

Resilience: A Cognitive and Psychosocial Phenomenon

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Abstract. Resilient individuals may be identified as those who are firmly grounded in today, who have benefited from yesterday, and who have the capacity of seeing themselves in tomorrow. Therefore, it is important to understand the underlying dynamics that allow these people to be resilient. The nature-nurture concept contributes to an individual's resilience. Via neuroscience research it is becoming abundantly clear that nature is the stronger factor. The contribution of nurture, however, must also be considered. What does nurture contribute to the individual and/or the environment? Does proper caretaking of the individual and the environment increase resilience, or does resilience merely depend upon the neuroscience of genetics? This article will explore the multifaceted concept of resilience.

Keywords: *resilience; cognition; psychosocial issues; adversity; choice*

Аннотация. Стойкий индивид — это тот, кто крепко стоит на ногах сегодня, использует то, что было вчера, и способен представить себя в завтрашнем дне. Поэтому необходимо определить факторы, которые позволяют людям быть стойкими. Для понимания стойкости индивида важна концепция взаимосвязи наследственности и воспитания. Исследования в области нейронаук доказывают большую роль наследственности, но нельзя не учитывать и вклад воспитания. Каков вклад воспитания в индивида и/или его окружение? Усиливают ли устойчивость хороший уход и благоприятная среда

или она зависит только от нейрогенетики? В статье обсуждается многоаспектность понятия «устойчивость».

Ключевые слова: *устойчивость; когнитивные науки; психосоциальные проблемы; противостояние; выбор*

The Cognitive Neuroscience of Resilience

When exploring the nature-nurture contributions to the phenomenon of resilience, it is important to examine four types of people. According to Nemeth and Olivier (2017), they are as follows: (1) those who know and have good psychosocial skills; (2) those who know, but have limited psychosocial skills; (3) those who do not know but have excellent psychosocial skills; and (4) those who do not know and have few psychosocial skills. A modification of the Jo Hari Window (Luft & Ingham, 1955) can be used to illustrate these positions (see *Figure 1*).

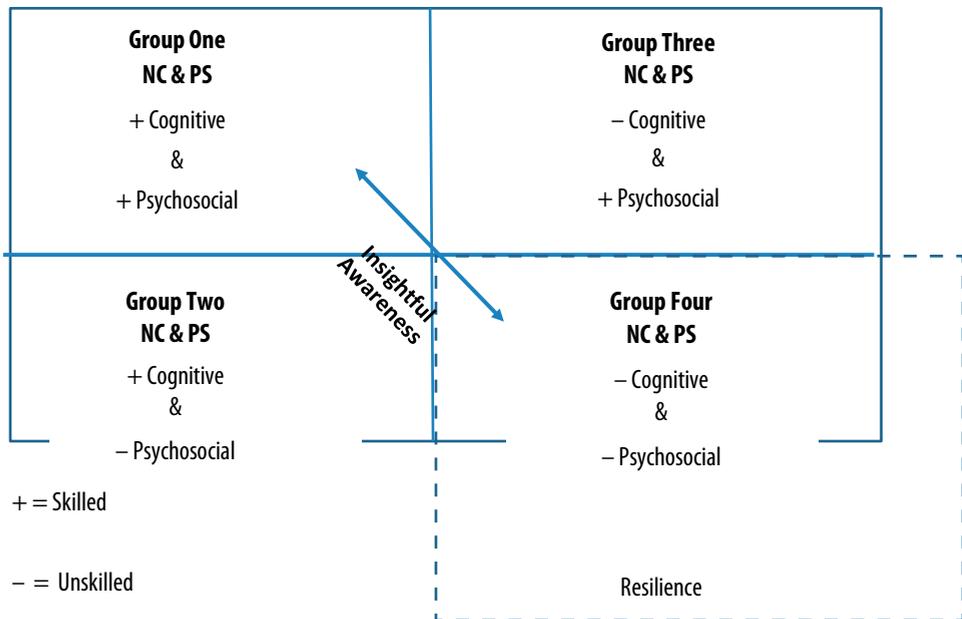


Figure 1. Modified Jo Hari Window: NC — Neurocognitive; PS — Psychosocial

Some people are born with good cognitive skills and have been able to acquire the psychosocial skills along the way to adulthood, for it is a developmental process. Others have not been able to acquire the needed psychosocial skills to become effective adults. At times, those with minimal cognitive skills have been able to maximize their psychosocial skills for effectiveness. And lastly, there are those with few skills who keep stumbling along.

The first group frequently rises to robust leadership positions. The second group has the required cognitive skills but tends to be psychosocially inept. The third group desires

to lead, but lacks the cognitive skills required to make wise decisions. The fourth group has neither and is therefore easily lead, frequently by those in Group Three. Robust leaders are rare; bullish leaders are common.

In order to move people out of Group Four, resilience intervention (teaching/learning) is required. Yes, resilience can be learned both cognitively and psychosocially. Furthermore, because our world is experiencing trauma, environmental and/or human-caused, people must become more resilient if they are to survive, let alone thrive. People must become more firmly grounded in the present so that they can learn from the past in order to make wiser decisions in the future. But, how is this wisdom acquired?

The Cognitive Neuroscience of Resilience

Over the past 20 years, the research on the biological contributions to the study of resilience has been profound; therefore, a concise understanding of these findings has been offered by Liu, Zhang, Ji, and Yang (2018), *Figure 2*.

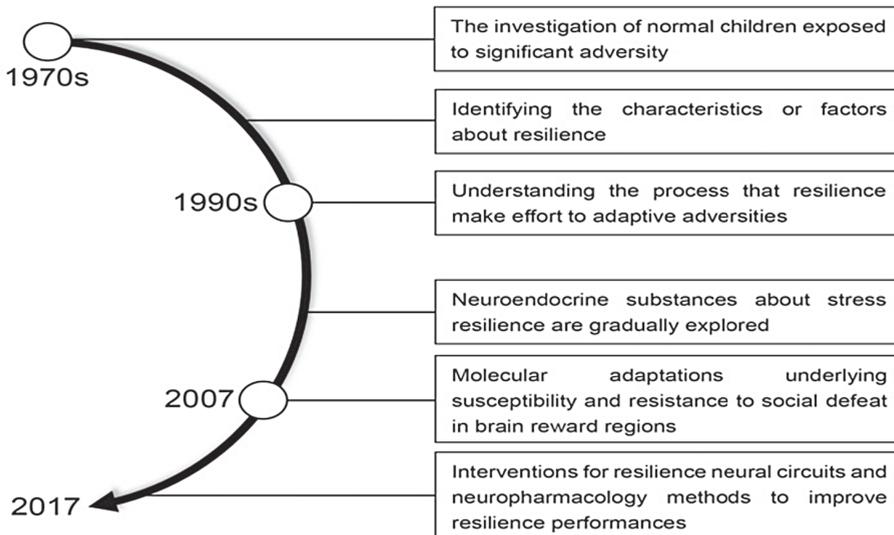


Figure 2. A brief history of resilience research (Liu et al., 2018)

Liu and colleagues conclude that factors such as the Brain-derived neurotrophic factor (BDNF), the role of the meso-limbic system, the medial Prefrontal Cortex (mPFC), the Hypothalamus-Pituitary-Adrenal Gland (HPA) Axis, the hippocampus, nucleus accumbens, amygdala, and the VTA-NAc pathway are now being carefully studied in humans. At first, these experiments were with rats. Factors such as the roles of the neuropeptide oxytocin, the neurotransmitter glutamate, gamma-Aminobutyric acid (GABA), the neuropeptide Y (NPY), ketamine, 5-HP and others are also being explored.

Resilience is no longer a nature v. nurture issue. Now, both nature and nurture are considered important in the understanding of the brain. Neuroscientists Hunter, Gray,

and McEwen (2018) define resilience as an “active process that involves using a person’s adaptive capacity to achieve a positive outcome” (p. 307). Then they cite the most commonly used neuroscientific definition of “resilience as the ability to achieve a successful outcome in the face of adversity” (Ibid.).

Stress is another concept that is being widely explored by neuroscientists, who are concluding that not all stress exposure is bad. For example, research is now being conducted on good stress (e. g., military boot camp) versus bad stress (e. g., physical abuse). Allostasis, or how the body responds to stress in order to regain homeostasis, which is the body’s ability to maintain equilibrium, are significant areas of study post adversity. Adaptive plasticity is another important factor. In this regard, even adult brains are now considered to have the capacity for neural plasticity. The concepts of adult neuroplasticity and epigenetics are now being included in cognitive research. How an individual’s brain adapts or maladapts to various life experiences is considered crucial across the lifespan. Hunter and colleagues (2018) note that “self-regulation and locus of control are critical to how an individual is able to actively resist adversity or learn from bad experiences and recover” (p. 316). Various regulatory mechanisms in the brain, such as the hippocampus, can exert regulatory control over the HPA axis and help with recovery. Furthermore, the VTA-NAc pathway can mediate stress susceptibility and promote resilience. Thus, the balance of good stress and bad stress can increase the brain’s adaptability, even under the most demanding adverse circumstances.

In childhood, brain plasticity, via exposure to the natural world, is especially valuable (Chawla, Keena, Pevec, & Stanley, 2014; Masten, Herbers, Cutuli, & Laffavor, 2008). It is clear that resilience begins in childhood, if not in utero. Positive experiences and good caregivers can positively influence a child’s resilience. Other factors include intelligence, good executive functions, emotional regulation, maturation to achieve, and mastery, most of which can be learned (Horn, Charney, & Feder, 2016; Sapienza & Masten, 2011; Wu et al., 2013). Thus, the brain’s ability to adapt to adversity and recover is a process that begins in childhood.

The Psychosocial Aspects of Resilience

Resilience has been defined by so many people in so many different ways (see Nemeth & Olivier, 2017, pp. 3–6). All of these definitions include concepts such as belonging, adapting, absorbing, adjusting, coping, meaning-making, engaging, reflecting, and moving on. Ideally, these skills must first be learned in the family and then fostered in the community.

Children must be taught: (a) to accept and express their feelings when things go awry, (b) to be aware of their physical reactions, (c) to enhance their self-competence via positive coping skills, and (d) to promote a sense of hope and optimism, to make-meaning of the circumstances, even though they may be dire (Berger, 2016). In this regard, flexibility and inner strength are required. These qualities can be learned from good role models.

Sometimes, however, a good role model may not be available Bowlby (1969) addresses the havoc that disturbances of attachment behavior can bring. Such disturbances can undermine a child's ability to develop resilience. Besides, these developmental factors, Pangallo, Zibarras, Lewis, and Flaxman (2015) point to two other issues that may undermine resilience: situational constraints and sociocultural processes. Therefore, these three factors may impede nurture. For example, just simply being together for social bonding has been impeded by the Coronavirus. Too much alone time is not good (Bowlby, 1973, p. 167). For children, it can be extremely frightening... for adults as well. Lastly, technology (i. e., screen time) is not a replacement for people time. Turkle (2011) defines the concept of "alterity" as being about to see the world through the eyes of another. She then concludes that "without alterity there can be no empathy" (p. 55). Those in Group Three lack the cognitive ability to empathize; therefore, they bully instead. Power and control instead of wisdom prevail. Usually these people are very lonely and have been since childhood.

According to Cacioppo & Patrick (2008) people in Group Three are not resilient. Their need for connection has long since frozen over. Instead it has been replaced by cognitive dysfunction, paranoia, and social detachment. Developmentally, they missed out on learning how to recognize, label, and share their feelings... a process that must be taught early on (Nemeth, Ray, & Schexnayder, 2003).

Children must also learn how to listen. Some children may not have attention deficit hyperactive disorder (ADHD) (Glozman, 2020); they perhaps have never really learned how to listen. Turkle (2011, p. 42) notes that resiliency can be strengthened by conversation. But conversation, rather than interruption, requires people to pay attention, clarify, and reflect before responding. As the first author sees many people who do not know how to listen, the following Active Listening Handout is utilized:

1. **Listen completely and attentively:**

- don't think,
- don't prepare your rebuttal,
- don't interrupt.

2. **Summarize what you heard the other person say:**

- don't interpret,
- don't go beyond what was said.

3. **Clarify before you respond:**

Give the other person an opportunity to correct any

- misinterpretations (you),
- misrepresentations (other).

4. **Restate your summary:**

Understand what the other person is thinking

- follow the person's logic,
- understand how the person came to that conclusion.

Empathize with the other person's feelings

- don't focus on your feelings,
- remember, you can empathize without agreeing.

5. Respond:

- don't react,
- consider the other person's position,
- seek compromise,
- don't judge, rather relate.

In conclusion, you can either be right or related, not both.

In order to be effective human beings, as Sherry Turkle, Ph.D., noted, we must reclaim the art of conversation. Although cognition is indeed a science, psychosocial skills are an art form. Both must be blended and practiced to achieve efficacy.

Castro and Zautra (2016) focus on Social Intelligence Theory, which includes four core principles: humanization, uniqueness, automaticity, and choice. They teach: reflective awareness, capacity enhancement for meaningful healing and healthy social connections, and fostering resilience when facing challenges and/or adversity. Developing these skills requires active listening and active listening requires patience. Eisenberger (2012, p. 421) notes that it is very painful not to be heard.

For so many children, aggression is the norm. Aggression is a product of categorization, dehumanization, and not being heard. These individuals tend to be members of Group Four. According to Castro and Zautra, they have not been taught to be kind, respectful, and socially compassionate. But they can learn these skills, if not at home, for many do not have homes, then at school. Schools must teach communication and resiliency skills, not just Science, Technology, Engineering & Math (STEM) skills.

As cited in Nemeth and Olivier (2017, p. 18), Judith Rodin (2014) notes that teaching resilience involves a five-step process:

1. Awareness — knowing one's strengths and assets.
2. Adaptivity — having the capacity to adjust to changing circumstances.
3. Diversity — having multiple capacities to adjust to changing circumstances.
4. Integration — coordinating one's feelings and actions as/when needed.
5. Self-regulation — being able to deal with difficult situations and disruptions without extreme malfunction or catastrophic collapse.

This five-step process to preparedness fosters insight through human connection. It is a process that is on-going and must be revisited on a regular basis. Prepared for what? How? When? The answers change on a regular basis. What worked last time may not work this time. It is an evolving process that requires both cognitive and psychosocial skills. Thus, the requirements of resilience are ever-changing, yet the process remains the same.

Childhood Protective Factors

According to Nemeth and Olivier (2017, p. 19), if people are born into Group One, they have had the benefit of the following:

1. A healthy attachment relationship and good caregiving.

2. The development of effective emotional regulation skills.
3. The development of good self-awareness skills and the capacity to visualize the future.
4. The development of a mastery motivation system that drives them to learn, grow, and adapt to their environment.

Even so, coping strategies can be taught. Most significantly, people in Group Four can be taught to

- 1) recognize and face their feelings and experiences;
- 2) acknowledge and affirm those fears and expectations for themselves and others;
- 3) identify and solve problems;
- 4) re-access and reprioritize on a regular basis (Nemeth & Whittington, 2012, pp. 114–115).

As experienced by members of Group Two, knowledge without these coping skills is often useless. These individuals often know what to do, but lack the psychosocial skills to achieve it. When faced with environmental trauma, for example, such leaders are often paralyzed and unable to make wise decisions.

As referenced earlier, it is not *if* an environmental trauma is going to occur, it is *when* it will happen. Now, hurricanes, floods, and forest fires, let alone wars and displacements, are the norm, not the exception. Being prepared is very important, but understanding the Six Stage Recovery Process from Environmental Trauma is even more salient. Sometimes, being prepared is not enough. At times, prevention is not possible. Understanding this recovery process is crucial. Nemeth and Whittington (2012, pp. 120–126), identify these six stages as follows:

1. Shock — A natural response to disruption.
2. Survival mode — doing whatever it takes to survive.
3. Assessment of Basic Needs — food, water, shelter, and safety.
4. Awareness of Loss — of people, place, and culture.
5. Susceptibility to Spin and Fraud — at times when people’s vulnerability can be exploited.
6. Resolution — marked by anniversary reaction symptoms to an emotionally charged adversity.

Unfortunately, this is not a linear process. Depending on the immediate stressor, each stage can be revisited multiple times.

Developing Resilience

Therefore, resilience is key. But how is it developed? According to Rachel Yehuda et al. (2013), it is a matter of “moving forward in an insightful and integrated positive manner” from an adverse experience (p. 3). This requires expanding insight, a process that can be taught. Thus, people in Group Four can be taught to expand their insightful awareness. People must learn to be fluid, rather than remain static during times of trauma, no matter what the source of the adversity.

Resilience and Hope

Nemeth and Olivier (2017) refer to resilience as a state of the mind (cognitive), whereas hope is perceived as a trait of the heart (psychosocial). Both are necessary for survival. On a personal note, the first author of this article had the privilege of knowing an amazing Polish artist by the name of Walter Sobol. Toward the end of World War II, Mr. Sobol, who was an active member of the Polish Underground Resistance, was captured by the Nazis and sent to Auschwitz. While there, he was given a choice — break your hands or paint pictures for the Nazis. For every picture he completed, one Jewish person would not be sent to the gas chambers. When I asked Walter, a family friend of my parents, how he handled the pressure, Walter proclaimed, “Darlyne, I learned to paint very fast,” (personal communication).

This expression of resilience and hope has always stayed with me. As Snyder, Lopez, and colleagues (2011) affirm, being flexible and choosing hope is always the better alternative. Snyder created group-based school programs to “Make Hope Happen.” Although both psychologists are now deceased, Dr. Richard Miller indicated that their professional contributions will surely live on (Personal communication, 2020). Along with their colleagues, Snyder and Lopez endeavored to create high hope, resilient children. These children were taught to: believe in themselves, think wholesome thoughts, focus on their positive feelings, and choose healthy behaviors. They were taught to respond, not to react. By learning these skills, these children were no longer members of Group Four. Regardless of what they did or did not learn at home, these children learned to manage their anxiety and/or anger and to give themselves the gift of self-esteem. They were taught how to prevent, diffuse, contain, and resolve their negative emotions, especially anger (Murphy & Oberlin, 2001), in order to talk calmly and engage in problem-solving skills. These skills, which must be taught, involve a five-part problem-solving process:

1. What is the problem?
2. How can I solve it?
3. Am I using an effective plan?
4. Was my plan successful?
5. Did my feelings help or hinder success? (Nemeth & Chustz, 2020, p. 121).

Murphy and Oberlin note, however, that the 5th component of successful problem-solving, must be the first one to be addressed and resolved. Therefore, Lopez (2011) concludes that: hope is a journey, which must be defined, found, encouraged, created, and reiterated. It involves laughter, faith and love — the love of self and family.

Families Matter

For those who have been fortunate enough to have been born into healthy families, they are automatically placed in Group One, for families are the most important psychosocial entities. Those families instill positive attitudes and healthy choices. Nemeth and Olivier (2017) offer the following “smorgasbord of choices” (p. 149):

1. Accept support.
2. Arrange to be heard.
3. Set realistic goals.
4. Plan the next step.
5. Continue healthy habits.
6. Learn from the past.
7. Get adequate sleep and exercise.
8. Schedule “self-time.”
9. Continue family traditions.
10. Share the burden.
11. Be flexible.
12. Maintain hope and humor.

No matter what happens, people have choices regarding how to respond. This is never more apparent in Miyoko Mikamo’s response to the bombing of Hiroshima (Nemeth & Olivier, 2017, p. 144). As a young boy, he found a way to survive and thrive against all odds. His daughter, psychologist Akiko Mikamo, PhD, recently released a film documentary, *8:15*, on her father’s journey. Regardless of how painful the journey, Mr. Mikamo lived a life of forgiveness and empathy. As adults, Shinji and Miyoko Mikamo taught Akiko to find a way to survive and thrive. And they did! (Ibid., pp. 144–145). They also taught her to create cultural bridges and to help people learn. Lastly, they taught her to be grateful and empathize, rather than to be angry and sympathize.

In order to move from static to flexible, 5 determinant clusters and four process clusters are involved. According to Bogar and Hulse-Killacky (2006), they are as follows:

Determinant Clusters

- Interpersonally Skilled
- Competent
- High Self-regard
- Spiritual
- Helpful Life Circumstance

Process Clusters

- Coping Strategies
- Refocusing and Moving On
- Active Healing
- Achieving Closure

As is the case of Mr. Miyoko Mikamo, who survived the bombing of Hiroshima, perceptions are crucial to outcomes.

Perception Versus Absorption

Nemeth & Olivier (2017) conclude that perception requires insight, which is defined as “the faculty involved in grasping the inner character or underlying truth” (Wolman, 1989, p. 179). Insight requires faculty, or the ability to discern the truth, not just the ability to absorb facts. Perception requires the responsibility of discernment. It is a process; whereas, the absorption of facts requires no effort at all. Perception is an active process; whereas absorption is a passive process. Those capable of perception are found in Group

One; whereas, those focused on absorption may be found in Group Four. How “facts” are “marketed” has become a major issue, Perception is an active process that requires discernment; whereas absorption is a passive process that requires no thought at all. Seeking comfort, in the short run, is always easier than creating the distress of discovery. People must be resilient to choose discovery over immediate gratification. They must be prepared to deal with the outcome. Complacency is easier in the short run, but far more dangerous in the long run.

Believability is Key

The truth is not always believable, especially when people do not want to hear it. People may often find more comfort in “diminished awareness” (Nemeth & Olivier, 2017, p. 205), which can actually be enhanced by technology. As Turkle (2011) points out, technology can provide a great form of escape, especially during the current COVID-19 crisis. Zolle (2012) notes that sustainability’s goal is to “put the world back in balance”; whereas, the goal of resilience is to “manage an unbalanced world” (Nemeth & Olivier, 2017, p. 206).

Balance is An Illusion

Just when balance is achieved, it is lost. As a medical neuropsychologist, the first author knows only too well the difficulty of achieving and sustaining biochemical balance via medication. Just when balance is achieved, circumstances may change, and a new imbalance is created. Flexibility and mastery are required. According to Cherry (2020), these qualities involve faith and humor, respect and gratitude, acceptance, and finding the silver linings in life. Basically, they involve the processes that Mr. Miyoko Mikamo chose for his life.

Dr. Gloria Alvernaz Mulcahy, a Canadian psychologist and Cherokee Indian, cited the four “ways of being that reflect love and foster a connection” (Nemeth, Hamilton, & Kuriansky, 2012, p. 194). They include Relationships, Respect, Responsibility and Reciprocity. Respect is considered reverent and relationships are considered sacred, not only to one another, but to Mother Earth.

This process requires effort. Relationships take effort. With polarization, even the most valuable friendships can be at risk. According to a Pew study reported in the Saturday, 10/10/20, edition of *The Advocate* newspaper in Louisiana — “40 % of registered voters said that they do not have a single close friend backing a different candidate for President of the United States” (Green, 2020). Unfortunately, Group Four thinking is on the rise in the United States (Janis, 1991). Differences must be celebrated, not denounced.

As Cherry (2020) concludes:

1. Suffering happens.
2. Suffering is not an end in and of itself.

3. The relationship between suffering and healing is not linear.
4. The suffering-healing relationship is dynamic.

But, are we suffering sweetly (Shainess, 1984), or are we addressing our pain, resolving it, and moving forward? The latter requires the flexibility of resilience, not the static contemplation of suffering. Mr. Miyoko Mikamo did it (Akiko Mikamo, 2013), so can we!

Dr. Cherry defines adult resilience as “the maintenance, recovery, or improvement in mental or physical health following challenge” (2020, p. 13). She focuses on active coping by developing active problem-focused and emotional strategies to address and move forward from the pain of suffering. Yet, Cherry acknowledges that there are those who will choose avoidant strategies and thus remain in Group Four.

The Role of Faith

The third author, Olesia Palamar, of this article had the opportunity to conduct a phone interview with a Chernobyl first responder who not only survived but thrived. On 10/23/2020, he offered the following insightful awareness:

Mr. Evgeniy Georgievich, now age 63, completed a post Chernobyl Resiliency questionnaire (Pastrana and Nemeth cited in Nemeth & Olivier, 2017, p. 68). This individual, who had a background in construction and architecture, indicated that he was worried about rebuilding, not being able to find a solution, and not having the strength to endure. Emotionally, Mr. Georgievich reported feeling nervous and having difficulty fighting back tears. When asked the same questions about 2020, 34 years later, Mr. Georgievich reported that his most lingering emotion is that of becoming easily irritated. This is consistent with the findings of Onishi, Voitsekhovich, and Zheleznyak (2007).

From what Mr. Georgievich reported, he entered the post Chernobyl scene in the Second Stage of the Recovery Process — Survival Mode. There was no time for Shock. The trauma of the experience was ever present. When Mr. Georgievich entered the area two days after the nuclear explosion, he was given the following order, “guys, get ready.” When he arrived, the evacuations had already begun. The streets were completely empty. Not a single person was found in the village.

Mr. Georgievich’s reaction was to “do my duty,” and that is what he did! Mr. Georgievich’s most vivid moment occurred on May 3, 1986, when he saw families being loaded on vehicles to be transported to Kyiv.

Later, new radiation detectors were sent in by the Japanese. Doses of 1 or less were considered allowable; but Mr. Georgievich and his crew had doses of 3. Then, the men in his crew started dying, Mr. Georgievich understood and accepted the inevitability of the situation and said, “I was not afraid of anything and was not nervous at all.” Two weeks later, his temperature spiked to 42 °C (107.6 °F). He was subsequently hospitalized, put on an IV, and laid unconscious for several days. Mr. Georgievich stated, “I was discharged by my doctor to die.” Mr. Georgievich shared that, even though he could not eat or drink for a month, he somehow survived.

When asked about choice, Mr. Georgievich stated, “When lying in my bed, I realized I needed to do something to move on and not to die.” At that point, Mr. Georgievich entered the Third Stage of Recovery — Assessment of Basic Needs. He chose to live — against all odds, and he did! He willed himself to live. He thought of ways to survive and heal — Hatha Yoga, chamomile tea, prayer.

It took a year or more for Mr. Georgievich to start eating and walking again. Mr. Georgievich returned to see his physician, who was shocked to see him. The doctor had closed Mr. Georgievich’s medical record presuming that he had died.

Mr. Georgievich then began addressing the Fourth Stage — Awareness of Loss. He stated, “All my team members are dead. They got sick a few weeks after the catastrophe occurred, and throughout the month, they all died.” But he did not. With his wife and family at his side, Mr. Georgievich chose to live. Mr. Georgievich stated, “...my survival is nothing but a miracle of providence. I believed in a guardian angel. My eldest son was also helping me a lot — he was beside me all the time, calming me down. I think I was meant to stay alive because my family needed me.”

Mr. Georgievich entered the Fifth Stage — Susceptibility to Spin and Fraud, when he decided to visit his old boss, the man who sent him to Chernobyl. According to Mr. Georgievich, “He looked me in the eyes and said that he never sent me anywhere.” This denial is typical of bureaucrats’ behavior in Stage 5.

As he moved into Stage 6, Resolution, Mr. Georgievich responded, “We were so proud of what we were doing... we were the first team to help out there! It seemed like everything depended on us.” This form of “meaning-making” is critical for resolution. When asked about the here and now in 2020, Mr. Georgievich stated, “my life is now divided into ‘before’ and ‘after’ Chernobyl. I found faith in God... as soon as I was able to walk on my feet, I went to church. I did not pray for myself, but for my children. I wanted my kids to have a better life. I was so happy for them because they were healthy and doing well.”

As is apparent from the above interview with Mr. Georgievich, many people are guided by faith — faith in God, faith in their fellow human beings, and faith in themselves. Faith allows people to move forward with respect and perhaps a little humor (Cherry, 2020). As Dr. Cherry points out, “Life is never the same after a disaster or other tragedy” (Ibid., p. 190). But life goes on and we must cherish what we have and who we are. Soon those distorted, displaced, discouraged, and distraught post trauma feelings can be replaced by gratitude, hope, faith, and love. We must be ready to move on.

Into the Light

(Susan Melman, 2020)

Into the light
came the bouncing red ball
Spirits lift.

Catch it!
Bounce it!

Sadness drifts away.
Bouncing the red ball
in the light

You shine.

Bouncing the red ball
you move on...

Adversity, Catastrophe, and Choice

There are three types of catastrophic events: environmental (e.g., forest fires and hurricanes), human-caused (e.g., Chernobyl and Hiroshima), and environmental plus human-caused (e.g., Fukushima and Katrina) (Nemeth et al., 2012).

All three of these events involve choice. For example, if we choose to live in a forest, we have to expect fires. If we choose to live on a beach, we have to expect hurricanes. Oftentimes, people make choices without accepting the potential risks/repercussions of their choices.

At other times, events just happen without choice. The Japanese people did not expect an atomic bomb. The Californians did not expect forest fires. But those who chose to live near water on the U.S. Gulf Coast, for example, must have expected hurricanes. When where one lives is by choice, not by chance, preparedness is the key. In such cases, adversity does not have to become a catastrophe. Facing adversity with a resilient plan of action, (i.e., being prepared), is the key to a positive outcome. Without such a plan, paranoid and catastrophic thinking take over. At such times, those in Group Four can be easily manipulated to the detriment of all.

Society's responsibility is three-fold: to move people out of Group Four via education and insightful awareness; to increase the psychosocial skills of those in Group Two, so that they can more effectively communicate with others; and to reduce the ability of those in Group Three to intimidate the unaware. A world filled with many members of Group One is the goal.

In Conclusion

With excellent cognitive and psychosocial skills, resilient people can face whatever adversity awaits them and can find ways to survive and thrive. Thus, resilience is indeed the cognitive and psychosocial requirement of our time.

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