

Mitigation of Risks of Complications and Deaths among the Elderly during Pandemics

Designing an Integrated Communication Framework Based on the Accumulated Experience of the Elderly Risks during the COVID-19 First Wave

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Abstract The Covid-19 pandemic caused by the novel coronavirus (SARS-CoV-2) is a contagious disease that has triggered a global crisis and led to more than 425,000 deaths till the time of this paper. Most of those death occurred among the elderly which proven to be the most high risk vulnerable group both physically and mentally. This paper targets to address the vulnerability of the elderly age group during COVID-19, with a focus on both the immunological and mental health aspects. The analysis of the literature published on the pandemic shows that the policies for social isolation for the elders can be better aligned to compensate for the variety of needs of this elderly group. Holistic risk mitigation, communication model framework is proposed to compensate for the preventive demands of both elderly's mental and physical health during pandemics, based on the experience of the first wave.

Keywords COVID-19, Pandemic, Elderly, Geriatric Medicine, Vulnerability and Immunity, Communication Model

1. Introduction

The aim of this paper is to bring forth the complications of the elderly people because of the current pandemic and the current policies. It is an attempt to discuss the social, economic and psychological impact of the virus on the elderly people as they are the ones with a compromised immune system. With the need of constant attention and care the elderly people are more likely to suffer from mental health degradation due to the policies of the virus that requires social distancing or even complete isolation if one is infected.

The multiple precarious cases of viral pneumonia reported in Wuhan, Hubei Province of China, were later confirmed to be infected by a novel coronavirus called COVID-19, WHO

(2020). According to the Seventh Edition of the New Coronavirus Pneumonia Diagnosis and Treatment Program, the epidemiological characteristics of the virus were pointed out and the population was generally susceptible. Li et al. (2003).

Mehra et al. (2020) The COVID-19 pandemic is now a reality. It is affecting people across the globe. CDC (2020) support the fact that the elderly can contract the infectious COVID-19 easily, shed the virus more due to exaggerated respiratory symptoms and often would have significantly (3-4 times) increased chance of mortality. Emerging data suggest that it is associated with relatively higher mortality among elderly, with rates varying from 3.6% to 14.8% for the elderly population. This fact has also being highlighted in the media and in general elderly are advised to take more precautions. All this is leading to a scare among the elderly, about the eminent death. Many elderly are dependent on others for their day to day activities and the required social distancing has made them feel more isolated, especially those who are not very technology driven. The global recommendation for the older population is isolation from society, staying at home for "a very long time", BBC (2020).

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Social isolation is a “serious public health concern” and is known to be increase the risk of adverse mental health outcomes. Available data suggest that social disconnectedness puts the older people at a greater risk of depression and anxiety. Santini et al. (2020).

Over 20% of adults aged 60 and over suffer from a mental or neurological disorder. According to Dr Hans Henri Kluge, WHO Regional Director of Europe (Copenhagen, 2 April 2020) over 95% of the deaths occurred are in those older than 60 years. More than 50% of all the deaths were people aged 80 years older. Several reports claim that Old individuals are at a higher danger of COVID-19 disease due to their diminished invulnerability and body holds, just as various related comorbidities that the elderly people are likely to have.

The literature review starts with defining the elderly group as per the scope of this paper. The reason for why the elderly so vulnerable during pandemics is explored. The type of elderly risks during lockdown and how this effect their mental health problems during COVID-19 and previous pandemics are further reviewed. The uncertainty factor, besides the maintenance of the elders’ physical and functional activities; are also reviewed. The literature shows that social isolation and loneliness need to be compensated with optimizing the ways the elderly care services are delivered during the pandemics. Based on the review of the existing communication models with the elderly a framework is proposed for how to mitigate the elderly risks during pandemics, with specific focus on the learning from COVID-19.

2. Literature Review

2.1. Understanding the Uniqueness of COVID-19 Pandemic

In 2019 is a highly contagious disease that comes from family of corona viruses that cause sicknesses, for example, the normal cool, extreme intense respiratory condition, similar to (SARS) and Middle East respiratory disorder (MERS) occurred. COVID-19 is another coronavirus that was distinguished as the reason for a malady flare-up that started in China.

The World Health Organization has declared the ongoing outbreak of COVID-19 to be a global public health emergency. Coronaviruses are a family of large positive-strand RNA viruses, divided into α , β , γ , and δ CoV. They infect a wide range of mammals and cause a spectrum of diseases of various severities. In humans, CoV have caused diseases ranging from the common cold-like to severe respiratory diseases caused by β -coronaviruses like the severe acute respiratory syndrome. Currently, the research on SARS-CoV-2 is in its primary stages. (Nikolich-Zugich et al. 2020).

The infection is presently known as the serious intense respiratory condition coronavirus 2 (SARS-CoV-2). The

malady it causes is called coronavirus sickness 2019 (COVID-19). In March 2020, the World Health Organization (WHO) pronounced the COVID-19 flare-up a pandemic. The symptoms of this virus include; Cough, fever, headache, muscle and chest pain, tiredness, breathing difficulties etc. This virus is prone to impose worse/ fatal consequences if one has poor immunity system.

The dangers and the uniqueness of the COVID-19, is its high capacity for mutation. This come due to it is being it is of the RNA viruses which its rates of mutation are greater than DNA viruses (Abdulmir and Hafidh, 2020).

A number of recent studies had published discussing the risk and associated factors affecting the mortality and morbidity of COVID-19 disease in different age groups with its relation to other comorbidities aiming for improving the treatment outcome and to find the most vulnerable groups of patients.

2.2. Definition of Elderly Group

Since the start of the COVID-19 pandemic, age proven to be one of the factors for the increase of the risks of mortality as well as severity of infection. The age cut-off for being an elder has been changing over the last few years, but for the scope of this paper and the practical purposes we will consider the geriatric, elderly age group to be those above 60 years. As per data from the Chinese Centre for Disease Control and Prevention, during the first two months of Covid-19, the death rate was 3.6% in the age range 60-69 years, which gradually spiked up to 15-20% at ages 80 years and higher.

Thus, if we begin with defining the “elderly group” there isn’t any constant or static definition of these two words, for it may vary from person to person. However, the elderly people are generally said to be the mass that contributes as the senior citizens of a country/nation. The most common chronological age is seen to be accepted as 65 years that defines the ‘elderly group’ (the chronology may differ in developed and developing countries respectively).

Nevertheless, one needs to note that the elderly as a group is very diverse. There are elderly with more education and resources. These types of elderly are more competent to overcome the challenges of social distancing just fine, while those who don't have the ability you engage in tech supported replacements, for example, may feel particularly isolated." There are also a type of elderly that are very sensitive for any support. Hence, one need to make sure to regard the choices of those who would like to be live self-governance and self-rule, and need to consistently ask then before delivering support.

2.3. Understanding the Socio-economic and the Health Status of the Elderly before COVID-19 Pandemic

Grown-ups, those matured 60 or above, make significant commitments to the society and in many communities, especially in highly and medium developed countries. World-wide still many of them today are highly active head

of the family, volunteers and dynamic members in the labor market. While most have great emotional wellness/mental health, numerous more seasoned grown-ups are in danger of several mental and physical threats and disorders like neurological, diabetes, hearing loss, eyesight loss and other related pain in different parts of the body. They are also vulnerable towards hurting their dignity, losing respect, abuse, abandonment or negligence by their children, or other community members. (Mental Health of Older Adults, 2012; WHO).

Henry Kaiser Foundation (2018) reported that in USA more than 72 million of American adults i.e. 14% of the population, are with age 65 years and above are reported to be below poverty line. This data shows the economic insecurity of senior citizen of the most developed nation of the world. Sighting another country fighting with Covid-19, as India, it has 103.9 million elderly, people above age 60, which count for about 8.5 per cent of the population (According to a 2016 report by the ministry for statistics and program implementation).

2.4. Why the Elderly So Vulnerable During Pandemics?

One could summaries that ageing is the main factor. Ageing bring with it a multiple of physical and social factors, that make the elderly people in general are more vulnerability to any infection, in comparison to any other group. With ageing comes frailty which basically means the sum total of risk in every level of physical, psychological and social systems that can arise with age. Wasser (2020).

The immune system is considered the most important factors in fighting any contagious disease and Covid-19 is no exception. The strength of the immune system produces antibodies that lead to effective recovery with symptomatic treatment. Ageing, chronic illnesses like diabetes, hypertension, obstructive pulmonary disease, heart and kidney problems weaken the immune system. All these factors, besides the frailty, contribute to the overall 'stress' of infection in the elderly body.

Clinical research has demonstrated that while individuals of any age can be infected by the new coronavirus, more elderly individuals and individuals with previous -comorbidities, (for example, asthma, diabetes, coronary illness) have all the earmarks of being progressively powerless against getting seriously sick with the coronavirus and kicking the bucket from it. The Italian national health institute (ISS) reported 78.5 years as the age group where death tolls are more, likewise in China, A study done by the Chinese Centre for Disease Control reported that 21.9% of death cases belongs to people with the age of 70 and above. Considering the fact that a strong immune system is necessary to fight the virus, the elderly people with weak immune system and other available diseases are more likely to get subjected to Covid-19.

According to the National Council of Ageing, about 92 percent of elderly people have one chronic disease, followed by other cognitive disease. They are also prone to physical

injuries mainly occurring through falls. Thus, the Covid-19 proving more dangerous to people with other alignments can harm the elderly people more critically. Lack of healthy sustenance in more seasoned grown-ups beyond 65 years old is frequently underdiagnosed and can prompt other old medical problems, for example, a debilitated resistant framework and muscle shortcomings.

The lockdown restricting the physical movements of the masses can also cause a lot the elderly people. Getting locked with abusive and careless family members can degrade both mental and physical well being of the aged people.

Though the most common cause of death due to Covid-19 is acute respiratory distress syndrome (ARDS) secondary to pneumonia, many elderly in China and Italy have died due to heart and sepsis (additional infection spreading in blood) complications, without signs of lung involvement. This shows that coronavirus can overwhelm the body as a whole with age. In addition, increased hospitalisation leads to other hospital-acquired infections.

2.5. Immunological Basis of Vulnerability to Emerging Infectious Diseases in Older Adults

The immune system of older adults undergoes numerous age-related changes, collectively termed immune senescence. These changes affect many cellular and molecular elements of both the innate and adaptive immune systems, as well as the coordination of the response itself in time and space, which works effectively in young and adult individuals but deteriorates with age. The sum of these changes leaves older adults particularly vulnerable to new, emerging infectious diseases as (Nikolich-Zugich et al. 2020).

Age-related changes begin early in life with the drop in production of new T cells. New naïve T cells are made in the thymus, that is large in our childhood, but undergoes quick atrophy, reducing new production of naïve T cells to 1% between 40 and 50 years of age. A similar drop in production of naïve B cells occurs due to an age related dysfunction of the bone marrow, although this occurs later in life than for T cells. Naïve T and B cells made in youth are normally maintained for long periods in the lymph nodes (and to a lesser degree in the spleen and bone marrow for B cells). In fact, lymph nodes are in charge of both maintenance and coordination of new immune responses necessary to control viruses such as SARS-2. Lymph nodes undergo dramatic age-related changes in the final third of life, becoming less able to maintain naïve T cells and to coordinate new immune responses to emerging infections. Moreover, the T cells that do remain do not move quickly enough to meet innate immune cells when the infection strikes, which could be a consequence of dysregulation in chemokines that guide T cell migration. As a consequence, the immune responses to a new emerging infection are blunted. (Nikolich-Zugich et al. 2020).

2.6. Chronic Diseases and COVID-19

The new type of coronavirus mainly causes lung

infections. Lung infections increase the burden on the heart. At the same time, it can lead to high blood sugar, which makes infection control difficult. The characteristics of multi-system disease coexisting in the elderly lead to complicated and complex diseases. Multiple diseases affect each other. Treatment The difficulty factor is greatly increased. Because elderly patients are prone to multi-system organ dysfunction and even failure, other systemic complications should be prevented, including gastrointestinal bleeding, renal failure, disseminated intravascular coagulation (DIC) or deep vein thrombosis, delirium, For secondary infections, a multidisciplinary team approach is recommended. (Liu K et al. 2020).

2.7. Type of Elderly Risks during Lockdown

Storey and Rogers (2020) seen that older adult are at significant risk during the pandemic from COVID-19 due to age-related vulnerability, but mostly more due to pre-existing health conditions. But safety measures put constrained despite the intention to protect them from the virus may also be placing them at greater risk of experiencing elder abuse. Factors including isolation, depression and unemployment are all increasing because of the global pandemic. Storey and Rogers (2020).

Adding to this problem is increased strain on health and social care services which influenced elders' quality of care, besides the limited options of places they can go without increasing their risk of contracting COVID-19.

Many people are now confining themselves to indoor spaces and communicating with their loved ones only through the use of electronic tools. This may have a detrimental effect on mental health, especially for adults over the age of 65, who may be less comfortable with virtual solutions. We must work to prevent social distancing from becoming social isolation among this vulnerable group. Banerjee (2020).

Social isolation found to increase depression as well as to increase pro-inflammatory and decreased anti-viral immune responses. These effects may further increase the susceptibility of this population to COVID-19. Health care systems and communities must consider the mental health burden of social distancing for the elderly and find ways to keep them engaged and motivated.

2.8. Elders Mental Health Problems during COVID-19 and Previous Pandemics

Lockdown and social isolation has increased stress, which are all associated with depression. The pandemic lockdown has limited the elders coping mechanisms, such as socialising and light movement activities. This increased their feeling of being socially isolated, Buheji et al. (2020). In the mean while the elders got increased caring services, such as getting food and medicine delivered, this reduced their functionality and make them over time, if this pandemic stays for long time to be more dependent on others. This could reduce also their social circle from friends and family they used to deal with during their fully functional life. Li

et al. (2003).

Meng et al (2020) mentioned that seniors are considered high risk under COVID-19 due to their effete immune system and are often associated with chronic underlying diseases and thus would suffer severe infections. Thus, deaths would be more common among these seniors and specially among those with chronic underlying diseases. Therefore, this factor can accumulate stress and fear among the seniors.

As Maria Branyas, a 133year old Spanish Covid-19 survivor said in one of her recent interviews; "This pandemic has revealed that older people are the forgotten ones of our society". Her statement throws light on a harsh reality about the elderly people who are crippling with their common type of anxieties like; phobia, post-traumatic stress disorder, general anxiety and other emotional traumas. (Depression in the elderly; Katie Hurley, LCSW).

According to the USA Centre for Disease Control and Prevention (CDC, 2020), depression affects about 1%-5% of the general elderly population, 13.5% in elderly who require home healthcare, and 11.5% in older hospital patients. Italy with the second largest population of elderly people (23%) has reported many deaths so far, thus constant headlines and media reporting cases of Covid-19 among elderly people will establish/has established constant fear and will invite mental health degradation amongst the elderly population.

According to the World Health Organization about 15% of people aging over 65 suffer from mental disorders. The fear of getting abounded by the family members in case of getting infected by the virus, being homeless, being helpless for not having anyone to attend their needs can be some of the common fears.

The mental health of the elderly is very important during the COVID-19. The seniors not only face the disadvantages caused by relatively low immunity systems, but also need to overcome the challenges brought by the complex psychological environment during the pandemic cycle.

Meng and his team measured China's elderly COVID-19 patients' mental health demographics, the living condition, chronic medical history, previous mental illness status. The questionnaire also covered whether they are aware about confirmed infected cases around them, and besides if they got trainings on pandemic related knowledge. The sample represented 37.1% of the Chinese COVID-19 elderly patients, from age 60 to above, including those that experienced depression. The Meng et al. (2020) survey revealed that the impact of the pandemic on the elderly physical and mental health of the elderly is more obvious due to their declined physical quality, and ineffective immune system. This impact increases if the elderly suffers more chronic underlying disease, decrease in psychological capability, and weak information receiving and processing ability. Buheji and Ahemd, D (2020).

The Meng et al. (2020) study suggested more psychological intervention strategies designed for elders that low educated, divorced or widowed, and especially those who are living alone, having sleep problems and mental

health issues. This intervention can be through mechanisms of psychological counseling and psychological health education in the media that focus on depression and anxiety issues. Li *et al.* (2003).

2.9. The Role of Uncertainty Factor

Mehra *et al.* (2020) emphasized that uncertainty is creating a main impact on the elders' mental health and their anxiety. This uncertainty is increasing with the type of media they are exposed to, besides their environmental factors.

Unhealthy reports that says that the COVID-19 elder patients requiring ventilators won't be given priority because of the overwhelming patient load, and thus would be allowed to die has created a significant scare among the elderly.

Due to uncertainty, elderly who have poor social support and are living alone are finding themselves helpless and unsafe. The belief of non-availability of essential items or the threat to their financial insecurities, along with capacity to physically reach fewer close relationships, have increased their fear about the ambiguity to come. The lack of the resources to support socializing led to even more feeling of boredom and the fear of contracting the virus. Turner(2020); Cohen-Mansfield *et al.* (2016).

Mehra *et al.* (2020) 72 years old man, who over a period of next 2 weeks developed syndromal depression, due the excessive worry of getting infected with COVID-19, spreading the infection to others and afraid would be blamed by the society. This brought sense of worthlessness and helplessness, despite his routine investigations and physical examination did not reveal any abnormality. He started showing improvement in symptoms after the psychotherapy sessions for over a period of next 1 week.

All the signs today shows that the COVID-19 pandemic and its social consequences are going to be a big challenge for the elderly, especially, those who are already suffering from mental disorders. Both the cases, availability of excessive information about COVID-19 in the media, especially about the consequences of the infection for the elderly led to development of initial anxiety. There is an urgent need to develop psychosocial interventions, to address the need of these vulnerable elderly. Mehra *et al.* (2020).

One needs however to distinguish between the type of elderly vulnerable at risk. Mehra *et al.* (2020) confirms that although, the initial data suggest that elderly with various physical morbidity are the ones more vulnerable to death. Thus, we need to be selective in projecting this information and generalize that all elderly at risk as it is counterproductive.

David (2020) emphasized that the limitation put on the elders of no face-to-face interactions with other individuals outside their immediate household, forced many family members to end visits to parents and grandparents.

2.10. The Importance of Elders Physical and Functional Activity

The frail elderly are particularly at risk because of limited

(or impaired) physical mobility, less autonomy or functional activities, increased their vulnerability to infections and immunological depletion, cognitive decline, and their chronic health conditions. David (2020) reported after Stephanie Cacioppo, of the Brain Dynamics Laboratory at the University of Chicago's Pritzker School of Medicine that this limitation of both physical and functional activity made them even more vulnerable for lower injury thresholds and higher recovery times. Banerjee (2020).

In developing countries the elderly people, those above 65 years, are generally mostly retired, or might not have the physical capability to be totally financially independent. These group of elderly people are also inclined towards a jovial environment where they can meet their friends, take a walk in the park, do some meditation, attend religious ceremonies and other family gatherings in general. As the lockdown hits many different countries since past few months, those elderly people are now confined to the closed spaces of their rooms, devoid of every social activity that used to be in their daily schedule. The lockdown might also delay in any kind of other emergency health requirements for them.

2.11. Elderly Social Isolation, Loneliness and Socio-economic Impact

Social isolation could lead to feelings of loneliness which triggers stress response. The loneliness found to be related to increased inflammation and hyper activation of the immune system, contributes to some of the chronic diseases that older adults are already more vulnerable to developing. BBC (2020), Buheji *et al.* (2020).

One of the techniques used for breaking loneliness is to exploit the expertise of the elderly people and give them opportunity for mentorship. This found to give the elderly more appreciation for the value of their life and see the meaning of their journey. Cohen-Mansfield *et al.* (2016).

More loneliness hotlines could be a great preventive measure and would add value to discovering any elderly symptoms of anxiety and depression. These measures could improve the elders contribution to the community during the pandemics and compensate for their social isolation besides reducing the impact of COVID-19 on their mental health. Storey and Rogers (2020).

With the enforcing of the social isolation, besides the uplifted worry of remaining at home and ceasing the opportunity of friends and family, more seasoned elderly people resist the counsel and like to adhere to what they know. Many started to feel they have been trapped by this stage and at this age. Thus this causes them to be anxious, depressed and in a state of loneliness. The practice of social isolation can also restrict the poor of the elderly group to have access to healthy and nutritious food, leading to malnutrition and weakening of the immune system.

2.12. Ensuring the Optimum Suitable Elderly Care during Pandemics

Caring for vulnerable elders during the lockdown can be

tricky to many people, especially if they have possible complications for their underlying health conditions, or need more special care. Storey and Rogers (2020).

During the early stages of the outbreak or a pandemic there should be a clear care plan with friends and family to support vulnerable loved ones. There are a lot of community groups that have sprung up in response to the pandemic, supporting people who are vulnerable and isolated. Banerjee (2020).

Besides the effect on health, the pandemic has largely affected public health, economy and quality of life alike as various nations have shut down their borders and implemented lockdowns. Many elders were deprived of routine health check-ups which increased their risk of contracting other complications. Many routine checkups also most probably not followed at the time of lockdown. Therefore, we believe that social isolation during pandemics need to be approached in a way that it will not affect the mental and the physical health of these vulnerable people and would not put them at greater risk. Wasser (2020); BBC (2020).

2.13. Communication Model with the Elderly

Communication is key to making the elderly both physical and mental health and protection. During pandemics or national health emergency situations, where social isolation and loneliness need to be compensated there have to be a well-orchestrated communication model. Cohen-Mansfield et al. (2016).

The most important people that should be assigned for the management of the communication model are the qualified and trained disaster volunteers supported by mental health counselors. The volunteers should start updating or collecting all the elderly people direct phone contacts and besides relatives and friends.

The communicate model should help to connect with the vulnerable elderly and fill some of the gaps that are caused by the frozen physical and functional activities. For example, the communication can use a type of excitement for deep meditation, listening to music, reading, exercising. Buheji and Ahemd (2020).

Digital and physical health assessment visits along with supportive counseling sessions might help to ensure preventive measures before deteriorations of both physical and mental health.

The communication model should ensure the maintenance and protection of self-dignity and respect, such as being giving the priority for testing and treatment. Thus, the conversation topics and related activities should help them share memories whether through online or on the phone.

Since many of the elderly people suffer some type of visual and hearing impairments, followed by some other physical shortcomings that might restrict them to function properly to cater for their needs, it is highly advisable for every individual to render friendly and approachable gestures to the elderly people and be keep patience while dealing with them. Some regular interaction using assistance

tools where possible or one to one meeting may help in keeping their mood light and happy. This is very important for maintaining and even optimizing their immunity.

An emphasis on a healthy diet, sleep and physical activity can boost the elders immunity if it is combine with suitable healthy family support. However, again more suitable communication lines need to be established to diagnose the how they can or expect to reach routine material food and getting prescribed medications, if they're living alone. The communication model might include specific design for the most suitable timing to make a checkup visit to ensure their both mental and physical health. Turner (2020).

Television and radio can play an important role in communicating with the elderly by encouraging them to express their views and discuss with them how they are coping with the lockdown or the pandemic news or challenges. Banerjee (2020).

3. Methods

Based on the literature and integrative review, the fatality and the morbidity consequences are specifically explored in elderly COVID-19 patients. The integrative review in Geroscience, ELSEVIER/ Journal of Infection/ International Journal of Antimicrobial Agents, and Journals of General Medicine, mostly published between January to March 2020.

4. Results

20 published studies were selected most of them in March 2020 in different countries, one study on 56 patients found that most of patients have fever followed by cough and sputum. The proportion of multiple lobe involvement in the elderly group was higher than that in the young and middle-aged group ($P < 0.001$), and there was no difference in single lobe lesions between the two groups. The proportion of lymphocytes in the elderly group was significantly lower than that in the young and middle-aged group ($P < 0.001$), (Liu et al. 2020), another study on 339 patients found that comorbidities including cardiovascular disease ($P = 0.031$) and chronic obstructive pulmonary disease ($P = 0.023$), and acute respiratory distress syndrome ($P < 0.001$) were strong predictors of death, while a high level of lymphocytes was predictive of better outcome ($P < 0.001$). (Wang et al. 2020b).

An epidemiological investigation report reported that the median age of death is 75 years old and mostly with patients with other chronic disease or have history of surgery before admission. (Wang et al 2020a).

5. Framework for Mitigation of Elders Risks during the Pandemics

5.1. Importance of the Framework

Observational and correlational studies reviewed in this

paper have linked persistent feelings of social isolation and loneliness with higher risk of developing certain mental and physical health conditions, or reduction of the immunity during the pandemic. The risks on the elderly need to be managed and mitigated in a way that we ensure that there are no daunting measures that would create a harm on this type of group rather than protecting them.

Caring for the elderly is a collective responsibility that needs holistic approach where more care could be designed for those with a pre-existing health conditions.

5.2. How the Framework Work

Based on the outcome of the review, the literature still has a gap for more well-designed “intelligent” elderly focused prevention program during pandemics. The prevention program would take care of the diversity among the elderly and in the same time take into account how to utilize their level of education, functionality, experience, etc. to the benefit of the community, thus they feel they are still of importance.

The framework targets to help to manage the elderly from reaching the threshold of non-return. I.e. prevent them from losing their immunity to the level where they reach anxiety, sadness and then depression.

The uniqueness of this framework is that it integrates the holistic perspectives approach that should be available for the elderly during lockdown or pandemics to reduce or eliminate the risks of their vulnerability.

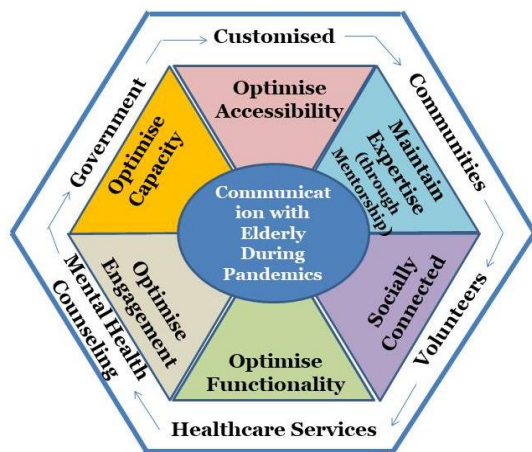


Figure (1). Communication Framework for Mitigation of Elderly Risks during Pandemics

6. Discussion and Conclusions

6.1. Eliminating the Elderly Infection and Mortality

High proportion of severe to critical cases and high fatality rate were observed in the elderly COVID-19 patients. Rapid disease progress was noted in those who died, with a median survival time of 5 days after admission. Comorbidities including cardiovascular disease and chronic obstructive pulmonary disease, and acute respiratory distress syndrome

were predictive of poor outcome. Close monitoring and timely treatment should be performed for the high-risk elderly patients. (Wang, 2020b).

Studies have shown that vitamin C may prevent the susceptibility of lower respiratory tract infection under certain conditions, while COVID-19 may cause lower respiratory tract infection. Therefore, a moderate amount of vitamin C supplementation may be a way to prevent COVID-19. In addition, a decrease in vitamin D and vitamin E levels in cattle could lead to bovine coronavirus infection. This suggests that proper supplementation of vitamin D and vitamin E may enhance resistance to SARS-CoV-2. Patients with primary basic diseases, especially those with chronic diseases such as hypertension, diabetes, coronary heart disease and cancer, are more susceptible to SARS-CoV-2, and their risk of a poor prognosis will increase significantly after infection because they will have low systemic immunity as a result of the disease itself and treatment. Therefore, it is particularly important to enhance self-resistance. The main way to boost personal immunity is to maintain personal hygiene, a healthy lifestyle and adequate nutritional intake. For individuals, taking protective measures can effectively prevent SARS-CoV-2 infection, including improving personal hygiene, wearing medical masks, adequate rest and good ventilation. (Wang et al 2020a).

6.2. The Importance of Generalising This Study

The society needs to pay more attention to the seniors when major public health emergencies occur, providing them more humane care and psychological interventions. Based on psychological issues among different seniors age segments, the society and professionals need to provide seniors corresponding psychological interventions, to reduce the psychological damage and psychological sequel caused by the pandemic crisis.

In the wake of the current health crisis, meaningful telephone conversation, can ensure mental, physical and social health needs of older people. Online or telephonic cognitive behavior therapy, supportive sessions could be delivered to decrease the loneliness, fear of illness and improvement of wellbeing.

The holistic approach through social organizations, healthcare providers, media and charities can minimize the negative impact of the COVID-19 on the elderly.

6.3. Customizing the Priority for the Type of Prevention / Intervention as per Elderly Type of Challenges

It is critical to recall that many elderly people want still have independence and this feeling is so fundamental for them. Careful customized preventions or interventions protocols need to be planned when approached this group, so that not to terrify them or create more negative mental health impact.

Basically, we need to see how impart into successful journey that reflect their importance as a group to the

community and show them solidarity where they are gradually adopting the new normal life style and turbulence situations. Hence, the impact of loneliness could be reversed and other elderly risks could be minimized by defining the areas where most of the challenges need to be addressed, or counseled, or monitored for this group during the pandemic cycle. Once the challenges are clearly defined then the type of the approach that is most suitable for the elderly group condition could be specified.

6.3.1. Defining Areas of Elderly Challenges during Pandemics

In order to define the specific areas where most of the challenges for an elderly group during pandemics, we need first to define the area of top priority through deciding the direction for plotting the level of impact and the probability of occurrence, i.e. whether it would be in the negative or the positive side and whether it would minimal or to the extreme. Once this clearly decided we might see what are the areas of top priority now, for the specific elderly group under study, as shown in Figure (2).

This figure would help us to optimize the ways we can pull, selectively the what type of protocols, approaches and quality relationships we want to build with this group during the pandemic and post-pandemic, i.e. in the new normal.

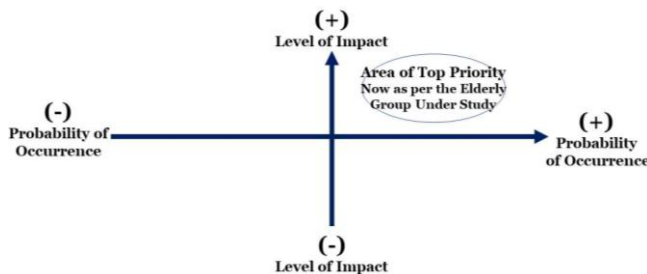


Figure (2). Plot for Defining and Prioritizing Elderly Challenges

6.3.2. Specifying the Approach as per the Elderly Condition

One can stratify a variety of elderly groups as per their medical and health conditions, besides their socio-economic demographics. This stratification can be the key for selecting the type of elderly challenge and problem due to the COVID-19 pandemic. This means the elderly problem need to be tackled as diagnosed or observed, then could be reworded. Based on this reworded problem a targeted approach would be established.

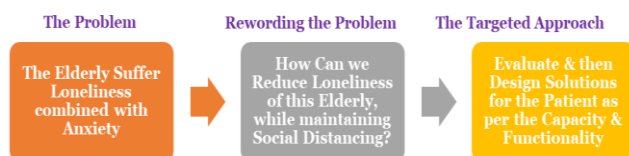


Figure (3). Specifying the Type of Approach as per the Elderly Condition

Just to give example here before the conclusion of this paper, if the problem observed shows that the elderly suffers loneliness combined with anxiety due to lockdown, then the

restated problem might be 'how can we reduce loneliness of this elderly person or group, while maintaining social distancing?' Then a targeted approach needs to be designed to evaluate and then design solutions for the patient as per the capacity and the functionality of this elderly.

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