

The following is based on a talk of neuroscientist John T. Cacioppo.

This abstract is about the increase of one-person households and the inherent de-socialization of mankind. Because of latest events heavily effecting mankind we felt the need to publish these notes. We will provide an insight into the loneliness of mankind, and consider consequences.

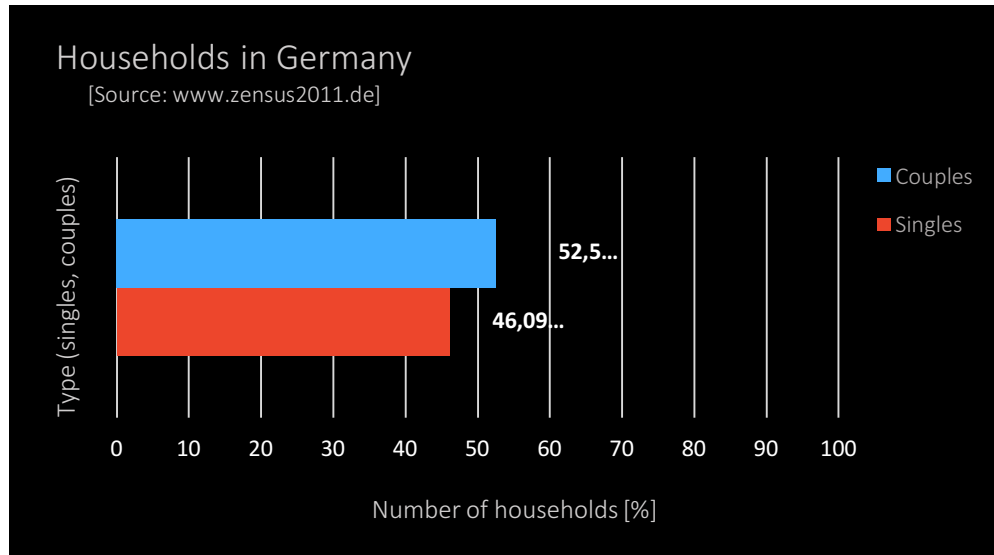


Fig.1) Source: T. Feigl.

46% of all German households in 2011 are one-person households. The same (~47%) also holds for the United States [U.S. Bureau of Labor Statistics 2012].

So, is today's situation even worse?

Yes, look at the number of singles today: 50% in the U.S. [U.S. Bureau of Labor Statistics 2015], 51% in England and Wales [U.K. Census, 2011], and of course, China with 200 million adult singles [Ministry of Civil Affairs]. In fact, 200 million singles amounting to around 2.5x the population of Germany or 75% of the entire U.S.. Moreover, in 2016 about 76% of all adult Americans use the social platform Badoo.com to meet new “friends” which represents a drastically decrease in former “physical appointments” [Badoo.com, 2016]. The list of impressive examples is endless.



Fig.2) Source: John T. Cacioppo, Center for Cognitive and Social Neuroscience, University of Chicago.



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Consider a recent scientific study utilizing about 100.000 participants over the last decades that shows **loneliness impacts dying earlier** more than excessive alcohol consume, see **Fig.2**.

Hundreds of years ago elaborated theories were developed based on common-sense observations e.g. earth is flat, and stars and suns circle the Earth. When science demonstrated that these common-sense observations were illusions and depicted the earth and the universe in a completely different way, people slowly came to accept that the world was not as it seemed. Scientific measurements and sophisticated calculations have repeatedly demonstrated that **what we think is intuitive** obvious in common sense **cannot be trusted to be true**. The science of mind and behavior is full of examples of self-evident truths that both cannot be true. We know for instance, that two heads are better than one and we know that too many cooks spoil the broth.

Even once grown, we are not particularly splendid specimens. Other animals can run faster, see and smell better, and fight much more effectively than we can. Our **evolutionary advantage** is our brain, our ability to communicate, plan, reason, and work together. Our **survival depends** on our collective abilities not on our individual might. We are connected across our lifespan to one another through a myriad of invisible forces that like gravity are ubiquitous and powerful.

After all, social species by definition create emerging structures that extend beyond organism structures that range from couples and families to schools and nations and cultures. The consequent social behavior helps these organisms survive, reproduce, and leave a genetic legacy to grow to an adult hood. For social species, including humans, it is not to become autonomous in solitary it is to become the one on whom others can depend. Whether, we know it or not our brain has been shaped to favor this outcome. If we ask people: what are the traits of an evil person? we hear traits such as cruel, greedy, exploited and selfish. The traits of a good person are: to pick someone who **cares about themselves and others**, whereas an **evil person cares about themselves at the expense of others**.

We have a number of biological machineries that capitalize on **aversive signals** that motivate us to act in ways that are essential for our survival.

- **Consciousness** for instance, is triggered by low blood sugar and motivates us to eat. Which represents an important early warning system.
- **Thirst**, is an aversive signal that motivates us to search for drinkable water prior to falling victim to dehydration.
- **Pain**, is an aversive system that notifies us the potential tissue damage and motivates us to take care of our **physical body**.

We might think that the biological warning machinery stops here. But there's more: although not common sense, although not intuitive, the pain and aversive nests of **loneliness** of feeling isolated from those around us is also part of a biological **early-warning machinery** to alert us to threats and damage to our **social body** which we also need to survive and prosper.

Just about all of us felt physical pain and nearly all of us have felt the heartbreak, homesickness, the torment of unrequited love and the pain of being shunned. All of these are variations on the experience of loneliness.



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When we started the study the effects of loneliness and brain in biology a couple of decades ago loneliness had been characterized as a nine chronic disease without redeeming features. It was even equated with shyness, depression, with being a loner, or a person with marginal social skills, see **Fig.3**.

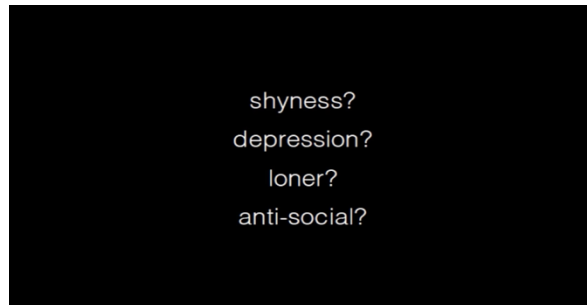


Fig.3) Source: **John T. Cacioppo**, Center for Cognitive and Social Neuroscience, University of Chicago.

If we look at the way, we are increasingly living our lives it shows the extent to which we still buy into those myths of loneliness and values of autonomy and independence. For instance, if we look at the number of one-person households in 1940 across the United States it was largely less than 10%. In 2010 it exceeds 25% in most states in America. Experts in the 1980s estimated that about 20% of Americans felt lonely at any given point in time. Today, recent nationally representative surveys indicate that this number has doubled to 40%.

But we don't hear people talking about feeling lonely?

That is because **loneliness** is **stigmatized**: the psychological equivalent of being a loser in life, for a **weak** person, and this is truly unfortunate because it means we are more likely to deny feeling emotions which makes no more sense than to deny feeling hunger, thirst, or pain.

Living with loneliness, we now know, is a major risk factor for broad-based **morbidity** and **mortality**. Consider a couple of the conditions we know about premature death: **air pollution** increases our odds of an early death by 5%, **obesity**, an omnipresent health problem, increases our odds of an early death by 20%, and excessive **alcohol** consumption increases our odds of an early death by 30%. A recent meta-analysis of over 100,000 participants shows that living with loneliness increases our odds of an early death by 45%. We are not the only social species and an experimental investigations of non-human social animals who were isolated shows they suffer deleterious physiological consequences and an abbreviated life span.

Across our history, as a species, we have survived and prospered by banding together, couples, families, and tribes for mutual protection and assistance.

We think of loneliness as a sad condition, but for social species being on the **social perimeter** is not only sad it is **dangerous**. The **brains** of social species, including our own, have evolved to **respond** to being on the social perimeter by going into a **self-preservation mode**.

In a brain imaging study, we found when something negative happens in the social environment the brain is focused on self-preservation. When we feel isolated, we feel this motive, this desire, this intention to connect with other people again. What we do not feel is that our brain has gone into a hyper vigilance for social threats and this hyper-vigilance means



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we introduce attentional confirmatory and even memory biases in terms of those social interactions:

*If we are looking for dangers,
we are more likely to see dangers
whether they exist or not.*

This means that we are **more likely to have negative interactions** and that threat surveillance of always looking for the next foe activates neurobiological mechanisms that can degrade our health and lead to early mortality.

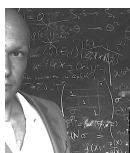
In the long run we increase defensive poise because we're focused on our own welfare rather than taking the position or perspective of people with whom we interact. This increases depressive symptoms which has the odd effect of decreasing our likelihood of having social conflict. Through the acoustic and facial expressions of sadness we transmit a signal to others in the vicinity to reconnect with us but only if they are willing to do so. Loneliness increases morning cortisol levels, a powerful stress hormone, the consequence of the brains preparation for yet another dangerous day. Moreover, we found that loneliness also decreases sleep intensity, which increases the number of micro awakenings that increases the fragmentation of sleep and thereby decreases the detoxification of stressful days over the course of the night.

*Well, loneliness is dangerous:
what can we do about it?*

When we are **hungry**, we can go to the refrigerator and get a snack. When we are **thirsty** we can go to the faucet and draw glass of water. **But** when we are **lonely** we have no pantry full of friends with whom we can connect and no online social networking does replace the comforting touch of a friend.

- First, **recognize** what the signal is and do not deny it.
- Second, **understand** what it does to our brain to our body to our behavior. It is dangerous as a member of a social species to feel isolated as our brain snaps into a **self-preservation** mode that brings with it some unwanted and unknown effects on our thoughts and our actions toward others. Be aware of those effects and take responsibility for our actions toward others.
- Third, **respond**: understanding that it is not the quantity of friends, it is a quality of a few relationships that actually matter.

Attended by the three components of **connectedness**, one can prevent, promote, and intimate connections by developing one individual who is trusted in him, we can confide and who can confide in we, see **Fig.4**.



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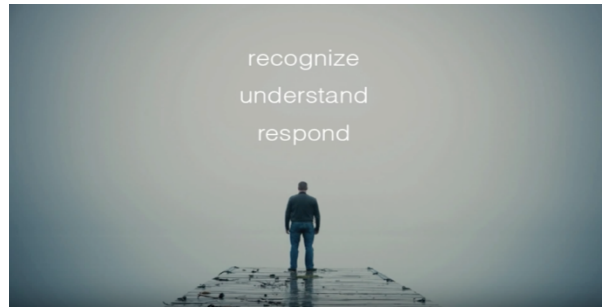


Fig.4) Source: John T. Cacioppo, Center for Cognitive and Social Neuroscience, University of Chicago.

We can promote **relational connectives** by simply sharing good times with friends and family. We often go to the dinner table, feeling happy what we provided for our family, but having forgotten to share any good times with them in root.

Collective connectedness can be promoted by becoming a part of something bigger than ourselves: consider volunteering for something that we enjoy or simply taking time to speak to elders at a retirement home.

***Sharing good times** is one of the keys to connection:*

*don't wait **the next time we feel alienated, isolated, excluded: respond** to that aversive signal as we would to hunger, thirst, and pain and **get connected**.*

But always keep in mind: no matter how sophisticated we are looking for someone special, the myriad of invisible energy and forces will decide whom we are finding, see **Fig.5**.



Fig.5) Source: <http://www.lailahshima.com>.



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