life events.

My 45-years-long journey in the field of child psychiatry built my belief in the need for building resilience with an interventional outlook. This need was recognized not only in special children mentioned above but also in normal children. That is the key reason why school mental health has international back-up by World Health Organization (WHO) world over across all countries. Resilience continues to be an important element in child development.

**UNDERSTANDING RESILIENCE**

**Defining resilience**

“Resilience” is interestingly a term taken from the physics of materials, i.e. the property of a material that enables it to resume its original shape or position after being bent, stretched, or compressed viz. elasticity. In psychiatry, resilience stands for one’s capacity to recover from extremes of trauma and stress. It is attributes of some people who manage to endure and recover fully, despite suffering significant traumatic conditions of extreme deprivation, serious threat, and major stress. Resilience in a person reflects a dynamic union of factors that encourages positive adaptation despite exposure to adverse life experiences. Resilience is associated with mental health and considered to be essential as a component of successful psychosocial adjustment. Increasing attention is drawn in recent years to the potential role that personality and neurobiology might play in determining resilience.[1] In case of children; resilience may stand for successful adaptation to extreme events such as maltreatment or poverty. It may be more evident in all stressful situations in form of how these children respond to the everyday social, physical, and intellectual challenges faced by them.[2]

Historically, the general notion of protective factors for mental health dates back to the 19th century notion of mental hygiene defined as ‘the art of preserving the mind against all incidents and influences calculated to deteriorate its qualities, impair its energies, or derange its movements’ and included ‘the management of the bodily powers in regard to exercise, rest, food, clothing and climate, the laws of breeding, the government of the passions, the sympathy with current emotions…” (Rossi, 1962). Concepts of ‘mental immunity’, ‘mental hygiene’ or ‘mental resilience’ have in common the aim of broadening research concepts in mental health beyond risk factors for pathology to include wellness enhancement and health promoting factors, in the same way that it has been important to identify the characteristics of infection-resistant groups during epidemics.[3]

Mental health is a fundamental element of the resilience, health assets, capabilities, and positive adaptation that enable people both to cope with adversity and to reach their full potential and humanity. Mental health is also the key to understanding the impact of inequalities on health and other outcomes. It is abundantly clear that the chronic stress of struggling with material disadvantage is intensified to a very considerable degree by doing so in more unequal societies. An extensive body of research confirms the relationship between inequality and poorer outcomes, a relationship which is evident at every position on the social hierarchy and is not confined to developed nations.[4]

Resilience and its importance besides gaining importance in the health field with strong connotations to mental health; it has also found its relevance in other contexts, such as education and social policy and applications in business and public welfare. Interest in resilience is no longer limited to contexts and extreme events, or the variables that define it. The attention is more towards factors that contribute to its development and strengthening of mental health.[1]

To summarize, resilience is not a permanent capacity but a dynamic construct.[3]

**Delineation regarding resilience**

There are different schools of thoughts that define “Resilience” but the tilt is towards positive focus on competence and adaptive behavior more than a negative approach of absence of psychopathology. This delineation is due to involvement of multiple factors and its development in diverse disciplines like medicine, psychology, education, social work, and epidemiology. Rutter defines resilience as “… the finding that some individuals have a relatively good psychological outcome despite suffering risk experiences.” It is not immunity or unreceptiveness to trauma but rather the ability to recover from adverse experiences. However, many other authors believe it is not just resistance to adversity but rather the ability to grow and develop under difficult conditions.[1]

While defining resilience, it is also essential to distinguish it from factors that modulate it and related concepts such as invulnerability, stress resistance, adaptive behaviors, and mental toughness. However, some experts have clearly distinguished three main aspects within the concept of resilience:

- The ability to achieve positive results in high risk situations
- The ability to function competently in situations of acute or chronic stress
- The ability to recover from trauma.[1]

Several risk and protection factors play key role in modulating resilience. In building resilience, families and schools play a key protective role. These are the two institutions that exhibit characteristics of caring, cohesion,
openness, commitment, support, positive role models, and an absence of risk factors.\[1\]

While understanding resilience, one needs to look at the three factors:

- Identifying resilient factors and qualities
- Processes for building resilience
- Developing measuring instruments.\[1\]

Resilience is built upon the complex interaction and operation of risk and protective factors at individual, family, and community levels. It is important to understand resilience as a process rather than a particular character trait. Three fundamental building blocks of resilience are identified in the literature—a secure base, good self-esteem, and a sense of self-efficacy.\[6\]

Resilience concept in mental health research is currently hindered by the lack of a unified methodology and poor concept definition. Resilience has mainly been measured according to specific operational definitions depending on the aims of individual studies or according to predefined indicators relating to the theoretical position of an inventory’s author.\[2\]

**Characteristics of resilience**

There are number of characteristics of resilience whose integrity or damage indicates resilient capacity:

- Control over the process of remembering traumatic experiences
- Integration of memory and emotions
- Regulation of emotions related to trauma
- Control of symptoms
- Self-esteem
- Internal cohesion (thoughts, emotions and actions)
- Establishment of secure links
- Understanding the impact of the trauma
- Developing a positive meaning.\[1\]

One needs to have 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?).\[1\]

For children who succeed despite suboptimal conditions, the presence of protective or resilience factors that support their success may compensate for the risk factors in their lives. While planning research in child mental health with focus on resilience, more attention needs to be given in identifying these supportive factors and sources in competent children that build resilience in them. This can then also help in putting efforts to increase resilience of less competent children.\[2\]

While doing research in the field of resilience, it was evident that there were children who seemed impervious to stressful circumstances. Initially, the research utilized samples of children at risk to seek those who escape its effects, but increasingly, more samples that are representative are being used to determine if the same factors that allow children to escape the effects of adversity produce competence in more favorable circumstances. Although, initially the source of resilience was judged to be a characteristic of the child, increasingly research has pointed to family and social factors as contributing factors to offset environmental stress.\[2\]

Resilience has come to be seen as a multidimensional construct. When children show resilience in one area of development, it may be at the cost of more problems in other areas, for e.g., children showing successful adaptation struggled with emotional problems like depression.\[2\]

Instead of focusing on unidentified construct of resilience in individuals, one should study social contexts that foster positive outcomes. When you cannot alter social circumstances, improving individual competence is an important strategy. However, competent outcomes would be achieved if efforts were made to change contextual factors rather than individual factors.\[2\]

It is unlikely that there is a universal protective factor for all children. The positive factors that promote competence may vary according to the specific age of the child and the developmental outcome being targeted. Contributing factors of resilience require giving consideration to the broad collection of ecological factors in which individuals and families are embedded.\[2\]

There are several thought provoking angles while considering resilience in children. If resilience is a contextual feature, then children with emotionally supportive parents should show resilience. However, if resilience is an individual characteristic, then resilient children should do better in all circumstances. In such scenario, one more question arises on where individual resilience emerges. It could be based on some biologically based characteristics like emotional stability of the child, or it could have developmental correlation, where a secure early relationship with parents produced the later emotional stability.\[2\]

Resilience is not necessarily an attribute or personality trait that some children possess and others do not, but rather a developmental process. Resilience is definite: Children who meet the criteria for resilience may not necessarily be doing well continually, in every possible circumstance, and in totality. Children may experience resilience yet still suffer from the residual effects of trauma. Resilience does not mean unharmed or invulnerable. Rather, resilience is demonstrated by adaptive behaviors and life patterns. In this sense, resilience is a process that can be modified as new risks and/or strengths emerge with changing life circumstances.\[7\]
Risk factors pose a pervasive threat through the deprivation of children’s basic needs such as physical sustenance and protection, emotional security and attachment, and social interaction. As a result, exposure to risk factors predicts a variety of difficulties in adjustment and adaptation across the lifespan. Children’s exposure to risk varies according to age.\textsuperscript{[7]}

Measuring resilience

Operationalizing and measuring resilience is important for two reasons. First, in clinical psychology, it may provide evidence about which factors are most central for regaining and maintaining mental health for different patients. Second, in predicting the ability to tolerate stress and negative effects, it may help in the selection of personnel who will manage tougher job demands.\textsuperscript{[8]}

Measuring resilience is as challenging as varied opinions on definition and the difficulties in identifying its characteristics. Even if one arrives at a consensus, many questions emerge while measuring resilience. What is the baseline? What is the reference? What are the most appropriate data sources? Are they external reporting, behaviors, 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?\textsuperscript{[1]}

Some tools that are potentially useful in situations of abuse require further definition of the variables they measure. The Brief Resilience Scale (BRS) seems to be a reliable means of measuring resilience, such as the ability to recover from stress, while suggesting ways of coping with stressors. However, there is need for 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. Evaluating 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.\textsuperscript{[1]}

The Connor-Davidson Resilience scale (CD-RISC) is a brief, self-rated measure of resilience that has sound psychometric properties. The CD-RISC comprises of 25 items, each rated on a 5-point scale (0-4), with higher scores reflecting greater resilience. By using the CD-RISC, one can demonstrate:

- Resilience is quantifiable and influenced by health status (i.e., individuals with mental illness have lower levels of resilience than the general population)
- Resilience is modifiable and can improve with treatment, and greater improvement in resilience corresponds to higher levels of global improvement. The CD-RISC could have potential utility in both clinical practice and research.\textsuperscript{[9]}

A study assessed the predictive validity of the Resilience Scale for Adults (RSA) experimentally in relation to pain and stress. The RSA was deemed as a valid and useful instrument assessing resilience to pain and stress. As it has shown protective effects against stressful life events in real-life contexts, as well as a laboratory setting, it seems to offer versatile applications. Applying these findings to patients with chronic pain problems, one could expect that, in times of increased stress or negative emotions, the RSA may detect individual differences in pain experiences, general level of functioning, and possibly in the use of pain medication, as well.\textsuperscript{[10]}

One group of resilience scales [e.g., 2-item CD-RISC and Posttraumatic Growth Inventory (PTGI)] measures a subject’s self-evaluation of his/her prior experience in successfully overcoming stressful events and positive changes. These are likely to be reasonably robust cross-culturally, but require the presence of a stressor (or a research participant’s recollection of their response to a previous one). In terms of a general immunity model, these scales evaluate sensitivity to or efficiency of recovery from stress via anamnesis (prior life-related information) in the same way that a survey might measure a person’s previous sensitivity to and efficiency of recovery from influenza or another common infection.\textsuperscript{[3]}

A second group of scales (like RSA and RS) measure subjective factors, which are empirically considered as determinants of resilience. However, the strong role played by authors’ individual opinions and experience in determining underlying constructs for scales like the RS (‘Personal competence’ and ‘Acceptance of self and life’) and RSA (‘Personal competence’, ‘Social competence’, ‘Structured style’, ‘Family cohesion’, and ‘Social resources’) may limit their cross-cultural applicability. In terms of an immunity model, these scales measure potential actors related to the level of resilience analogous to antibody titers or killer cells. Some authors have incorporated in their scale constructions from both approaches [e.g., the Ego-Resiliency Scale (ER-89) by Block and Kremen, 1996].\textsuperscript{[3]}

A third or ‘reactivity’ approach involves measuring resistance to lower-level stressors encountered in daily life or through deliberate exposure to conditions with mental or physical effort contrast. Such approaches include the evaluation of balance of tolerance/sensitivity to regular stress through comparing work/non-work days or waking/sleeping states, or behavioral, subjective and physiological components of emotional reactivity to simple stimuli (e.g., pain), or complex information such as aversive tasks, films or texts in laboratory studies. These tests of reactivity to minor stressors have been proposed to assess a level of adaptive or maladaptive coordination of behavioral and physiological responses in particular contexts as a trait representing a mood-protecting endophenotype and maintaining a balance of negative and positive experiences. In terms of
an immunity model, this group of measures is similar to the measurement of immunity/tolerance levels as in the Tuberculin Sensitivity Test to Mycobacterium tuberculosis invasion. However, measures from the second and the third groups of resilience measures have been found to be only weakly correlated. The ‘reactivity’ approach to resilience measurement considers an adaptivereactivity as a common indicator of resilience which has been developed evolutionarily and ontogenetically at different (individual and group) levels and with different biopsychosocial mechanisms.[10]

**Neurobiology of resilience**

A central role of the brain involves both the perception and response to stressful stimuli. The mechanisms by which the brain responds to stress are of critical importance to the appropriate function of an organism. In this regard, cellular resilience in the brain and responses at the neuronal level to stress has become intriguing areas of research. The results of stress in the brain appear to include atrophy of hippocampal neurons, other morphometric and structural brain changes, a decrease in neurotrophic support, and changes in behavior in preclinical models. The hypothalamic-pituitary-adrenal (HPA) axis appears to play a critical role in mediating these effects. Increasing recent data implicate a critical role for glucocorticoids and corticotropic hormone-releasing factor (CRF) in long-term effects of early-life stress on hippocampal integrity and function. Clinical evidence is consistent with the preclinical evidence including structural and morphometric brain changes, and the finding that a significant percentage of patients with mood disorders display some form of HPA axis activation. Stress is a critical factor in the development of some psychiatric disorders. Some antidepressants, electroconvulsive shock therapy (ECT), and mood stabilizers (lithium) appear to modulate glucocorticoid receptor number and/or function, components of the HPA axis, and neurotrophic pathways and molecules in preclinical models. The possibility arises that regulation of these factors may be a principle component of susceptibility to develop psychiatric disorders.[11] The levels of dehydroepiandrosterone (DHEA) and neuropeptide Y are meaningful when studying the relationship between resilience and post-traumatic stress, along with coping strategies.[12]

A study investigated the effects of cognitive behavioral therapy (CBT) on neurobiological markers of resilience in posttraumatic stress disorder (PTSD) patients. Physiological (heart rate, respiratory rate, cardiac vagal tone, sympathetic balance, and skin conductance) and neuroendocrine (cortisol and DHEA) variables; and psychometric self-report measures (negative affect, resilience, PTSD symptoms, depression, anxiety, and social support) were assessed. Physiological, neuroendocrine, and psychometric responses at rest were measured before and after four months of CBT. The patient was a 45-year-old man who had suffered two armed robberies and failed to respond adequately to pharmacological treatment with paroxetine. CBT led to a reduction in heart rate, respiratory rate, sympathetic balance, skin conductance, and cortisol. It also led to an increase in cardiac vagal tone and DHEA. Furthermore, CBT promoted reduction of PTSD symptoms, depression, anxiety and negative affect scores, and enhancement of resilience and social support scores. CBT in this single case enhanced resilience-related factors such as DHEA, vagal tone, self-reported resilience, and social support suggesting that this therapeutic strategy not only contributed to ‘anti’ pathology effects but to ‘pro’ well-being. Additionally, the results show the relevance of investigating the effects of psychological treatments in multiple neurobiological systems in the same PTSD patients to unveil the neurobiological underpinnings of resilience factors.[12]

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 Diagnostic and Statistical Manual of Mental Disorders (DSM) and International Classification of Diseases (ICD).[11]

**RESILIENCE AT VARIOUS STAGES OF LIFE CYCLE**

**Resilience in children**

Understanding importance of developing resilience has stronger connect with child mental health as children who are exposed to adversities have worse developmental outcomes. A very simple correlation being that of children exposed to poverty being more likely to experience academic problems resulting in poor performance. In addition, children who grow up in a family or are raised by parents with psychiatric diagnoses have high probability of developing mental health issues.[2]

Stress from any event or life situation that disrupts children’s routines and sense of security puts children at risk for negative outcomes such as poor physical and emotional health, poor school performance, and lowered self-esteem. The risks increase when children face cumulative stress from many sources and when the stress is prolonged. The good news is that families that are intentional about pulling together in times of need can turn a serious challenge into an opportunity to build resilience in their children.[13]

One of the most immediately traumatizing events for children and adolescents is the death of a parent. Parental bereavement represents a permanent loss and separation
from the primary caregiver. The process of bereavement can be aggravated by additional stressors such as family restructuring, new expectations of children’s behavior, parental grief and distress, and death reminders.[7]

Child abuse and maltreatment also pose a severe threat to children’s development. Child abuse involves a significant deviation from the normative environment required for children’s successful development and, as a result, few maltreated children experience resilience. Despite this, there are maltreated children who achieve higher levels of adaptation than others do. This is likely due to the heterogeneity of maltreatment experiences.[7]

Three areas of strength are common among resilient children: (a) External supports and resources that provide safety and security: “I have people I can turn to in times of need”; (b) Personal strengths-attitudes, beliefs, and feelings that allow them to bounce back and move forward: “I am loved and I am lovable”; and (c) Social and interpersonal skills for interacting with others respectfully and responsibly: “I can contribute and share responsibility”.[13]

What children must master at each stage of development

**Early childhood (birth-7 years old)**

Children in early childhood need to acquire:
- Trust-the confidence that adults will be there to care for them
- Autonomy-the ability to establish their own rhythms of eating, sleeping, self-calming, and exploration
- Initiative-the drive to be actively engaged in learning about the world.

**Middle childhood (8-11 years old)**

- Friendship-the ability to make friends and gain the approval of peers
- Sense of Self-confidence in one’s ability to succeed in life
- Mastery-command of the basic life skills needed to be successful in school and at home.

**Resilience under dire situations: Impact of circumstances of disaster, war, and terrorism on children’s development**

A recent review examined the key components of risk/resilience models of disaster effects and responses: Exposure dose, determinants, and mediators; variability in exposure effects on individuals, including correlates and moderators; and intervention, including exemplary experimental research and consensus guidelines. The effects of disasters and mass violence on individual development can be described in relation to exposure dose or cumulative risks that pose significant threats or disturbances to individuals, families, or communities; resources or promotive factors required to counterbalance these threats or adversities; and moderators that exacerbate or ameliorate the consequences of the risks, often described as vulnerability and protective processes.[14]

The findings of the review can be summarized as follows:
- Extreme adversity experiences in the childhood has important repercussions on the nature of exposure, mediating and moderating processes, protective factors, future adaptive capacity, and design of interventions. Younger children are relatively protected in some ways and vulnerable in others in comparison to older youth
- There is growing interest and evidence related to the biological embedding of extreme stress in human development and increasingly plausible explanations of mediating processes that could explain its long-lasting effects on health and well-being, even across generations
- Given the striking shortage of data on intervention effectiveness despite pressing international need, research on pre- and post-disaster interventions to promote resilience in young people and families in mass trauma situations is a top priority
- Despite limitations in the evidence base, there is a strong consensus on broad guidelines for child-sensitive preparedness and response to disasters and political conflicts, based on theory, basic and applied research, and field experience. These guidelines include training of all disaster-response personnel on special needs and issues of children; recognition of parents, teachers, and care providers as first responders who also need training; avoiding separation of children from caregivers and reuniting separated families; careful monitoring of media exposure in children; and rapid restoration of routines, schools, and opportunities to play or socialize with peers
- Understanding and addressing the complexities of risk and resilience in human development under conditions of mass trauma require collaboration and greater integration of knowledge and methods across multiple systems and levels of analysis.[15]

A recent study evaluated resilience as a dynamic concept by looking at risk and protective factors for children of divorce in British-Indian Hindu and Sikh families using Bronfenbrenner’s ecological model for human development. High resistance for divorce within the British-Indian cultural values present high risk for children in conflict-ridden families. Cultural norms against remarriage further limit women’s life choices that have an impact on children in lone-mother families. However, cultural ideologies, religion and practices also provide protective and resilience building features. For ethnic minority children, cultural tenets, and practices of worship are also important sources of hope for children to help them cope. The community also presents resources and risks. While this collective can and does provide flexible and informal support for the divorced family, it also acts as an agent that ensures that cultural values are upheld. These cultural values however marginalize and stigmatize the divorced family.[16]
The larger macro-context serves as an additional context. Though there may be sources of support available in the larger mainstream context, there is structural racism and discrimination that can limit opportunities and access for migrant groups. Migrant groups can thus feel more inclined to build strong community networks with their groups for support and expect loyalty of their community members based on traditional norms that emanate from their countries.

The larger context, nonetheless, offer alternative sources of socialization that is stigma free and provides a more normalized identity to divorced families that are isolated in the British-Indian community. The macro-context also offers support, educational, and employment opportunities that newer generation of British-Indian children can en-cash on.[16]

Resilience in adolescents
Although there has been a robust growth of a psychology of adolescence, it has been accompanied by a decline in the overall well-being and health status of adolescents. Although morbidity rates for most other age groups have declined in recent decades, today’s youth continue to experience a host of problems, including adolescent suicide, depression, violence and death due to violence, unplanned pregnancy, substance abuse, and sexually transmitted disease. Further evidence that problems of adolescence are on the rise comes from longitudinal research indicating that rates of emotional and behavioral problems of adolescents (and children) have increased over the past 10 years. These recent trends in research and theory concerned with adolescent development offer a solid foundation for continued understanding of both normative and atypical developmental processes and paths during adolescence. The field will benefit from renewed debate about the usefulness of fundamental psychological models for understanding adolescent development. Recognition of the significance of biological, psychological, and social processes provides a broad framework for understanding adolescent development. An increased attention to the implications of research for interventions is needed to improve the quality of life for adolescents and to guide the development of sound public policy. In spite of the significance of psychosocial problems of adolescence, well-designed, and evaluated interventions for the prevention and treatment of these problems have been rare. The strong knowledge base on biopsychosocial processes in adolescent development provides a foundation for the continued development of interventions to address the problems of adolescence.[17]

What adolescents must master and acquire to build resilience
• Identity-the sense of what is unique and distinctive about themselves
• Expectations for the future-the ability to prepare for adulthood.

Waaktaar et al., in his multi-informant twin study demonstrated that resilience as a latent personality trait was highly genetically determined for both sexes. In this study, common environmental factor had no effect on trait resilience of the twins, while non-shared environment had moderate to low effect. These findings make genetic make-up one of the strong predictor of resilience in adolescents.[18]

Resilience in adults
According to the main effect hypothesis, people with relatively strong social support have better health than those with weak social support, irrespective of exposure to stressors. According to the indirect effect (Buffer) hypothesis, people with strong social support have better health than those with weak social support, only under exposure to stressors.[19]

A landmark 10-year follow-up study done by Dalgard et al., confirmed Buffer Hypothesis. The buffering effect in that study was statistically significant only for depression. The study also showed that for the internals (those who see themselves as the most important factor in controlling their own lives) there is no buffering effect of social support, unlike the externals (those who have a feeling of powerlessness and lack self-control). The study directed towards strengthening of social support having preventive effect on mental health.[19]

Mature defenses comprise one well validated indicator of resilience. In a study done by Simeone et al., resilience was significantly negatively correlated with childhood interpersonal trauma and with harm avoidance. Resilience was significantly positively correlated with urinary cortisol secure attachment, reward dependence and superior performance. In a linear regression analysis, the strongest predictor of resilience was childhood trauma, followed by math performance under stress and harm avoidance. This study showed that in adults without manifest psychiatric disorder, resilience was associated with developmental, biological, and cognitive measures which merit further investigations. This observation strongly emphasizes the importance of research needs in understanding effects of various bio-psycho-social factors affecting resilience in adults.[20]

There is an interesting study done by Ambriz et al., highlights mediation model that supports the theoretical assumption of resilience. It incorporates characteristics considered either individual traits or behaviors learnt over time, which protect and enable people to adapt in the face of tragedy, trauma, adversity, hardship, and ongoing significant life stressors. Specifically, psychological resources: Internal
control, self-esteem, optimism and coping strategies of acceptance, and seeking emotional support on the one hand and social contacts on the other, conjointly moderate the negative effect of stress on life satisfaction.[24]

A compilation and review of study done by Portland State University noted that a higher proportion of females than males managed to cope effectively with adversity in childhood and adulthood. They relied more frequently on informal sources of social support than the men. These same gender differences may also apply to coping with old age.[22]

The association between maltreatment experience and aggression might reflect a gene-environment correlation. Evidence suggests that this is not the case; that the association between maltreatment experience and aggression is one that is environmentally mediated and perhaps causal. Although, a substantial proportion of maltreated children become maltreating parents, this association is neither direct nor inevitable. Multiple circumstances and mediating mechanisms may explain how some maltreated individuals show resilience and do not abuse their own offspring or otherwise demonstrate adequate caregiving. First, an early study of women who had been reared in institutions found that the women who had managed to find supportive, stable spouses demonstrated good quality caregiving that was comparable to the caregiving provided by the non-institutionalized comparison group. The women’s ability to exercise planning was found to be the most important variable in explaining how well they fared in their marriage and parenting roles, despite having been raised in an institution.[23]

**Resilience in the context of elderly population**

Resilience is a concept of growing interest in relation to older people and within the context of population ageing. Older people’s understandings and experiences of resilience, drawing on interviews and participant-led focus groups with 121 older people living was assessed in two case-study communities in New Zealand. Close reading of extended conversations about what characterizes resilience, such as positive attitude, counting blessings or keeping busy; reveal how all of these apparently internal or personal characteristics are deeply embedded in social and physical contexts. Resilience must be viewed as the process, which can be both individual and environmental. Older people’s experiences highlight the need to consider the effectiveness of environmental community resources and socio-political structures such as state-funded service availability, as well as the personal characteristics that are usually focused on when considering resilience in old age.[24]

It is also important to consider different aspects of resilience, so that a person or group might face constraints in one area, such as physical or economic wellbeing, but be strong in other areas such as social relationships or mobility. Resilience can mean acknowledging and incorporating ‘vulnerability’ and balancing well-being across a range of areas. Therefore, even those living with significant illness or hardship can be understood to be ageing well and indeed to be resilient. Far from using resilience as a narrow measure against which to succeed or fail, resilience is a useful concept framing how ageing well can incorporate multidimensional pathways including both vulnerability and flourishing. Adequate attention must be paid to the broader physical and social contexts and scales that underpin or undermine individual resilience.[24]

**THE CONCEPT OF FAMILY RESILIENCE**

A family resilience perspective fundamentally alters that deficit-based lens from viewing troubled families as damaged and beyond repair to seeing them as challenged by life’s adversities. Rather than rescuing so called “survivors” from dysfunctional families, this approach engages distressed families with respect and compassion for their struggles, affirms their reparative potential, and seeks to bring out their best. Efforts to foster family resilience are aimed to avoid or reduce pathology and dysfunction as well as to enhance functioning and well-being. Such efforts have the potential to benefit all family members as they fortify relational bonds.[19]

A family resilience framework can serve as a valuable conceptual map to guide prevention and intervention efforts to support and strengthen vulnerable families in crisis. Family resilience involves more than managing stressful conditions, shouldering a burden, or surviving an ordeal. This approach recognizes the potential for personal and relational transformation and growth that can be forged out of adversity. By encouraging key processes for resilience, families can emerge stronger and more resourceful through their shared efforts. A crisis can be a wakeup call, heightening attention to what matters. It can become an opportunity for reappraisal of priorities, stimulating new or renewed investment in meaningful relationships and life pursuits. In fact, families report that through weathering a crisis together, their relationships were enriched and more loving than they might have been otherwise. In other words, members may discover untapped resources and abilities they had not recognized.[19]

**Parent’s roles in helping the family pull together during difficult times and build resilience**

*Show affection*
- Express love in physical and verbal ways
- Find ways to have fun together.

*Explain the situation to children at a level they can understand*
- Tell them that the situation is not their fault
- Be specific about what will change and what will remain the same
- Reassure them that the family will get through this.
Encourage good problem-solving skills
• Engage every family member in discussions about the hard choices that this situation might require
• Acknowledge everyone’s ideas and solutions.

Build responsibility
• Assign chores
• Show appreciation for each person’s efforts.

Monitor children
• Maintain rules and routines
• Always know where children are
• Maintain communication when apart from children
• Get to know children’s friends
• Stay involved in children’s homework and activities.

COMMUNITY RESILIENCE
A study conducted in rural Australian community identified the components of community and individual resilience: Social networks and support, a positive outlook, learning, early experiences, environment and lifestyle, infrastructure and support services, sense of purpose, diverse and innovative economy, embracing differences, beliefs, and leadership. The study findings extend the concept of resilience and increase the evidence base for design of strengths-based approaches to community development and mental health interventions.[25]

Notable among the components were the following.

Social networking
The importance of the support provided by family, friends, or networks based upon shared cultural, economic, or recreational interests, was strongly emphasized as a foundation of both community and individual resilience. A supportive social network helped an individual to cope during hard times, and positive and caring individuals strengthened the network. Extended family networks were particularly important, with the links resulting from intermarriage, or shared interests such as faith or a profession.[25]

Positive outlook
Having a positive outlook was seen as a crucial component of individual and community resilience across all groups within the study. Of the characteristics included within the positive outlook concept, determination and perseverance were the most frequently reported as essential components of resilience.[25]

Learning
Learning from experience was also closely related to having a sense of purpose for some participants.[25]

Early experience
The influence of early experiences, at both an individual and a community level, was believed to be an important component of resilience. The types of early experiences highlighted included struggle and hardship, specific cultural and heritage factors such as Italian and farming influences, and parenting or school practices. Participants believed that history shaped the future for the community and individuals.[25]

Sense of purpose
Having a sense of purpose was reported as an important element of resilience. Participants felt that having beliefs was important but the form of the belief was less important. Self-belief was an important aspect of individual resilience for many participants.[25]

Developing resilience
• Is the ability innate or acquired?
• Can everybody have it?
• Is it stable or does it change over time?[1]

Characteristics linked to the development of resilience are a complex and extensive group of concepts: Cognitive and attributional styles, self-control, self-concept, etc.[1]

Strong attachment, the effect of stress responses and the ability to challenge, controlled exposure to risk and avoidance of limitation and the different coping strategies are related to the development of resilient capacity. The positive psychology movement promotes the teaching of positive form mental attitudes, especially in children and adolescents, thus building resilience. Positive experiences influence health directly through healthy behaviors and social support, and indirectly as a buffer against stress. Protection factors seem to be more important in the development of resilience than risk factors. 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. It is, therefore, a process that lasts a lifetime, with periods of acquisition and maintenance, and reduction and loss to be assessed.[1]

The role of family and school are extremely important in development of resilience in children. It has been seen that even in presence of one significant adult in child’s life the resilience development is proper and handling of difficult circumstances are more effective.

Enhancing resilience
Enhancing resilience is an ambitious goal that aims to promote mental health and develop socio-emotional competence. 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 face adverse situations properly with cohesion and caring. Most important among the family
factorsthat shape the family’s resilience are a positive outlook, a spiritual sense, communication and agreement amongst its members, flexibility, family time, sharing fun and the existence of rules and routines.[1]

The relationship between everyday positive emotions and increased satisfaction is established through resilience. Therefore, satisfactions derived more from resilient capacity and not so much from positive emotions. The characteristics of the environment are of great importance in personal development and family well-being because they contribute to build resilience. These characteristics include health conditions, home stability, positive role models and available resources, both formal and informal.[1]

Understanding the origins of resilience is an important precursor of any successful intervention. Where resilience arises from family, school, peer group or community factors, interventions should take place in those settings. Interventions in single domains have not shown resistance to problematic outcomes. Children experience multiple risks in multiple social contexts and it is improbable that a magical solution for prevention and intervention will be discovered. Keeping this in mind, prevention and intervention should use combination of efforts to target multiple sources of resilience. There are various social subsystems that play important role in producing or reducing social and academic competence.[2]

**Approaches for applying resilience theory in practice**

Research into factors associated with resilience has led to the development of a number of guiding frameworks for intervention. There is some consensus in the articulation of these frameworks with agreement in the need for practitioners and service designs to focus on.

- Altering or reducing a child’s exposure to risk
- Reducing the “chain reaction” or “pile up” of risk exposures
- Creating opportunities or increasing resources available to children
- Processes, for example, in improving attachment, self-efficacy or self-esteem, or “resilience strings” that can have a knock on effect.

It is suggested that the most effective intervention programmes involve “multi-faceted paradigms that attempt to reduce modifiable risk, strengthen meaningful assets, and recruit core developmental processes within the child, family and the broader community”. [6]

**Models for practice**

Child welfare academics who have focused on developing models for the practical application of resilience theory identify three fundamental building blocks of resilience:

- A secure base, whereby, the child feels a sense of belonging and security
- Good self-esteem, that is, an internal sense of worth and competence
- A sense of self-efficacy, that is a sense of mastery and control, along with an accurate understanding of personal strengths and limitations.

Alternatively, these can be expressed as “I Have…, I Am…, I Can… ”. Attention to different domains in children’s lives-secure attachment relationships, education, friendships, talents and interests, positive values and social competencies-can help practitioners to appraise and identify ways to strengthen these building blocks. It is argued that such resilience frameworks unify and expand upon developmental, attachment, and ecological approaches and can enable a more holistic focus on what children and young people need to fulfil their potential. The framework fits closely with the aim of ‘Getting It Right for Every Child’ to encourage practitioners to draw on what family, community, and universal services can offer.[6]

**FUTURE DIRECTIONS ON RESILIENCE**

Resilience approach in mental health research is currently hindered by the lack of a unified methodology and poor concept definition. Similar to the concept of somatic immunity, the concept of mental resilience is crucial to our understanding of how risks may be modified and disorders prevented. Application of a general immunity model as a common framework to resilience research in mental health can help to clarify underlying mechanisms and challenges, which contribute to our understanding of health in general and mental health in particular.[3]

The resilience approach is in keeping with the World Health Organization’s conceptualization of mental health as a positive state of psychological well-being going beyond the absence of disease (World Health Organization, 2005). The absence of mental disorder cannot, therefore, be taken to be synonymous with mental health, and positive well-being cannot be conceptualized, measured or explained simply as the inverse of poor mental health. It should now include factors and mechanisms determining level of protection against adversities, and rates of health promotion and harm-reduction processes in aversive conditions arising from a balance maintained by negative and positive experience as described according to an arousal-related homeostatic hypothesis. This balance of remembered early positive experience and remembered successful coping with stressful episodes may contribute to well-being through more effective coping. However, resilience mechanisms should not be restricted to the individual level but must also be considered to be the result of a variety of group-level (e.g., community and cultural) factors and their interactions.[3]

In an evolutionary context, the protection of biological systems cannot be developed against all possible challenges,
therefore, the function of some specific protection systems must be extended through a restricted range of non-specific defence mechanisms (general anti-stress fortification) and mechanisms with reserve for specific (anti-stress) training. Thus, the resilience approach may help to simplify selection and evaluation of interventions (e.g., psychotherapies) compared to the traditional health risk-related approaches.\[3\]

For the purposes of public health intervention, resilience research should not only identify those members (countries, social groups or individuals) of a surveyed ‘at-risk’ sample who demonstrate resilience, but also identify the specific characteristics of resilient groups or individuals. Failure to investigate these factors will hamper our ability to understand mental health problems and hence promote good mental health. Protective factors have an additional powerful indirect role in mitigating the effect of risk factors and should be measured simultaneously, without simply assuming that the former are the converse of the latter. However, deficit and defects in measurement instruments may limit validation of resilience factors and mechanisms. Because resilience relating to positive adult experiences may stem from childhood protection against adversities, a lifespan trajectory approach is needed to understand the constellation of interacting biological, psychological, social factors that determine, develop or modify resilience (Bennett, 2008). Also, because of the crucial importance of gene-environment interactions with various epigenetic, ‘plasticity genes’ and ‘meaning change’ mechanisms relating to resilience, a wide range of research strategies spanning psychosocial and biological methods is needed.\[3\]

Despite this accumulating evidence, the study of resilience across the life span is still relatively uncharted territory. There is urgent need to explore the “reserve capacity” of older people who are an increasing segment of our population—their potential for change and continued growth in later life. Future research on resilience also needs to focus more explicitly on gender differences in response to adversity. There is strong need for more evidence from twin, adoptee, and family studies about the mediating effect of genetic influences that lead to positive adaptation in the context of adversity. Future research on risk and resilience also needs to acquire a cross-cultural perspective. Also, one needs to carefully evaluate intervention programs that aim to foster resilience.\[22\]

The major concerns about resilience revolve around properly defining the concept, identifying the factors involved in its development and recognizing whether it is actually possible to immunize 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.\[1\]

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Source of Support: Nil, Conflict of Interest: None declared