

Effects of Social Isolation and its Ties to Hospitalization

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Abstract

Social isolation is a common yet important risk factor that can impact both physical and mental health, especially in older adults. This research piece examines how a lack of social interaction contributes to cognitive decline, increased stress, and a higher risk of chronic diseases, which may ultimately lead to healthcare dependence. It also expresses specific barriers that may prevent older adults from maintaining social connections and how being hospitalized itself can further increase feelings of isolation. Promoting social engagement and supportive care strategies may help reduce these risks and improve overall health outcomes.

Effects of Social Isolation and its ties to Hospitalization

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Social isolation is associated with various negative developments in one's health, including cognitive decline, depression, and chronic illness. Thus retaining adequate social interaction is critical in older adults to mitigate the risk of physical or mental complications, and subsequently hospitalization. This section aims to delve into varying reasons for and possible effects of social isolation, as well as how it is linked to hospitalization.

Social isolation is indirectly linked to changes in brain structure and connectivity that can contribute to cognitive decline. This association is not due to a particular stimulant, but rather a lack of stimulation. In order to understand the negative effects of this inaction, it is necessary to cover what benefits interaction contributes.

Positive interaction with others reinforces cognitive stimulation and provides stress reducing effects, one such way is through the secretion of the hormone oxytocin. This hormone acts on the brain to modulate the cortisol production of the HPA axis, thus reducing stress-induced dysfunction in glial cells (Li, n.d.). Glial cells support neurons in grey matter areas, and are sensitive to stress hormones (cortisol). Cortisol reduction allows for more stable glial function and better support of neural networks within cerebral grey matter. Grey matter is tissue composed of neurons, synapses and dendrites, It is responsible for processing of information, and serves to retain functions of memory, judgement, and cognitive processing (*Neuroanatomy, Gray Matter - StatPearls - NCBI Bookshelf*, n.d.). Decline in grey matter volume causes significant impairment to these cognitive functions, which is why it is imperative to maintain. Through these processes, positive social interaction preserves aging glial cells and subsequently reduces the risk of cognitive decline or impairment.

Without social interaction to reduce cortisol levels, glial cells remain vulnerable to cortisol induced stress, making them less able to support synapses and neuronal networks. This overall results in a decrease in the volume of grey matter, and as described previously, cognitive impairment. If not prevented, progressive cognitive decline may lead to required hospitalization for patient safety.

Social isolation has further consequences apart from cognitive impairment, though cognitive impairment does contribute significantly to some disorders/conditions. Regarding mental health, this includes advancements in depression, anxiety disorders, or suicidal ideation (Shankar, n.d.). Social isolation indirectly contributes to development of heart disease, strokes, type 2 diabetes, Alzheimer's, dementia, immunocompromization, and Parkinson's disease (Health Effects of Social Isolation and Loneliness, 2024). Heart disease often stems from increased blood pressure, caused by various hormones but cortisol in particular (Xia & Li, 2018). Moreover, the risk of development of neurodegenerative diseases such as dementia may result due to increases in neuro-inflammation, oxidative stress, and cognitive decline— which can be effects of social isolation (Friedler et al., 2014). These disorders are some of many possibilities, and can be life threatening for most older individuals. For example, Heart disease and strokes may require hospitalization for treatment or monitoring. Similarly, severe depression or dementia may require hospitalization to provide a mandated caretaker.

While social interaction has clear benefits, many older adults face barriers that may impede their engagement in social interaction

Physical disabilities: Mobility impairments, age related sarcopenia, chronic pain, or sensory impairments may make interaction uncomfortable, or even painful. impaired locomotion may prevent individuals from leaving their homes/ residential areas to engage

with others. Physical limitations, including reduced mobility and chronic pain, increase fall risk and may indirectly contribute to social withdrawal, thereby elevating the likelihood of hospitalization

Mental health challenges: Anxiety, depression, or other disabling conditions (cerebral palsy, neurodegenerative diseases, etc) may also cause some older individuals to avoid social interaction. Such aversion could stem from perceived social stigma, an inability to functionally communicate, or a lack of motivation/energy to engage in social activities.

Institutional regulations: Senior homes and similar institutions often have restrictions on visiting hours, social hours, or activities available for engagement. Many institutions may not have sufficient staff to regulate many activities to facilitate engagement, instead focusing on other forms of healthcare for their residents. Additionally, structured schedules may unintentionally reduce opportunities for social interaction.

Hospitalization: Similar to many residential homes, hospitals have strict regulations to maintain patient safety and structure. This includes visitation limitations, family members and acquaintances are required to follow schedules to meet with a hospitalized loved one in order to enforce patient rest. This may contribute to a feeling of isolation in hospitalized individuals. Patients may also be isolated if they carry a dangerous disease, or are immunocompromised. Long term care placement in hospitals consequently reduces opportunities for social stimulation.

Despite necessity, strict regulations enforce a cycle where hospitalization increases isolation, which then increases the risk of readmission, and then further increases isolation.

There exists various methods for making social interaction more accessible to older adults, whether or not they have limitations. Caretakers can set up individual strategies with their patients, discussing structured daily routines and activities that the individual may feel safe to do. Institutions could put more focus on activities through reinforcing the events department. Organizing community events to connect older adults with youth or their peers may help increase conversation, stimulation, and thus decrease loneliness. Lastly, technological tools can be beneficial for communication, especially to those hospitalized or in long-term care facilities where social events are limited.

Social interaction is critical for the wellbeing of all individuals, not just older adults. However, because aging affects the body's physical and mental functioning, maintaining interaction is especially important for those above 50. Risks to neurological, muscle, cardiovascular health, and mental health can increase the likelihood of hospitalization. While hospitalization can provide necessary care, it may unintentionally exacerbate isolation. Encouraging and promoting social engagement can help mitigate such risks and support one's overall well-being.

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