

---

# ANALYSING HARDINESS RESILIENCE IN COVID-19 PANDEMIC - USING FACTOR ANALYSIS

**Mohamed Buheji**

International Inspiration Economy Project - Bahrain

**Haitham Jahrami**

Ministry of Health - Bahrain

## ABSTRACT

*The variety and volume of the unprecedented challenges that were brought by COVID-19 pandemic are so tremendous that made decision making very difficult and vague in certain situations. In this paper, we shall explore the possibilities of using the attitudes of hardiness, supported by resilience to help prepare individuals and communities towards taking the proper decisions during and after COVID-19 pandemic.*

*Multivariate 'Factor Analysis' is applied to a sample from international participants representing different demographics, collected in the first four months since the announcement of the outbreak. The relationship between the interrelated four factors of hardiness was identified and optimised. A new measurement scale was developed. The paper concludes with a proposed design for building or developing commitment and challenge acceptance which are resilience-driven attitudes that support the other hardiness constructs.*

**Key words:** Hardiness, Resilience, Psychological Coping, Challenges, COVID-19 pandemic, Inspiration, Factor Analysis

**Cite this Article:** Mohamed Buheji and Haitham Jahrami, Analysing Hardiness Resilience in COVID-19 Pandemic - Using Factor Analysis, *International Journal of Management*, 11(10), 2020, pp 802-815.

<http://www.iaeme.com/IJM/issues.asp?JType=IJM&VType=11&IType=10>

---

## 1. INTRODUCTION

The speed of changes that COVID-19 pandemic is changing our internal thoughts. The intensity of thoughts, feelings, and behaviours that people are going through during the pandemic is creating a huge impact on the intensity of our emotions.

In this study, the authors explore whether psychological hardiness is related to resilience, since resilience shifts our behaviours to be much more adaptable and capable of absorption.

This is especially important in post-pandemic world condition where there are a variety of unprecedented challenges and as we enter a new normal era. Both hardiness and resilience depend on the 'intrinsic power' and do not depend on external motivation which makes them even more unique, especially for difficult and unstable situations that are expected in the new normal, i.e. post-COVID-19 pandemic. Buheji (2020).

Through both hardiness and inspiration, we create partial positions and raise specific capacities to withstand expected difficulties during disasters and crises. They are also helpful to sustain social interaction and balanced psychological performance despite stress exposures. Pengilly and Dowd (2000); Klag and Bradley (2004).

Hardiness and inspiration build a character that would struggle to explore, discover, or create opportunities, and which would help to overcome adversity, build more resilience and enjoy patience and appreciation (Holmes, 2011).

Psychological hardiness and inspiring spirits provide the individual with strength and ability to accept the events that the future holds and provide the individual with the ability to take full advantage of psychiatric, intellectual, and physical ability to enable him to reach the appropriate method and effective confrontation with reality. Clark and Hartman (1996).

The literature review explores the importance of moral cohesion during a crisis as COVID-19 and its relation to hardiness. Realising the importance of hardiness and its relation to resilience, the researchers describe the characteristics of people with low psychological hardiness and how they influence behaviour. Bartone and Hystad (2010), Maddi and Khoshaba (2005).

The paper also explores the hardiness vs both the rational and irrational thoughts along with the transformational coping, Buheji et al. (2020b). The authors show the need for hardiness in the post-COVID-19 pandemic and the importance of curiosity in hardiness. The authors synthesis later the requirements for measuring hardiness before going for the findings and the conclusion. Buheji (2019), Bartone (1991).

## **2. LITERATURE REVIEW**

### **2.1. Importance of Moral Cohesion During COVID-19**

Moral cohesion is very important for preventing people to becomes vulnerable to any mental and physical breakdown during high tides of uncontrolled uncertainty. Moral cohesion, according to Buheji (2016) Handbook of Inspiration Economy comes from taking the challenge and planning positively about the benefits of such a challenge. For example, seeing the pandemic as full of opportunities similar to the extent it is full of risks. This would help us to minimise the avoidance behaviour that our mind might motivate us to do to escaping any confrontation with this challenge. Buheji and Ahmed (2020).

Hardiness is a form of moral cohesion that creates a good degree of individual adaptation, i.e. the capacity to deal with all events and thus lead to emotional and psychological development. Individuals with psychological hardiness have several characteristics that start with being resilient and are focused on having a better achievement through their internal destination setting, i.e. more capable and inclined to lead and control, Maddi (2013), Bartone and Hystad (2010). Therefore, Taylor (1995) sees part of hardiness is having the feeling of being obligated to get involved in any new community developments and to take the challenge to confront the new opportunities. Thus, through this hardiness, we can maintain an adequate psychological balance, and give long-term life value through times of COVID-19 pandemic. Buheji (2020).

## 2.2. Realising the Importance of Hardiness

Hardiness controls anxiety and irrational thoughts. Those with psychological hardiness have high commitment since they believe they should always have better control over their lives, and they think they can influence events. These types of people always come with initiatives that may help them to find solutions to their problems or self-discovery.

The concept 'Hardiness' was first given by Suzanne Kobasa (1979) as a personality style or pattern associated with continued good health and performance under stress. Kobasa was the earliest to report how hardy people are buffered against stressful life situations because they engage in certain affective, cognitive, and behavioural responses, Allred and Smith (1989). Since then hardiness psychological concept that aligns the relationship between stressful life events and illness. The work of Kobasa and Maddi specifically clarified how the lack of clarity increases anxiety towards the future life and affects the natural behaviour and anxiety. At the same time, hardiness constitutes a natural motivation to take appropriate behavioural measures to confront the situation naturally. Those with hardiness if they do not find challenges, create their own challenges, since they see that life has lots of positive life opportunities that could get promoted and increase their livelihood possibilities once they are exploited. Kobasa et al. (1982, 1983, 1985); Maddi (2013).

## 2.3. Defining Hardiness

Hardiness is highly related to personality that has self-efficacy, a sense of coherence, and a sense of coherence. Hardiness arises from multidisciplinary fields of psychology, philosophy, and sociology. The individuals who are perceived to have hardiness are found to have life-purposefulness that is cognitively meaningful. Funk (1992).

The hardiness personality trait is usually associated with a person's ability to manage and respond to stressful life events with coping strategies that turn potentially unfortunate circumstances into learning opportunities, Maddi (1999). It is characterised by a tendency to be deeply involved, a need to be in control, and a desire to learn from life's events regardless of the outcomes. DiBartolo and Soeken (2003).

A person characterised by hardiness would have the ability to feel deeply involved in the aspects of our lives. Having hardiness helps to face the demands of stressful situations, Klag and Bradley (2004). The challenging facet is what differentiates hardiness from other attitudes. The hardiness attitude does not see stability as a place for rest, but a place to prepare for changes and coming challenges. There, hardiness attitude is seen to be linked to a 'goal-directed behaviour' of dispositional optimism. Funk (1992).

## 2.4. Resilience and Hardiness

There are still more studies that need to establish the relationship between resilient people and those of hardiness characteristics, however qualitatively we know that every resilient person deals with negative outcomes during or following life challenges, Maddi and Khoshaba (2005). Having a resilient trajectory means the person's capacity to manage better health stressors, such as managing the spillover of an international emergency or going through severe life or livelihood challenges as losing functionality due to disability or losing a main source of living. Maddi (2013), Banks and Gannon (1988), Kobasa et al. (1982).

Vagni et al. (2020) seen that when resilience exists in individuals, hardiness would be the main trait that can help in protecting against the negative consequences. Hardiness is often considered an important factor in psychological resilience that leads to resilient outcomes, Maddi and Khoshaba (2005). This type of resilience can be seen in certain professional occupation groups like firefighters, military personnel, schools, or university faculty, etc. Bartone and Hystad (2010).

Buheji (2018, 2019) seen than resilience, resilience economy and resilient communities are unique in two attitudes: optimising commitment and absorbing challenges. There are many authors who have seen that hardiness and resilience create a combination of cognitive, behavioural mechanisms, and biophysical attitudes. Integrating these attitudes together created a diverse mindset that mitigates the negative impact of adversity and boosts the mental toughness to inoculates the individual or the community against possible future trauma. Wiebe (1991); Allred and Smith (1989).

## **2.5. Characteristics of People with Low Psychological Hardness**

There are clear psychological characteristics for those with low hardiness. People with low psychological hardiness usually view life with a negative outlook. The low hardiness people see their life meaningless and would always see any event negatively with little optimism, and would have low psychological resilience, Maddi and Khoshaba (2005). They are also characterised by the failure to find a goal for themselves and would see no meaning for their lives. Nowack (2020).

The low hardiness would make this type of person with rare interaction with their environment, and even if they interact, they would be negative, seeing themselves in continued threat and vulnerable in the face of unstable events. Therefore, they look for the stability of life events, and they do not believe in the necessity of renewal or upgrading; accordingly, they are unable to withstand the negative impact of stressful events. Wiebe (1991).

## **2.6. Psychological Characteristics of Hardiness Behaviour**

Hardiness behaviour is important in times of crisis. This review focuses on how to bring all the psychological hardiness characteristics together so that we enhance the community and the flexibility in the face of negative events and spillovers of long-term crisis. Those with high hardiness usually work to control the challenges and initiate effective creative responses through coping methods. Through trying to make the right decisions that meet realistic goals, we can enhance the hardiness. DiBartolo and Soeken (2003). Those who fail to develop their hardiness during the crisis as COVID-19 would develop a negative outlook and negative daily pressures that enhance daily stress, which leads to mental health. Such characters usually are more usually none proactive and totally dependent. Some of those with low hardiness would even go to avoid challenges and trying to maintain the status quo. Florian et al. (1995).

It is clear from the characteristics of psychological hardiness constitutes a wall that protects the individual from falling under pressure and in dealing with all life events.

## **2.7. Hardiness vs Rational and Irrational Thoughts**

The level of hardiness is highly related to our rationality decisions. Our rational thoughts are often accompanied by emotional situations that lead to more maturity. The disturbances and the instability that accompanied COVID-19 created inside us many sources of irrational thoughts and stimulated our emotions, reshaped our experiences and influenced the way we make a constructive decision.

Once we accept to be irrational, we agree with start to accept also the reality and the conditions created by the fierce pandemic of COVID-19. This means our hardiness becomes better. While if we stay rejecting the change, we stay rational, highly emotional, and develop frustration about what is happening suddenly to our stable lives. Such types of people would end up having low hardiness towards the situation. Studies show that our past experiences determine our present hardiness behaviour and our capacity to deal with sudden problems. Empathy is the most heavily tested value throughout the coronavirus pandemic. With

empathy, we bring more mental awareness, ensure effective communication, and improve observation. Florian et al. (1995).

## **2.8. Hardiness and Transformational Coping**

Transformational coping is a behaviour that is required, especially in unprecedented times. Coping behaviour helps to optimise an adequate use of social resources. Coping helps to mitigate work-environment stress and the effect of low hardiness, Buheji et al. (2020b), Florian et al. (1995).

Vagni et al. (2020) emphasised that the coping of the emergency staff during COVID-19 helped to improve their hardiness and created a protective factor that reduced the likelihood of negative outcomes such as secondary trauma. Hardy individuals know what to cope with. Hardiness appears when there is a start a transformation journey that needs physiological arousal. With hardiness, we can decrease the ability of stressful events to produce arousal in the sympathetic system and thus exhibit lower cardiovascular reactivity in response to stress. Contrada (1989).

Coping improves the functional efficacy of immune cells that improve hardiness that transforms stressful events into less stressful ones. Hardy people use active rather than passive coping strategies. Hardy attitudes motivate hardy coping, hardy social support, and hardy health practices. Buheji and Buheji (2020), DiBartolo and Soeken (2003), Dolbier et al. (2001).

## **2.9. The Need for Hardiness in Post-COVID-19 Pandemic**

Hardiness is a personality trait that is highly needed in the post-COVID-19 pandemic era, Maddi et al. (1999). It is an era where we need to have the ability to respond to stressful life events with coping strategies that bring learning opportunities, Soderstrom et al. (2000). To exploit opportunities of the pandemic, we need to get deeply involved with all life and livelihood events regardless of the outcomes. Contrada (1989).

COVID-19 brings in a need for hardiness attitudes that overcome the stress reactions (e.g., heart attacks, depression, suicide, divorce). Hardiness improves our 'capacity vs demand' which helps maintain commitments, i.e. involved in all aspects of life and livelihood. In an era where the influence on life outcomes is full of unprecedented conditions, the need for hardiness is rising as with it, and we can enhance our learning from both positive and negative experiences. Possessing hardiness attitudes create unique courage and eliminate sources of uncertainty. Buheji et al. (2020a), Buheji and Buheji (2020).

## **2.10. Curiosity and Hardiness**

Kobasa et al. (1985) described a pattern of hardiness personality characteristics that distinguished them to remain healthy despite increased speed and frequency of life stress. Having a genuine interest in and curiosity about the new surrounding challenges of COVID-19. Buheji (2019), Contrada (1989).

Maddi (2004 and 2006) has characterised hardiness as a combination of three attitudes (commitment, control, and challenge). Hardiness provides the courage needed to turn stressful circumstances into opportunities. Researchers believed that the feelings of apathy and boredom and inability to be fully engaged with the changes differentiated social structures and people's identities. Maddi (2006), Pengilly and Dowd (2000), Kobasa et al. (1983).

The hardiness identity stresses different qualities as opposed to other species (biological needs) and other people (social roles). According to Maddi (2006), this personality type is a state of chronic existential neurosis under conditions of stress. Alexander et al. (2020)

emphasised that leaders in post-COVID-19 should stay curious and flexible in order to take an effective tough decision, even if that makes them unpopular. This requires a hardiness and temperament attitude that could overcome fussiness in times of uncertainty.

### **2.11. Hardiness and Decision Making During- and Post-COVID-19 Pandemic**

Alexander et al. (2020) seen that postponing decisions during ‘business as usual’ makes sense, but not when the environment is full of uncertainty. In times of instability where urgency and imperfect information, waiting can be a decision in itself and a sign of hardiness. Studies on healthcare professionals show that their capacity to make a decision depends on their hardiness levels which help to maintain their psychological well-being, Vagni et al. (2020).

Engaging more hardy people in the process of decision-making ease the critical moments during an international or national emergency crisis and provide more possible risk mitigation choices, or exploitation opportunities. Thus, decisions during an unprecedented crisis, as the COVID-19 help empower leaders to take unprecedented actions. For example, the unparalleled type of restricted mobility due to lockdown requires more hardiness driven decisions that could compensate for both the short- and long-term viability of the organisation activities. Nunno et al. (2020).

### **2.12. Measuring Hardiness**

#### ***2.12.1. Measuring Tools of Hardiness***

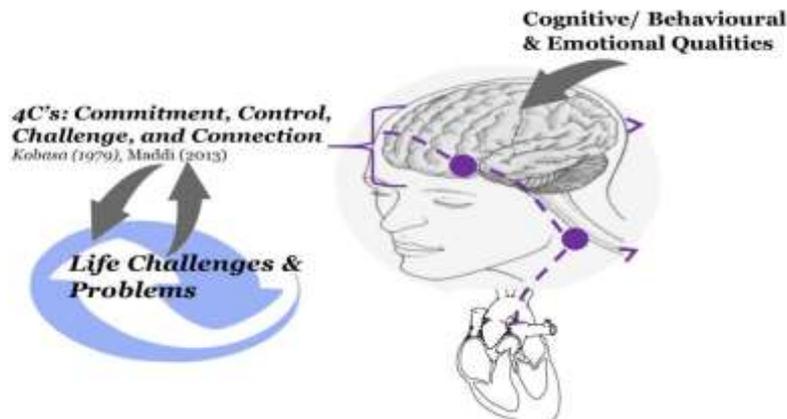
There have been different efforts taken for the development of the hardiness scale over the last few decades. Three main tools are most frequently used for measuring hardiness; these are the ‘Personal Views Survey’, the ‘Dispositional Resilience Scale’, and the ‘Cognitive Hardiness Scale’, Allred and Smith (1989). The most popular of these instruments is the ‘Personal Views Survey’ which was developed by Maddi et al. (2006) and where it has 18-items measuring hardiness. The other scale is the ‘Cognitive Hardiness Scale’, by Nowak (1989), which are considered to be the most popular scales. Bartone and Hystad (2010), Bartone (1991).

Nowak (1989) emphasised the effects of coping style and cognitive hardiness on both physical and psychological health status. This coping brings in positive thoughts, problem-focused hardiness, that mitigate psychological distress, and physical illness during the COVID-19 pandemic. Soderstrom et al. (2000); Florian et al. (1995). Studies now show that people found with low hardiness are usually under the risks of intrusive negative thoughts. They have the attitude of avoiding to face the reality of the problems that COVID-19 brought. The failure to cope with the pandemic direct and indirect challenges contributed to certain psychological distress and physical illness outcomes. Specifically, cognitive hardiness significantly contributed to predictions of psychological distress. Some researchers believe this is due to the relation of hardiness with coping which come from ‘intrusive positive thoughts’, and being ‘problem-focused’. These two coping approaches significantly contribute to either better physical or psychological health status. Buheji et al. (2020), Clark and Hartman (1996); Allred and Smith (1989), Nowack (1989).

#### ***2.12.2 The 4C’s of Hardiness Dimensions***

One could say that hardiness is a collection of attitudes, made from a series of constructs and dimensions that influence the psychometric traits of the person or the group. These dimensional traits shape our cognitive, behavioural, and emotional qualities. Allred and Smith (1989).

Kobasa (1979) was the first to characterise these hardiness qualities into three main dimensions, of 3C's. These 3C's are *Commitment, Control, and Challenge*. Later, Maddi (2013) added *Connection* as the 4<sup>th</sup> C. Figure (1) shows the relation between the 4C's and psychometric traits qualities.



**Figure 1** The Relation of the Hardiness 4C's Dimensions with the 3 main psychometric traits qualities, as per the work of Kobasa (1979) and Maddi (2013).

Maddi (2013) went on to outline two distinct personality types. The premorbid personality takes social roles and an embodiment of biological needs. People with a premorbid identity can continue with their life for a long time but are prone to chronic existential neurosis under conditions of stress, primarily if they associate their life as meaningless, by feelings of apathy and boredom. Bartone (1991), Contrada (1989).

### 3. METHODOLOGY

#### 3.1. Development of New Measurement Scale based on the 4Cs

Based on the 4C's hardiness attitudes dimensions found in literature, the authors found that the constructs of these dimensions need to be updated and developed to suit the new world challenges. The common thread of these constructs is that they provide their holders be it individuals or communities with the ability to manage challenges, persist in solving complex problems, explore or exploit opportunities and even sometimes turn unfortunate circumstances in favourable alternatives.

The constructs of the four main dimensions of the 4C's found were categorised as the following definition extracted from the work of Maddi (2013), Maddi (2006), Banks and Gannon (1988), and last but not least Kabasa (1979):

C1- Commitment

Being deeply involved in all aspects of life.

C2- Control

The ability to influence life outcomes.

C3- Challenge

To accept to manage change and learn from both positive and negative experiences.

C4-Connection

To relate things together and synthesise or optimise them to bring the best outcome out of them.

### 3.2. Designing an Updated Hardiness Dimensions and Constructs that address the New Normal Challenges

Based on the synthesis of the literature review, one could say that hardiness has certain constructs that affect one’s practices and values. Setting these constructs would help to measure hardiness among the community and prepare it for new normal challenges.

Taking 3.1 and the literature review into consideration, both the weak and the strong hardiness constructs for: *C1- Commitment Dimension, C2- Control Dimension, C3- Challenge Dimension, C4-Connection Dimension* are setup and measured by an international random sample with more than 13 countries targeted from the different continents of the globe. The analysis uses the procedure ‘exploratory factor analysis’ which applies the extraction method of ‘alpha factoring’ and ‘rotation method’ of ‘Promax with Kaiser normalisation’.

### 3.3. Data Collection

An online self-reported questionnaire was designed by the researchers and developed with the cooperation of Inspiration Economy experts from more than 12 countries. The quantitative study was collected in April 2020, via an online survey was conducted using a semi-structured questionnaire using a non-probability snowball sampling technique. A total of 346 who represent from 33 countries around the world, responses were received.

The questionnaire was developed by using google forms, with a consent form appended to it. The link to the questionnaire was sent through emails, WhatsApp, and other social media. The questionnaire was both in Arabic and English, and the data was designed to be collected in all the countries that can be reached through accessing the link of google docs.

## 5. ANALYSIS OF RESULTS & DISCUSSION

### 5.1. Findings of Hardiness Questionnaire

Multivariate statistical technique ‘Factor Analysis’ is used to identify a relatively small number of factors that can be used to represent the relationship among sets of larger interrelated variables. The primary objective of this analysis is data reduction, and then summarisation with a minimum loss of information. In this research, the exploratory procedure was used to identify the ‘factors’ or ‘dimensions’ of hardiness using the questionnaire data explained in section 4.

Tables (1a, 1b, 1c, 1d) represent the results of the dimensions of the hardiness weak and strong 28 constructs. The constructs are distributed according to the definitions of section 3.1 and 3.2 of this paper. The four new dimensions complement the earlier work of Maddi (2013), Maddi et al. (2006), and Kabasa (1979). As shown in the Tables of (1), the factor analysis showed the outcome of the overall questionnaire answered, where Y means that the hardiness construct is perceived to be available by the participant in the questionnaire, while (N) obviously means not available.

**Table (1a)** Hardiness Constructs for *C1- Commitment Dimension* Results

Weak Hardiness Constructs	Available / Not Available
Fear of Increasing Life Requirements	N
Fear of about the mortgage situation	N
Fear of facing practical life.	Y
Strong Hardiness Constructs	
Achieve Goals, no matter the obstacles.	Y
Think life has a meaning of living for.	Y
Adhere to and maintain values and principles.	Y

Stand by others when facing any problem.	Y
Feel responsible for others and take action to help them.	Y
Care about and participate in public issues.	Y

**Table (1b)** Hardiness Constructs for *C2- Control Dimension*

<b>Weak Hardiness Constructs</b>	<b>Available / Not Available</b>
Fear of Losing Wellness	Y
Fear of losing Source of Income	Y
<b>Strong Hardiness Constructs</b>	
Make my own decision without interfering with others.	Y
Control the events in life, so it does not happen again	Y
Tackle problems in time without hesitation.	Y

**Table (1c)** Hardiness Constructs for *C3- Challenge Dimension*

<b>Weak Hardiness Constructs</b>	<b>Available / Not Available</b>
Fear of Losing Life or Losing Someone Close.	Y
Fear of not adapting to circumstances.	Y
Fear of Increase in Financial Cost	Y
Fear of talking about death.	Y
Fear of Accelerating Political Changes.	Y
Fear of not finding a job in the future.	Y
Fear about losing someone close.	Y
<b>Strong Hardiness Constructs</b>	
Control the course of my life.	Y
Ability to persevere any solution	Y

**Table (1d)** Hardiness Constructs for *C4-Connection Dimension*

<b>Weak Hardiness Constructs</b>	<b>Available / Not Available</b>
Fear of future isolation.	Y
Fear of having an accident	Y
Fear of increased unemployment.	Y
<b>Strong Hardiness Constructs</b>	
See Troubles as Opportunities	Y
Problems mobilise my strength and my ability to take challenges.	Y
Care about what is happening around us of issues and events.	Y

## 5.2. Findings of Factor Analysis

Based on the results achieved and before performing the ‘exploratory factor analysis’ procedure, various conditions as the ratio of cases of (participants) to variables (questionnaire items) are setup. The range was within 5:1 to 10:1. Estimates of the sample size as per the procedure should range from 150 (as a minimum) to 500 when there are 40+ variables. The samples size achieved from the data collected was 346 international participants. i.e. the sample address the requirement for a stable, or statistically significant solution, but there are no absolute criteria for deciding what is large. It depends to some extent on the specific aims of the analysis, the properties of the data, the number of factors to be extracted, and the size of the correlations.

Before running the ‘factor analytic’ procedure the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (MSA) and Bartlett’s Test of Sphericity were studied to statistically determine the suitability for conducting a factor analytic procedure. The MSA index ranges from 0 to 1, with 1 when each variable is perfectly predicted without error by the other variables. Results from the KMO measure of sampling adequacy (=0.496) and Bartlett’s test of sphericity ( $p=0.13$ ) suggested that further analysis is a viable option.

The total variance explained by the potential factors and thus, according to the results, the initial eigenvalues suggest that up to nine factors (eigenvalue  $>1$ ) explain about 60% of the variance. Therefore, the scree plot of the proposed number of factors shows the extraction limit for eigenvalue to be approximately 1.25.

### 5.3. Findings of Structural Matrix by the Dimensions (Factors)

Table (2) shows the structural matrix of the results. Each dimension for the sake of the analysis called a Factor. Two of these factors are related to bringing resilient and not only hardy characteristics or attitudes; these attitudes are around: *having commitment and accepting challenges*.

#### 5.3.1 Commitment Factor (Resilience-Driven)

As per the factor analysis, Factor number 1 labelled as ‘*commitment*’ included now seven items. The extracted items are:

- We have to develop new security policies in the field of business protection because of COVID -19
- I feel unstable and unsecured with my future plans because of the COVID-19
- The digital environment is the only possible way to prevent health crises from spreading in future
- Psychological effects of COVID-19 must be analysed in depth to give new advice on how to behave in similar cases in future
- I appreciate how much we need to be resilient as a community during COVID-19
- Life purposes have changed during COVID-19
- Mindset (perceptions) about life has changed during COVID-19

#### 5.3.2 Control Factor

Factor 2 labelled as ‘*control*’ include a total of 4 items. The extracted items are:

- New crises – bring new opportunities, it's better to stay positive
- Each person should find their own way to fight the COVID-19 issues
- Each person should take more precautions towards personal health and hygiene
- My readiness to other coming crises has changed during COVID-19

#### 5.3.3 Challenge Factor (Resilience-Driven)

Factor 3 labelled as ‘*challenge*’ include a total of 4 items. The extracted items are:

- Governments are the main force responsible for solving the problems caused by COVID-19 and should offer solutions
- The world economy will change dramatically in a few years because of the COVID-19
- COVID-19 affects negatively on my psychological and social status
- I think that a challenge like COVID-19, is a great growth driver for humans

**5.3.4 Connection Factor**

Factor 4 includes three items and can be labelled as ‘*connection*’. The extracted items are:

- I started seeing how the world is small during COVID-19
- The positive social environment is the main force of protecting people from the negative effects of COVID-19
- We have to develop new policies for social and personal communications because of the world COVID-19 experience

**Table 2** Structure Matrix

	<b>1 Commitment</b>	<b>Factor 2 Control</b>	<b>3 Challenge</b>	<b>4 Connection</b>
We have to develop new security policies in the field of business protection because of COVID -19	.331	-.010	.099	.049
I feel unstable and unsecured with my future plans because of the COVID-19	.326	-.069	-.046	-.016
The digital environment is the only possible way to prevent health crises from spreading in future	-.317	.051	.137	-.161
Psychological effects of COVID-19 must be analysed in depth to give new advice on how to behave in similar cases in future	.270	-.191	.099	-.049
I appreciate how much we need to be resilient as a community during COVID-19	-.229	-.088	-.141	.133
Life purposes have changed during COVID-19	-.211	-.020	.145	-.083
Mindset (perceptions) about life has changed during COVID-19	-.170	-.010	-.053	.109
New crises – bring new opportunities, it's better to stay positive	.080	.397	-.029	.050
Each person should find their own way to fight the COVID-19 issues	-.087	.278	.163	-.042
Each person should take more precautions towards personal health and hygiene	.076	-.248	-.030	.071
My readiness to other coming crises has changed during COVID-19	.124	-.216	.137	.113
Governments are the main force responsible for solving the problems caused by COVID-19 and should offer solutions	.054	.028	-.303	-.118
The world economy will change dramatically in a few years because of the COVID-19	.020	.018	-.253	.087
COVID-19 affects negatively on my psychological and social status	.073	.055	.209	-.006
I think that a challenge like COVID-19 is a great growth driver for humans	.089	.052	.190	.143
I started seeing how the world is small during COVID-19	-.004	.036	-.037	-.311
The positive social environment is the main force of protecting people from the negative effects of COVID-19	-.035	-.042	-.050	.308
We have to develop new policies for social and personal communications because of the world COVID-19 experience	.077	.105	.078	.143

*Extraction Method: Alpha Factoring, Rotation Method: Promax with Kaiser Normalization.*

**5.3. Findings of Factors Correlations Matrix**

The factor correlation matrix shows that factor 1 (the commitment attitude) which is both hardiness and a resilience factor found to be positively associated with factor 3 (the taking challenge attitude) which also both hardiness and a resilience factor. Besides, factor 1 found to be positively associated with factor 4 (the attitude of building connections), but to negatively associated with factor 2 (the attitude of controlling).

Factor 2 (control) was positively associated with factor 3 (challenge), but negatively associated with factor 4 (connection). On the other hand, Factor 3 (challenge) found to be positively associated with factor 1 (challenge) and factor 2 (control), but negatively associated with factor 4 (connection). Finally, factor 4 (connection) was found to be positively associated with factor 1 (commitment), but was negatively associated with factor 2 (control) and 3 (challenge).

## **6. CONCLUSION AND RECOMMENDATION**

### **6.1. The Relation between Hardiness and Resilience Factors**

As per the outcome of the results in Section 5.0 it is clear that the attitudes of having ‘commitment’ and taking ‘challenges’ are very important to the constructs of hardiness and resilience. These constructs need to be built in the mindset of youth and the productive generation in order to survive the requirements of the post-COVID-19 pandemic turbulent era, i.e. the new normal. Buheji (2018).

The learning here is that educational organisations and pedagogical curriculums, besides organisations need to develop learning and training programs that would enhance the hardiness and resilience competitiveness by engaging the individual and the community in the development of business protection or sustainability policies or procedures based on the learning from the COVID-19. The programs should include how to optimise the use of a digital environment to prevent the spread of health risks. Buheji (2018).

The other learning that seems important for building the resilience and hardiness is sharing the knowledge on the best practices of how to mitigate the risks of the psychological effects of COVID-19, Buheji (2018). Engagement with community programs and encouraging the discussion on life purposes are also other attitudes that can help to build the mindset or the (perceptions) in the new normal. The people need to be accepting the dramatic changes expected in the economy in the next few years, along with its psycho-social influence. A challenge should be a positive word from now on in the mindset of all the coming generations; it is one of the safe paths towards better humanity in the next few years.

### **6.2. Curiosity as a means for building the 4C’s in the New Normal**

Despite the fact that this work did not measure the level of curiosity in comparison to hardiness and resilience, the literature reviewed specifically by the author in Buheji (2020, 2019), shows that curiosity with life-purposefulness can trigger higher commitment, focus, and acceptance of challenges which help in delivering better hardiness and resilience, Buheji (2018). Therefore, further research with a high sample is recommended in this area.

### **6.3. Hardiness as a means for Resilient Decision Making during- and post-COVID-19**

Making synthesis of the outcome of the literature review, the results and the discussion; this paper recommends that resilient decision making can be achieved by building more ‘commitment’ to hardiness-based plans and the high expectation for managing ‘challenges’, in order to meet the unprecedented demands of the COVID-19 pandemic spillovers.

The capacity to make resilient yet solid decision making without procrastination, i.e. with high availability and efficiency would eliminate the risks on the efficacy of decision made and its future outcome. Thus, in order to satisfy the requirements of the outcome of this research, it is highly recommended that all decision-makers be trained on techniques that raise their competency towards commitment and optimising the opportunities that come with challenges.

### **6.4. Implications and Limitations of this Research**

The main implication of this research is that it brings us closer the competitiveness requirements of the new normal, as it specifies what type of hardiness characteristics we and the next generation have to acquire and maintain in order to survive the demands of the new normal. The other implication that this work brings is now professionals, strategists and government planners can take the requirements of hardiness attitudes and set programs to

align the current attitudes and capacity of the individuals and community, thus to make them more prepared for further challenges, i.e. beyond the COVID-19 pandemic and its spillovers.

Finally managing to attract furthermore participants from all over the world would surely help to generalise this study and would help to overcome its weaknesses and limitations.

## REFERENCES

- [1] Allred, K. and Smith, T. W. The hardy personality – Cognitive and physiological responses to evaluative threat. *Journal of Personality and Social Psychology*. 1989, 56 (2): 257–266.
- [2] Alexander, A, De Smet, A and Weiss, L Decision making in uncertain times, 2020,McKinsey.
- [3] <https://www.mckinsey.com/~media/McKinsey/Business%20Functions/Organization/Our%20Insights/Decision%20making%20in%20uncertain%20times/Decision-making-in-uncertain-times.pdf>\_Accessed on: 16/8/2020
- [4] Banks, J. and Gannon, L. The influence of hardiness on the relationship between stressors and psychosomatic symptomatology. *American Journal of Community Psychology*. 1988, 16 (1): 25–37.
- [5] Bartone, P. Development and validation of a short hardiness measure. Paper presented at the Annual Convention of the American Psychological Society, 2020, June, Washington, DC
- [6] Bartone, P. and Hystad, S. Increasing mental hardiness for stress resilience in operational settings. In P. T. Bartone, B. H. Johnsen, J. Eid, J. M. Violanti & J. C. Laberg (Eds.), *Enhancing human performance in security operations: International and law enforcement perspective*, 2010, pp. 257–272. Springfield, Il: Charles C. Thomas
- [7] Buheji, M. *Visualising Resilient Communities*, Authorhouse Publishing, UK, 2020.
- [8] Buheji, M *Designing a Curious Life*, AuthorHouse, UK, 2019.
- [9] Buheji, M (2018). *Understanding the Power of Resilience Economy: An Inter-Disciplinary Perspective to Change the World Attitude to Socio-Economic Crisis*, AuthorHouse, UK.
- [10] Buheji, M and Buheji, A (2020). Planning Competency in the New Normal– Employability Competency in Post- COVID-19 Pandemic, *International Journal of Human Resource Studies*, 10 (2), 237-251.
- [11] Buheji, M; Ahmed, Dunya and Jahrami, H (2020a). Living Uncertainty in the New Normal, *International Journal of Applied Psychology*; 10(2): 21-31.
- [12] Buheji, M; Hassani, S; Ebrahim, A; Cunha, C; Jahrami, H; Baloshi, M; Hubail, S (2020b). Children and Coping During COVID-19: A Scoping Review of Bio-Psycho-Social Factors. *International Journal of Applied Psychology*, 10(1): 8-15.
- [13] Clark, L. and Hartman, M. (1996). Effects of hardiness and appraisal on the psychological distress and physical health of caregivers to elderly relatives. *Research on Aging*. 18 (4): 379–401.
- [14] Contrada, R. (1989). Type A behavior, personality hardiness, and cardiovascular responses to stress. *Journal of Personality and Social Psychology*. 57 (5): 895–903
- [15] DiBartolo, M. and Soeken, K. (2003). Appraisal, coping, hardiness, and self-perceived health in community-dwelling spouse caregivers of persons with dementia. *Research in Nursing & Health*, 26. 26 (6): 445–458.
- [16] Dolbier, C.; Cocke, R.; Leiferman, J., Steinhardt, M., Schapiro, S., Nehete, P.; et al. (2001). Differences in functional immune responses of high vs. low hardy healthy individuals. *Journal of Behavioral Medicine*. 24 (3): 219–229
- [17] Florian, V., Mikulincer, M., & Taubman, O. (1995). Does hardiness contribute to mental-health during a stressful real-life situation: The roles of appraisal and coping. *Journal of Personality and Social Psychology*. 68 (4): 687–695
- [18] Funk, S. (1992). Hardiness – A review of theory and research. *Health Psychology*, 11 (5): 335–345.

- [19] Klag, S. and Bradley, G. (2004). The role of hardiness in stress and illness: An exploration of the effect of negative affectivity and gender. *British Journal of Health Psychology*. 9 (Pt 2): 137–161.
- [20] Kobasa, S. (1979). Stressful life events, personality, and health: an inquiry into hardiness. *Journal of personality and social psychology*, 37(1), 1.
- [21] Kobasa, S. and Puccetti, M. (1983). Personality and social resources in stress resistance. *Journal of Personality and Social Psychology*. 45 (4): 839–850
- [22] Kobasa, S. C., Maddi, S. R., & Kahn, S. (1982). Hardiness and health: A prospective study". *Journal of Personality and Social Psychology*. 42 (1): 168–177.
- [23] Kobasa, S., Maddi, S. R., and Zola, M. (1983). Type A and hardiness. *Journal of Behavioral Medicine*. 6 (1): 41–51.
- [24] Kobasa, S. C., Maddi, S. R., Puccetti, M. C., & Zola, M. A. (1985). Effectiveness of hardiness, exercise and social support as resources against illness. *Journal of Psychosomatic Research*. 29 (5): 525–533,
- [25] Maddi, S. R. (2013). *Hardiness - Turning Stressful Circumstances into Resilient Growth*. Springer.
- [26] Maddi, S. R. (2006). Hardiness: The courage to grow from stresses. *Journal of Positive Psychology*. 1 (3): 160–168.
- [27] Maddi, S. R. (1999). The personality construct of hardiness: I. Effects on experiencing, coping, and strain. *Consulting Psychology Journal: Practice and Research*. 51 (2): 83–94.
- [28] Maddi, S. R., & Khoshaba, D. (2005). *Resilience at work: How to succeed no matter what life throws at you*. New York: American Management Association.
- [29] Maddi, S. R., Harvey, R. H., Khoshaba, D. M., Lu, J. L., Persico, M., & Brow, M. (2006). The personality construct of hardiness, III: Relationships with repression, innovativeness, authoritarianism, and performance. *Journal of Personality*. 74 (2): 575–597
- [30] Nowack, K (2020). Building Resilience During COVID-19: Who Is the Hardy? Association of Talent Development, July 13, <https://www.td.org/insights/building-resilience-during-covid-19-who-is-the-hardy>  
Accessed on: 16/8/2020
- [31] Nowack, K. M. (1989). Coping style, cognitive hardiness, and health status. *Journal of Behavioral Medicine*. 12 (2): 145–158.
- [32] Nunno, T; Smith, S; Fenn, J; Mesaglio, M (2020) Gartner Research Executive Decision Making in the Time of COVID-19, Gartner, April
- [33] <https://emtemp.gcom.cloud/ngw/globalassets/en/insights/coronavirus/executive-decision-making-in-the-time-of.-covid-19.pdf>  
Accessed on: 16/8/2020
- [34] Pengilly, J. W., & Dowd, E. T. (2000). "Hardiness and social support as moderators of stress". *Journal of Clinical Psychology*. 56 (6): 813–820.
- [35] Soderstrom, M., Dolbier, C., Leiferman, J., & Steinhardt, M. (2000). The relationship of hardiness, coping strategies, and perceived stress to symptoms of illness. *Journal of Behavioral Medicine*. 23 (3): 311–328.
- [36] Vagni, M.; Maiorano, T.; Giostra, V.; Pajardi, D. (2020). Hardiness, Stress and Secondary Trauma in Italian Healthcare and Emergency Workers during the COVID-19 Pandemic. *Sustainability*, 12, 5592.
- [37] Wiebe, D. (1991). Hardiness and stress moderation: A test of proposed mechanisms. *Journal of Personality and Social Psychology*. 60 (1): 89–99.