The Correlational Factors of Family System's Emotional Equilibration and Resilience: A Quantitative Study of Families Living in Iran amid COVID19 Pandemic

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Abstract

Resilience comprises of a dynamic system designed to withstand or recover from significant challenges such as stress and anxiety that threaten its stability, viability, or development (Masten, 2011& 2012). Bowen's family systems theory describes how the personality and life choices of an individual can affect the interdependence and emotional relationship between all the members of a family, thus impacting its mode of survival and stability, and in turn, impacting resilience (Ayenechi, 2018).The authors hypothesize that in lieu of COVID19, as a traumatic experience, family resilience becomes codependent on its interpersonal and relational equilibration. To test the hypothesis, a sample population of 841 participants was selected by convenient and purposive sampling strategy using social media as a forum for data collection. The instrument selected for data collection was Connor/Davidson (2003) Resilience Scale (CD-RISC) questionnaire expanded by additional questions to address both the parental emotional equilibration and to adjust for cultural contrast of families in Iran. The final analysis showed a positive linear correlation between individual parent's emotional equilibration resulting in 80.5% resilience coefficient, while confirming the validity of the hypothesis.

Keywords: *Resilience, Emotional equilibration, COVID19, Quarantine, Family Systems*

In late 2019, a new viral pandemic surfaced across the globe, which the Center for Disease Control and Prevention (CDC.org, 2020) labeled as Coronavirus 2019 or COVID-19. The global outbreak of COVID-19 created a worldwide enforcement of mandatory quarantine, social distancing, panic, loss of human lives, economic downfall, and travel ban across the world (Zhai & Du, 2020). The rapid global spread of the COVID-19 virus eventually led to millions of worldwide deaths, economic halt, loss of jobs, closure of educational institutes, family isolation, and other psychologically induced harms. The family isolation, economic hardship, and the scarcity or lack of available resources created a traumatic environment for individuals across the globe impacting resilience factors (Chen & Bonanno, 2020). Experts now believe that the COVID-19 pandemic will result in the inevitable individual and collective mental health consequences, which will challenge the overall resilience stability trajectory (Bonanno, 2004).

*1.1-COVID-19 pandemic disaster in Iran -*The pandemic has rapidly spread across the world, since its initial discovery in China in December of 2019 (Lu et al., 2020; Li et al., 2020; Munster et al. 2020; Wu et al.; 2020). By June 2020, COVID-19 had affected more than 8 million people, who tested positive along with approximately half a million people dying worldwide (The New York Times, 2020). The world's scientists have made the gloomy predictions for COVID19 pandemic to bear unprecedented degree of negative and long term psychological and mental health issues worldwide (Lagoy, 2020).

However, the magnitude of COVID-19's destruction has hit some regions harder than others. According to the CDC (2020), Iran is now at a level 4 of COVID-19 contagion advising travelers to avoid this country by any means.

The first confirmed case of COVID-19 in Iran was reported in February 2020 in the province of Qom (Tuite et al., 2019) followed soon after, more cases were discovered in other provinces. As a result of this rapid dispersion to all regions in Iran, all schools and universities were closed in the affected provinces, and several cultural, sports, and religious gatherings were canceled as well. By April 2020, the proportion of deaths reported from Iran was surpassing many other countries (Peyravi, Ahmadi, Shamspour, & Soltani, 2020).

1.2- Resilience and risk factors - Resilience, the ability to overcome or recover from adversity is a perceptual concept consisting of several dynamic and protective systems such as family system, individual's own unique characteristics as a system, and contextual factors such as community system (Masten, 2011 & 2012). These protective factors are influential as early as the first few years of life; therefore, the quality and the degree of each factor's impression on the child is extremely vital in its primacy formation. Furthermore, the combination of individual, family, and community systems help build an individual's style of life and choices starting in early childhood, and consequently becoming more concrete in adulthood. This accumulated and habituated resiliency skill is a collection of attitudes, traits, and characteristics representing a cognitive blueprint that contains the person's unique and individually created convictions, goals, and personal beliefs for coping with the taxing events, trauma, and challenges of life (Fraser, Richman, & Galinsky, 1999). In the face of COVID-19, one needs to rely on their earlier established coping mechanism in dealing with stressors, while managing to keep psychological distress at a minimum. Researchers at the University of Shanghai Jiao Tong have alluded that due to the implementation of unprecedented strict quarantine measures in China, a large number of people in isolation have been affected triggering a wide variety of psychological problems, such as panic disorder, anxiety, and depression (Qiu, Shen, Zhao, Wang, Xie, & Xu, 2020). Additionally, several nationwide cross-sectional studies have documented depression and anxiety symptoms among Chinese people during the COVID-19 pandemic (Qiu et al., 2020; Wang et al., 2020).

1.3-Trauma as a risk factor - Historically, trauma has been associated with violent experiences; however, psychologists today believe that exposure to traumatic events can also lead to traumatic experiences and even Post Traumatic Stress Disorder (PTSD). According to Dr. Julian Lagoy (2020), a board-certified psychiatrist, the current COVID-19 pandemic has stress markers that qualify as a traumatic experience as it takes a physical and emotional toll on many people. On the other hand, studies pertaining to resilience following potentially traumatic events including disease outbreak have shown that the vast majority of individuals are resilient, and that outcomes depend on a combination of resilience factors including exposure severity, individual differences, family context, and community characteristics (Chen & Bonanno, 2020). Overall, mandatory social distancing and quarantining have dramatically changed the normal functioning of every society worldwide. During this stressful and potentially traumatic time, many people are forced to adapt to a new reality dominated by fear of viral spread and contagion (Adhanom, 2020; Wang et al., 2020).

The experts have now predicted a massive wave of PTSD and COVID-19 related mental deficiencies and psychological disorders to hit the global communities. There needs to be urgency in calling to action collaborative efforts in the clinical, psychological, and scientific fields to be committed to addressing these needs through innovative research and psychological treatments (Gruber et al., 2020).

1.4-Family system as a collection of sub-systems - As part of a complicated mechanism, family is a collective system comprised of different sub-systems, forming a triangle, connecting each sub-system in order to create efficiency and functionality of this unit as a whole. The triangle of sub-systems can be represented by unique mother/father relationship, mother/child relationship, and father/child relationship each playing an important role in continuously creating equilibrium and consequently fixing any disequilibrium that at times of distress or vulnerabilities the unit might experience (Bowen: 1966; 1971). The emotional interdependence presumably has evolved to promote the cohesiveness and cooperation families require to protect, shelter, and feed their members. Heightened tension however, can intensify these processes that promote unity and teamwork, which would lead to problems. When a family member feels anxious, the anxiety can escalate among all the members. As anxiety increases, the emotional connectedness of family members becomes more stressful than comforting. Eventually, one or more members feel overwhelmed, isolated, or out of control (*Bowen*,1966; 1971).

1.5-Family system and emotional equilibrium - Family as an emotional system can be impacted by four relational patterns, where problems can develop: 1) marital conflict, 2) dysfunction, 3) impairment of one or more children, and 4) emotional distance. This emotional unit entails complex interactions between each member, who are intensely connected like an inter-mechanism of a complicated machine. Like any other machinery or system, some parts

(members) may feel disconnected, but this is only an individual emotional misrepresentation, where in reality, they're still connected (Kerr, 2000).

Due to this strong connectivity, each member in the family system can affect the other members' thoughts, feelings, and actions; eventually, leading to solicitation of each other's attention, approval, and support. At times, when one member of this machine dysfunctions, it can be predicted that other members will malfunction as well; therefore, the family can be seen as a collection of an interdependence system (Kerr, 2000).

The family system's emotional interdependently will eventually evolve into a cohesiveness and equilibrium that shields it from stress and tension. The emotional equilibrium will then intensify and promote the unity required to reach skills in conflict resolution, problem-solving techniques, and improved resilience, benefiting the family system as a whole and consequently, each sub-system therein. Consequently, the unification in problem solving leads to family creating balance and equilibrium. Implications for health and well-being of family emphasize on the importance of the early biological modeling, guidelines, preparedness, and response templates as a necessity for optimal recovery from adversity (Masten & Narayan, 2012).

1.6-Family system as a triangular unit – The family triangle is a relationship system requiring three sides to maintain balance, since a two-person system cannot form triangulation, thus not being able to withstand the tension from the other side. In a situation with moderate tension levels, with one side in conflict, the other two harmonious sides could make compensation (Guerin, et al., 1996). The overall strength of the triangle is incumbent upon how strongly each side (each self in the family) builds and strengthens its 'self', and how well it connects its own sub-system to the other sub-systems. The less developed a person's "self," the more impact external factors will have on its functioning, thus the more it tries to impress its dysfunctionality and weight on the functioning of others (Bowen, 1972). Research Study Characteristics. The researchers chose a quantitative correlational research methodology to examine the correlation of COVID19 impact on resilience in families living in metropolitan areas of Iran. The main research question asks whether the emotional equilibration is an effective factor in the development of family resilience. The general hypothesis states that an impactful correlation exists between the degree of resiliency and parental emotional equilibration ultimately contributing to the overall family unit's survival and resilience. Based on family system theory, relational sub-systems consist of father/mother relationship, father/child relationship, and mother/child relationship, and interpersonal emotional equilibrium in all subsystems leads to a healthy family dynamic (Bowen,1966; 1971).

2.1-In addition to the general hypothesis, the following assumptions were included to be tested:

1. The degree of mother's and father's resilience factor is gender differentiated.
2. There is a correlation between resilience and spousal tension.
3. The correlation between siblings' tension and parental resilience is gender-oriented.
4. There is a correlation between resilience and self-care.

2.2-D*efining the variables* - In this study, the independent variable that is manipulated is the family's emotional equilibrium, and the dependent variable that changes as a result of the manipulation is the degree of resilience in the participating population (Reynolds & Livingston, 2011). In a scientific study, the control variables may influence the results of the study and compromise the internal validity (Shuttleworth, 2008); therefore, to ensure the internal validity, the followings variables were isolated as control elements: parents' age, children's age, and the duration of the quarantine days (March 2020 to April 2020). The confounding variables suspecting of influencing the outcome were considered to be parental level of education, income, gender of children, information received or conveyed through cyberspace, and the use of social media. Isolating the confounding variables prevented the presence of interfering variables, which would have resulted in an unmeasured third variable influencing the study result (Reynolds & Livingston, 2011) .

2.3-Population and selection of sample participant - The statistical population of this study includes parents in age range of 25 to 55, with children ranging from infant to 18 years old living in different metropolitan provinces of Iran. Sample selection was based on both convenience (haphazard) and purposive methods. Convenient sampling allows the researchers easy access to participants, and the purposive sampling enables the researchers to collect data only from participants, who show relevant elements to the hypothetical set up, and are associated to the specific research criteria (APA, 2020).

2.5-Socio-demographic and baseline characteristics of research participants - The statistical sample of this study consisted of 841 parents, including 688 mothers and 153 fathers living in different provinces of Iran, who responded to the questionnaire during the March and April 2020 (The period of mandatory quarantine).In this sample population, the breakdown of the respondents showed that 10.6% of the participants were in the 46-55 age group, 51% were in the 36-45 age group, and 38.4% were in the 25-35 age group. Additionally, sample population comprised of 54.3% with

one child, 42% with two children, 3% with three children, and 0.6% with four or more children. The level of education of parents was classified between doctorate to below diploma; the highest number, 40.3%, had a bachelor's degree.

Research Methodology

This study used a quantitative and correlational approach to examine the impact of the COVID19 pandemic on family resilience. Quantitative research methodology is based on a strategy that allows the researcher to quantify the data collected and make analysis in a deductive approach, while emphasizing on testing the theory through empirical and numerical values (Bryman, 2012).

Data Collection Instrument

The instrument used for data collection was Conner-Davidson Resilience Questionnaire (2003) with 25 questions for the purpose of measuring the degree of resilience in different people. The resilience structure is scored in five Likert scales from zero (completely incorrect) to five (always correct). The minimum resilience score of the subject in the Connor-Davidson (2003) resilience questionnaire is zero and the maximum score is one hundred. In other words, a score higher than 50 indicates resilience, and the higher the score, the higher the resilience of the individual, and vice versa. The subscale of this questionnaire includes the following factors:

- Personal competence / strength
- Trust in personal instincts, tolerance of negative emotions
- Accepting positive emotions, safe emotions
- Individual restraints
- Degree of spirituality

3.1-Specification of instrument - The adapted Connor & Davidson (2003) resilience questionnaire was modified with additional questions to address the cultural specificity and the uniqueness of the landscape of the COVID19 pandemic in Iran. The questionnaire's modification for cultural consideration included Iranian family lifestyle, communication techniques, activities, social norms, and family priorities. The Connor/Davidson Scale has been standardized in Iran by Derakhshanrad (2014) using Cronbach's alpha method reflecting a reliability coefficient of 0.87, which is an indication of a high-reliability coefficient. Although, there is no absolute standard indicating a high coefficient, it is noted that a healthy reliability coefficient that falls between 0.70 and 0.90 is ideal (Kaplan &Saccuzzo, 2018). The researcher felt confident that choosing the Connor & Davidson resilience scale would be a reliable instrument to use for collecting data for this research.

3.2-*Data collection technique*–The Resilience Questionnaire was completed by parents with children (age group: from birth to 18 years old) residing in Iran (different provinces). This questionnaire was prepared through the Press Al site, a survey App, was made available to the respondents through cyberspace and was given to them and collected through the same site. Also, demographic elements such as: age, number of children, age group of children, gender of children, level of education, income, etc. were asked. The 841 participants were reached by using social media Apps such as Telegram, Instagram, and email as a forum for data collection.

Study Results

The general hypothesis claimed that there is a cohesive correlation between family system's emotional equilibration, degree of resiliency in families, who face life altering conditions such as COVID19 global pandemic. Researchers were able to confirm the main hypothesis along with additional significant findings reported as successful.

4.1-Tension endured during quarantine – During the COVID-19 pandemic, tension among family members living in Iran escalated leading to three times the normal reporting of relational strain (The Iranian Wikipedia, 2020). As reported by similar findings, according to daily mail journal of England, couples argue an approximate 2455 times per year, which calculated to seven times a day (www.dailymail.co.uk). Children and parents argue approximately six times a day, which shows around 48 minutes per day are wasted on negative discussion (Catana, 2018; as cited in www.moms.com, 2020). A new study shows that parents argue with their children on average 6 times a day, totaling 48 minutes daily (Catana, 2018; as cited in www.moms.com, 2020). In this study, the data showed the highest reported degree of tension (91.7%) between spouses between 1-7 times daily (minimum amount) and (79.3%) tension between parents and children between 1-6 times daily (minimum amount) and (40.8%) tension between children less than 20 times daily (minimum value).

4.2-Self-Reporting - 33.4% of the population believed that COVID19 did not have a positive effect on their lives,19.6% considered it a positive effect on their spouse, 19.5% on their mental health, and 27.9% considered

the negative effect of the COVID19 disease on material issues. Additionally, economic stressor accounted for 23.9% of individual mental health.

4.3-Self-care and resilience – One of the hypotheses implied there is a correlation between resilience and self-care. The results of this study showed a correlation between resilience and self-care at the level of 0/0, when 33.4% of participants allowed 1-2 hours a day for self-care dedicated to personal nurturing of which, 34.6% considered watching a favorite movie. Bowen (1996, 1971) had implied that family equilibrium may negatively be impacted by stress and anxiety; however, individual's personality and life choices between all sub-systems can be instrumental in the survival and stability of the whole system (Bowen,*1966; 1971)*. As a lifestyle choice, self-care ensures the stability of the individual, thus inflicting a positive impact on the overall family system.

4.4-Gender difference in individual resilience - Gender differences exist between mothers' and fathers' resilience factor, which was shown by the result of the study. The sample participants showed 80.5% high resilience factor of between 50-100, and 19.5% showed low resilience below 50. Among mothers, 79.8% had high resilience and 20.2% had low resilience. In the sample participants among fathers, the resiliency factor showed 83.7% as high resilience and 16.3% as low resilience.

4.5-Family resilience factor - Gender differences exist between mothers' and fathers' resilience factor. The data showed at parental level, the resilience factor of mothers and fathers was calculated at 0.05, which is not significantly different meaning both fathers and mothers have the same level of resilience. Data did not show a correlation between resilience and the number of children as resilience did not decrease or increase with the number of children in the household. There was a correlation between spousal resilience and relational friction, which was at 0/0; however, this relationship is linear and inverse meaning the less tension between spouses, the higher the resilience. In mothers, data showed a linear and inverse correlation between resilience and spouses' tension; among mothers at the level of 0.0, referencing the less tension between spouses, the higher the resilience of mothers. However, fathers did not show a correlation between resilience and spousal tension.

4.6-Resilience and spousal tension – Research hypothesis assumed a correlation between spousal resilience and tension. There is a correlation between resilience and tension between spouses and children at the level of 0/0; however, this relationship is linear and inverse meaning that the less tension between spouses and children, the higher the resilience. There is a correlation between resilience and tension between mothers and children at the level of 0/0; although, this relationship is linear and inverse meaning that the less tension between mothers and children, the higher the resilience of mothers. There is no correlation between resilience and tension between fathers and children.

4.7-Sibling tension and parental gender differentiation resilience – The hypothesis of gender-specific correlation between parental resilience and sibling tension was tested. Sibling tension and parental resilience showed a linear and inverse correlation of 0/03 meaning the lower the tension between the children, the higher the parental resilience. Tension among children in the household showed an inverse and linear correlation of 0/02 between mothers' resilience and children's tension implying the lower the tension between siblings, the higher the resilience factor of mothers. Fathers showed no correlation between resilience and sibling tension.

Strengths of the Study

The study added culturally-specific alterations to the Connor/Davidson (2003) Resilience Scale (CD-RISC) ensuring cultural contrast. Questions modified for cultural reflection were focused on the particular family lifestyle in Iran such as communication style, activities, social norms, and family priorities. The sample population of 841 participants spread across several demographics, metropolitan areas, and socio-economic status lends a particular strength to the findings since it encompasses a diverse landscape of subjects and family dynamics were studied. The study was conducted in the midst of the COVID19 pandemic (March to April of 2020) yielding a stronger description of how family was functioning and adjusting to being quarantined, home schooling, and working from home.

Limitations of Study

1. The micro genetic nature and the length of data collection, which was two month, and in the beginning of the pandemic in Iran may pose a threat to test-retest reliability.
2. The demographic was comprised of metropolitan area, which may not yield the same result if replicated in rural areas creating a shrinkage in regression between one group of subjects versus a different population.
3. In case shrinkage exists, this may pose a challenge for cross validation, consequently, allows the creation of a standard error of estimate for the relationship between predicted and actual values.

4. Establishing resilience in families during COVID19 does not necessarily mean that the participating parents may not develop PTSD at post-pandemic period.
5. The ratio of female to male participants of 80 to 20 respectively may have played a semi-significant role on the overall population's degree of resilience.

Conclusion

It is apparent that COVID-19 as a traumatic experience is yet to be fully understood. As it has been shown, Post Traumatic Stress Disorder symptoms are not usually detectable until time has passed, and individuals show signs of inability to cope with daily routines. Therefore, it is predicted that most likely longitudinal studies will be required to assess the magnitude of COVID-19's impact on individual and family resilience factors. The findings of this study showed that emotional balance at the levels of each subsystem is instrumental in the differences in the resilience of different domains. In the high-risk groups and based on experience with previous pandemics, interventions are needed to prevent long-term psychological effects. Professional support and family-centered programs should be a part of pandemic mitigation-related policymaking and public health practices.

Findings support the importance of developing psychosocial interventions that teach resiliency skills starting at hospitalization before anxiety symptoms become chronic. Such interventions should account for these gender differences—with careful considerations to address mindfulness skills in male caregivers. The researchers strongly recommend that the scientific community put collective effort in creating new resilience models to identify individual, family, and community protective factors. The new models designed must also reflect the global community and consider the contextual and cultural differences in various parts of the globe. Human beings are no longer an isolated species as they are rapidly moving from a local to a global community.

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