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AGEING CONFERENCE

# Ageing & Resilience in the 21st Century

Measurement of Resilience  
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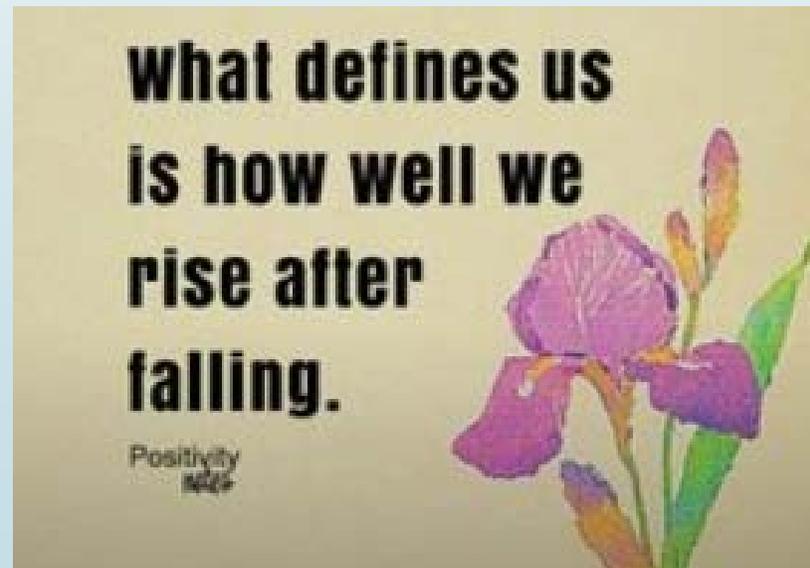
# Resilience Definition

- ▶ Resilience has been defined in many ways and is considered both a process and a personality trait.
- ▶ Resilience generally refers to an individual's capacity to make a "psycho-social comeback in adversity"
- ▶ Being resilient indicates that the individual has the human ability to adapt in the face of tragedy, trauma, adversity, hardship, and ongoing significant life stressors
- ▶ With regard to older adults, resilience is described as the ability to achieve, retain, or regain a level of physical or emotional health after illness or loss.
  - ▶ Resilient individuals tend to manifest adaptive behavior, especially as relevant to social functioning, morale, and somatic health and are less likely to succumb to illness

# Resilience and Health Ageing Network

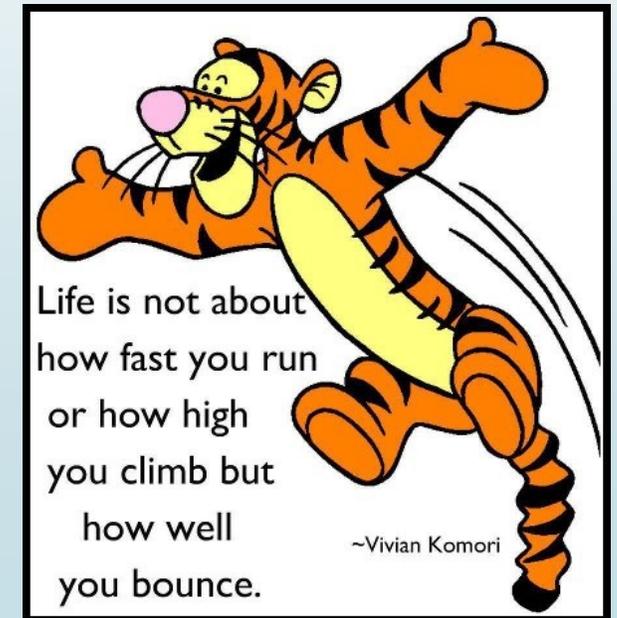
## Definition of Resilience

- Resilience is the process of negotiating, managing and adapting to significant sources of stress or trauma. Assets and resources within the individual, their life and environment facilitate this capacity for adaptation and “bouncing back” in the face of adversity. Across the life course, the experience of resilience will vary.



# Resilience

- ▶ Resilience is a dynamic process that is influenced by life events and challenges
- ▶ Resilience can change over time
- ▶ It combines personality and lived experience





# Relevance of Resilience



- ▶ Older women who have successfully recovered from orthopedic or other stressful events describe themselves as resilient and determined and tend to have better function, mood, and quality of life than those who are less resilient
- ▶ Resilience has also been associated with:
  - ▶ adjustments following the diagnosis of dementia
  - ▶ widowhood (Rossi et al, 2007), management of chronic pain
  - ▶ overall adjustment to the stressors associated with aging

“

Resilience is accepting your new reality, even if it's less good than the one you had before. You can fight it, you can do nothing but scream about what you've lost, or you can accept that and try to put together something that's good.

”

- Elizabeth Edwards



# Resilience in Older Adults

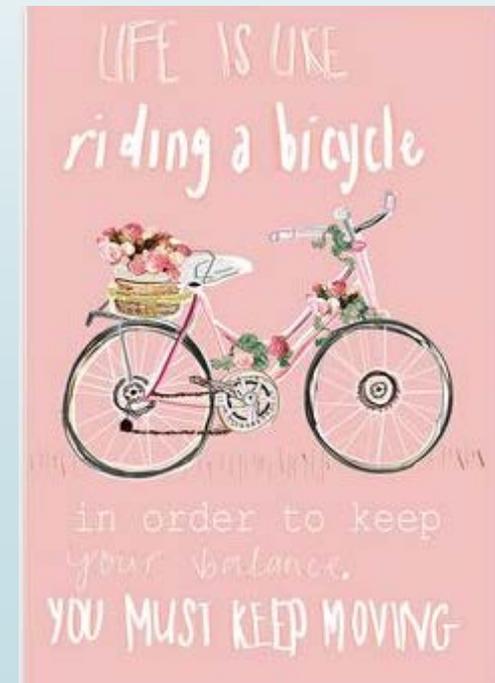
- ▶ Older adults have sustained multiple losses over their lifetimes and thus may have accrued positive experiences in which they were resilient and recovered from the challenge(s) experienced
- ▶ Resilient responses are evidenced by demonstrating behaviors known to assure recovery or adjustment and thereby facilitate successful aging.
- ▶ Participation in exercise, which provides evidence of one such resilient response has consistently been noted to be critical to maintaining optimal mental and physical health, recovering following acute events, and for successful aging
- ▶ Resilience, specifically personality characteristics associated with resilience (those that are inherent traits and/or learned throughout life), can facilitate or impede adaptive responses (e.g, engaging in regular exercise; reaching out to social supports) to adversity in aging.



Maintaining strong social connections is one way to ensure you'll have support during a crisis.

# Value of Evaluating Resilience

- ▶ Understanding resilience and evaluating resilience is important so that individuals with low resilience can be identified and appropriate interventions implemented to help them overcome specific challenges (e.g., loss of a spouse) or the daily challenges (e.g., visual changes, degenerative joint disease) commonly encountered associated with aging.
- ▶ Determinations of levels of resilience have been established through use of resilience measures.





# Measurement of Resilience: Challenges

- ▶ Different approaches across studies have led to inconsistencies in the risk factors and protective processes involved with resilience; in the incidence of resilience across groups of older adults and the meaning/value of resilience
- ▶ Some researchers look at outcomes as the indirect evidence of resilience
- ▶ Some look at resilience in general versus specific types of resilience
  - ▶ Physical
  - ▶ Emotional
  - ▶ Economic
  - ▶ Psycho-social

# Psychosocial and Physical Resilience

- ▶ Psychosocial resilience is focused on being able to maintain a positive affect regardless of the situation.
- ▶ Physical resilience is the ability to recover or optimize function in the face of age related losses or disease. Physical resilience results in the perseverance and determination to overcome physical challenges encountered by a physically stressful event (e.g, hip fracture).





# Criteria to Consider

- ▶ Content validity: the extent to which the measure is comprehensively addressed
- ▶ Internal consistency: the extent to which items are inter-correlated/measuring the same concept
- ▶ Criterion validity: the extent to which scores are related to a gold standard
- ▶ Construct validity: the extent to which scores are related to other similar measures
- ▶ Reproducibility: agreement between raters/ratings)
- ▶ Reliability : the extent to which patients can be distinguished from each other
- ▶ Usefulness: the ability of the measure to detect clinically useful change
- ▶ Floor/Ceiling effects: the ability of the measure to differentiate those high or low in the trait
- ▶ Interpretability: the interpretation of the scores as being high or low in the trait

Measure	Description
<p>The 25 and 14 item Resilience Scale (Wagnild &amp; Young, 1993; Wagnild, 2009)</p> <p>*General resilience including personal competence and acceptance of self and life.</p> <p>*Limited in ability to identify change.</p>	<p>The 25- (and 14-) Item Resilience Scale was developed as a general measure of resilience for adults across the lifespan.</p> <p>Initially the measure included 25 items reflecting five interrelated components that constitute resilience: Equanimity reflecting the ability to “go with the flow”; perseverance or determination; self-reliance reflecting a belief in one’s ability to manage; meaningfulness or a belief that life has meaning; and existential aloneness or a sense of uniqueness. Participants respond by either agreeing or disagreeing with the statements on a scale of 1(disagree) to 7 (agree). The responses are summed and a higher score reflects stronger resilience.</p> <p>Prior research has demonstrated evidence of internal consistency (alpha coefficient of .91), test re-test reliability, and construct validity of the measure based on a significant correlation between resilience and life satisfaction, morale, and depression when used with older adults (Wagnild &amp; Young, 1993; Wagnild, 2009).</p>
<p>Hardy-Gill Resilience Scale (Hardy, 2004)</p> <p>*Requires participant identify most stressful life event-focus can be psychological or physical or economic or social</p>	<p>To complete the Resilience Scale participants identify the most stressful life event they experienced in the past 5 years and respond to a series of 9 questions about their response to that event.</p> <p>There was evidence of internal consistency with an alpha coefficient of .70, and test-retest reliability with an intraclass correlation of coefficient of 0.57. Validity was based on a significant correlation between resilience and having few depressive symptoms, and good to excellent self-rate health(Hardy, 2004).</p>

Dispositional Resilience Scale (Bartone, 1989; Rossi et al., 2007)

\*Designed to measure psychological hardiness .

\*Focuses more on resilience/hardiness as a trait.

\*Less useful for identification of change

The Dispositional Resilience Scale (DRS) is a 45-item questionnaire that includes 15 commitment, 15 control, and 15 challenge items.

There is a 4 point scale response used to rate participant agreement with items ranging from 1 (Completely true) to 4 (Not at all true).

A total dispositional resilience score is created based on responses.

The original DRS was modified to be appropriate for older adults. There was evidence of internal consistency with an alpha of 0.83, and validity based on a statistically significant relationship between Sense of Coherence and Hopkins Symptom Checklist, and a statistically significant difference in Dispositional Resilience among patients and healthy volunteers (Friborg, 2003; Rossi et al., 2007).

The Resilience Appraisal Scale (Johnson, 2010)

\*Focuses on psychological resilience

This is a 12-item measure of psychological resilience.

Participants are asked to indicate to what extent each statement applies to them using a five-point Likert scale.

There are three subscales reflecting social support, emotional regulation skills and problem solving ability.

Prior use established evidence of internal consistency for each of the subscales as well as the full measure (Johnson, 2010). Alpha coefficient was .88 overall.

The Resilience Scale for Adults (Friborg, 2003)

\*Focuses on intrapersonal and interpersonal protective factors that facilitate adaptation to psychosocial adversity

This is a 37-item measure that addresses psychological resilience and uses a five-point semantic differential scale format in which each item has a positive and negative attribute at each end of the scale continuum.

Prior research has supported the internal consistency and validity of the tool in mostly Norwegian samples (Hjemdala, 2011)



<p>Brief Resilient Coping Scale (Sinclair V &amp; Wallston KA, 2004)</p> <p>*Designed to measure outcomes following a stressful event.</p>	<p>This is a short assessment aimed at identifying one's ability to cope with stress.</p> <p>There are only four items and responses are driven by a 5-point Likert scale. The focus of the measure is on adaptive coping (Sinclair &amp; Wallston, 2004).</p> <p>There is evidence of internal consistency and test-retest reliability and convergent validity among adults (Sinclair V &amp; Wallston KA, 2004) and Spanish speaking older adults (Tomás, Meléndez, Sancho &amp; Mayordomo, 2012).</p>
<p>The Resilience in Midlife Scale (Ryan, 2009)</p> <p>*Focuses on traits associated with resilience as well as coping</p>	<p>This scale is 25-item measure that uses a 5-point Likert response and addresses 6 concepts: self-efficacy, family/social networks, perseverance, internal locus of control, coping and adaptation.</p> <p>Prior use provided evidence of reliability and validity (Ryan, 2009).</p>
<p>The Connor-Davidson Resilience Scale (Connor, 2003)</p> <p>*Focuses on coping with stress</p> <p>* Really was developed for young adults but has been used with older adults</p>	<p>This is a general resilience measure and includes 25-items with higher scores indicative of higher levels of resilience.</p> <p>Prior use supported evidence of internal consistency and validity (Connor, 2003).</p>

<p>Baruth Protective Factors Inventory (Baruth K &amp; Carroll JJ, 2002)</p> <p>*Focuses on traits/personality factors associated with resilience</p>	<p>This is a 16-item scale using a 5-point Likert response format.</p> <p>Four factors are addressed including adaptable personality, supportive environment, fewer stressors, and compensating experiences.</p> <p>The measure was validated on adults ages 19-74 (Baruth &amp; Carroll, 2002) with mostly female Hispanic and Anglo-American participants.</p>
<p>The Brief Resilience Scale (Smith, 2008)</p> <p>*Focuses on ability to respond to stress</p>	<p>The brief resilience scale (BRS) evaluates the ability to bounce back or recover from stress.</p> <p>There are 6-items half of which are negatively focused and half positively focused with regard to being able to bounce back after stressful experiences.</p> <p>Prior testing of adults provided evidence of reliability and validity as this measure was predictably associated with personal characteristics, social relations, coping, and health (Smith, 2008).</p>
<p>The Physical Resilience Scale (Resnick B, Galik E, Dorsey S, et al., 2011)</p> <p>*Focuses on physical resilience and response to physical challenges</p> <p>*Can pick up change over time</p>	<p>The Physical Resilience Scale is a 17 item measure that focuses on aspects of resilience associated with recovery following acute physical events/challenges such as a hip fracture or neurological event or in response to exacerbations of chronic illnesses such as inflammatory arthritis or chronic obstructive pulmonary disease.</p> <p>Items include such things as, "I was determined to recover", "I adjusted to the new changes", "I believed I could recover" and "I accepted the new challenges". Participants were asked to identify the most difficult physical challenge they encountered associated with aging (e.g, vision changes, arthritis, hip fracture, pneumonia, stroke etc) and agree or disagree with each item. The items were summed with a point given for each affirmative response. Scores ranged from 0 to 17 with higher scores reflecting greater resilience (Resnick, Galik, Dorsey, et al., 2011).</p> <p>Prior use with Rasch analysis supported the reliability and validity of the measure.</p>

Ego Resiliency Scale (Block J & Kremen A, 1996)

The ego resiliency scale was developed initially for young adults. Respondents were asked to answer 14 items using a 4-step continuum: 1=does not apply at all; 2= applies slightly if at all; 3=applies somewhat; and 4=applies very strongly. The items include statements such as: I am more curious than most people; I like to do new and different things; I enjoy dealing with new and unusual situations; and I get over my anger at someone reasonably quickly. When used with young adults the Cronbach's alpha reliability was .72 to .76 (Block & Kremen, 1996).

Psychological Resilience (Windle, Markland & woods, 2008)

This was developed through secondary data analysis to provide a model of psychological resilience.

\*Focuses on psychological resilience (e.g., self-esteem, personal competence and interpersonal control)

\*Has been able to identify change over time

### Wirtz supercentenarian celebrates her 111th birthday on 11/11



STEPHANIE KLEIN-DAVIS | The Roanoke Times

Rosa Beckner gets some daily exercise by lifting cans of beans, 10 times for each arm. She was born on Nov. 11, 1903.

## Physical Resilience Scale

Please agree or disagree with each statement.

What has been your most difficult physical challenge \_\_\_\_\_ (e.g, vision changes, arthritis, hip fracture, pneumonia, stroke).

When faced with this challenge:

	Agree	Disagree
1. I was determined to recover.		
2. I adjusted to the new changes.		
3. I used humor to help me through.		
4. I believed I could recover.		
5. I focused on my remaining abilities, not on what I couldn't do.		
6. I accepted the new challenges.		
7. I accepted help from others.		
8. I figured out how to do my daily activities.		
9. The challenging event was so bad I gave up trying to recover.		
10. I found it difficult to ask for help from others when I needed it		
11. I found the energy to do what I had to do.		
12. I saw this challenge as an opportunity.		
13. I was determined to regain my prior functional ability.		
14. I became a stronger person.		
15. I continued to make plans for the future.		
16. I learned from it		
17. Since the challenging event I have not wanted to even do my usual activities		



# Physical Resilience Measure: Psychometric properties used Rasch Analysis

- ▶ Looked at reliability with traditional alpha coefficient
- ▶ Looked at item fit based on difficulty of the items
  - ▶ Item responses revised to yes/no
  - ▶ Items 5 and 11 had consistently high INFIT and OUTFIT statistics in both samples indicating poor fit. In the CCRC sample, items 16 and 20 had high INFIT statistics and item 22 had high INFIT and OUTFIT statistics. Of less concern, items 21 and 22 had high OUTFIT statistics. In the Hip sample, items 1 and 25 had high INFIT and OUTFIT statistics, and item 6 had high INFIT statistics: wording issues
  - ▶ Consistently, the most difficult items were “I feel that I can handle many things at a time” (Item 9) and “I seldom wonder what the point of it all is” (Item 11). The easiest item across both samples was item 15, “I keep interested in things”. The items were not well spread across the concept of resilience, and there were a large number of individuals who were high in resilience but could not be well differentiated.

# The 14-Item Resilience Scale™ (RS-14™)

Read the following statements. To the right of each you will find seven numbers, ranging from "1" (Strongly Disagree) on the left to "7" (Strongly Agree) on the right. Circle the number which best indicates your feelings about that statement. For example, if you strongly disagree with a statement, circle "1". If you are neutral, circle "4", and if you strongly agree, circle "7", etc.

	Strongly Disagree				Strongly Agree		
1. I usually manage one way or another.	1	2	3	4	5	6	7
2. I feel proud that I have accomplished things in life.	1	2	3	4	5	6	7
3. I usually take things in stride.	1	2	3	4	5	6	7
4. I am friends with myself.	1	2	3	4	5	6	7
5. I feel that I can handle many things at a time.	1	2	3	4	5	6	7
6. I am determined.	1	2	3	4	5	6	7
7. I can get through difficult times because I've experienced difficulty before.	1	2	3	4	5	6	7
8. I have self-discipline.	1	2	3	4	5	6	7
9. I keep interested in things.	1	2	3	4	5	6	7
10. I can usually find something to laugh about.	1	2	3	4	5	6	7
11. My belief in myself gets me through hard times.	1	2	3	4	5	6	7
12. In an emergency, I'm someone people can generally rely on.	1	2	3	4	5	6	7
13. My life has meaning.	1	2	3	4	5	6	7
14. When I'm in a difficult situation, I can usually find my way out of it.	1	2	3	4	5	6	7

**The 14-Item Resilience Scale™ (RS-14™):** Please read the following statements. To the right of each you will find seven numbers, ranging from "1" (Strongly Disagree) on the left to "7" (Strongly Agree) on the right. Circle the number which best indicates your feelings about that statement.

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## Hardy-Gill Resiliency Tool

Think of the most stressful event that you have experienced in the past 5 years. Do not consider events that have occurred in the past month.

1. After this event, how much worse did you feel than before it happened?

a great deal  quite a bit  a little  not at all

2. After this event, how much more discouraged were you?

a great deal  quite a bit  a little  not at all

3. After this event, how much harder was it to get everyday things done?

a great deal  quite a bit  a little  not at all

4. After this event, how long did it take until you started to feel better again?

few days  few weeks  few months  a year

more than a year  not better yet

5. How long ago did this event occur?

less than 1 month  1 to 6 months  6 months to 2 years  more than 2 years

6. As a result of this event, have you stopped doing some activities that were important to you?

yes  no

7. As a result of this event, have you started doing some activities that have become important to you?

yes  no

8. Has this event made a permanent change in how you feel about your life?

yes  no

9. (Only if yes to 8.) Is that change for the better or for the worse?

better  worse

Resilience Scoring:

4 and 5. How long did it take until you started to feel better:

0	More than a year or not better yet and event more than 6 months ago
1	A year or not better yet and event less than 6 months ago
2	A few months
3	Few days to few weeks

6 and 7. Change in activities important to you:

0	Stopped some, did not start any
1	Stopped some, but also started some
2	Did not stop or start any activities
3	Did not stop any activities and started new activities

8 and 9. Permanent change in how you feel about your life:

0	Yes, for worse
2	No change
3	Yes, for better

# Review

- ▶ All of the measures generally address assets of the person and available resources that facilitate resilience.
- ▶ Measures are most useful for measuring the process leading to resilience outcomes...i.e., do resilient characteristics influence outcomes
- ▶ Examples:
  - ▶ I usually come through difficult times with little trouble
  - ▶ I am willing to ask for help





# Review

- ▶ Ideally measures of resilience should address personality aspects of resilience as well as availability and ability/willingness to use resources.
  - ▶ Asking for help, reaching out to friends and families for social support is critical for resilience.
    - ▶ I accepted help from others.
  - ▶ Personality aspects and beliefs
    - ▶ I was determined to recover.
    - ▶ I adjusted to the new changes.
    - ▶ I used humor to help me through.
    - ▶ I believed I could recover.
    - ▶ I focused on my remaining abilities, not on what I couldn't do.



# Review

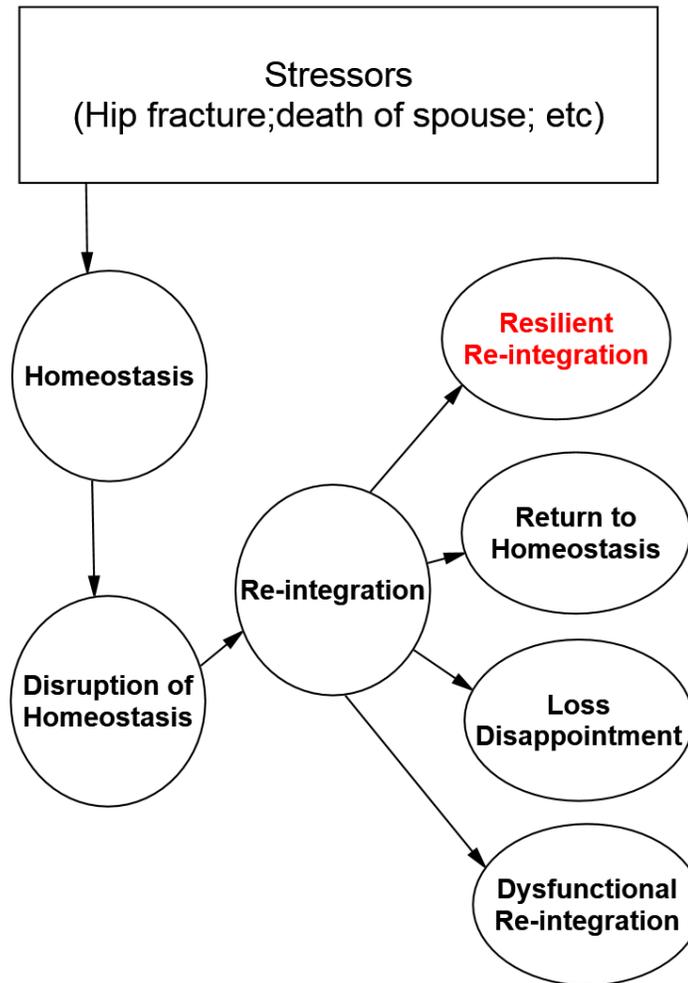
- ▶ Limited evidence of reliability and validity across all measures-some only used once for example
- ▶ Only one measure looked at change over time using an intervention (the Connor-Davidson Resilience Scale)
- ▶ Most look at general resilience not specific aspects of resilience
- ▶ None address cultural issues
- ▶ None cover the lifespan
- ▶ Only the Physical Resilience measure addressed ability to differentiate those high or low in the trait using Rasch analysis –more difficult items are needed



# Current Recommendations

- Consider what you are measuring resilience form-particularly type of resilience (i.e., is general resilience the focus; physical resilience; ego resilience etc)
- What are you using the measure for? To identify a change in resilience (Connor-Davidson measure may be most appropriate)? To look at the personality aspects of resilience and how they impact a change in recovery or ability to recovery? (The Resilience Scale) Physical Resilience (Physical Resilience Scale).
- Look at evidence of reliability-present in most-at least at a preliminary level.
- Practicality of the measure-length may be issue although most are generally short ranging from 4-25 items.

# Ability to Measure the Outcome of a Stressor with regard to Resilience



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# Future Research

- ▶ More reliability and validity testing of measures
- ▶ More use of Rasch analysis to consider item difficulty and ability to differentiate those high and low in the trait
- ▶ More research focused on change of resilience over time-very little research on testing interventions to facilitate change.
- ▶ Include effect sizes when measuring change
- ▶ Consider culture issues / language
- ▶ Develop and test measures that address specific areas of resilience – physical, emotion, psychological, financial, or social,