

Is Obesity Contagious? The Spread of Behaviour through Social Networks

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No person is an island: we are all parts of human society and especially of the web of family, friends and acquaintances that make up our social network. Despite wanting to see ourselves as free agents who do not follow the herd, it is inevitable that our social ties will influence our lifestyles and the choices we make. In many cases, the transient fashions that spread through networks of friends are trivial and forgettable, such as

“ Obesity appeared to spread between family and friends by... “social contagion” ”

the pointless crazes that periodically sweep through every school playground. However, a recent study by researchers Dr. Nicholas Christakis (Harvard Medical School) and James Fowler (University of California, San Diego) [1] has highlighted other, more serious, trends that can influence our personal decisions, with important implications for public policy.

The surprising results arose from a study originally designed to look at heart disease in a social group of 12,067 people [2]. Members of this group were followed for 32 years up to 2003 and many of their personal details were logged, including their social connections to each other and their weights at various check points throughout the period. Christakis and Fowler took the heart study data set and examined what happened to the weight of group members as certain people became obese. The correlations they found were astounding: obesity appeared to spread between family and friends by, to use Christakis’s illustrative analogy, “social contagion” [3]. People were most likely to become obese when a close mutual friend had already done so, with a

massive 171% increased probability [1].

The researchers believe that the most likely causes for this spread are the development of a change in what we perceive as a normal body image, coupled with copying behaviours such as eating more or exercising less. In Christakis’ words “You change your idea of what is an acceptable body type by looking at the people around you” [4]. This is supported by the fact that evaluating one’s body image usually involves making comparisons only against people of the same gender, and the study found that friends or siblings of the opposite sex becoming obese had no significant effect on an individual’s chances of doing so. Interestingly, the influence remained even if the obese friend or family member was hundreds of miles away, indicating that the spread of a norm may only require the knowledge that the person is now obese.

While the study took into consideration the effects of genetic relatedness and the similar environment in which many of the subjects lived [1], they could not be completely compensated for within the statistical analysis of the data set, and the study has been criticised for playing down such highly significant factors. Genetic research has shown that body mass index is a highly heritable human trait [5] and therefore an isolated analysis of social factors is not sufficient to explain the trends

“ The spread of a norm may only require the knowledge that the person is now obese ”

on obesity that we see today. However, none of this detracts from the thought provoking nature of the research and the broader implications of its conclusions.

Throughout the heart study, the majority of people gained weight and the researchers saw something akin to an obesity epidemic developing. This is in line with the US wide growth in obesity, from 47% of adults classed as obese or overweight in 1980 to 66% in 2004 [6]. However,



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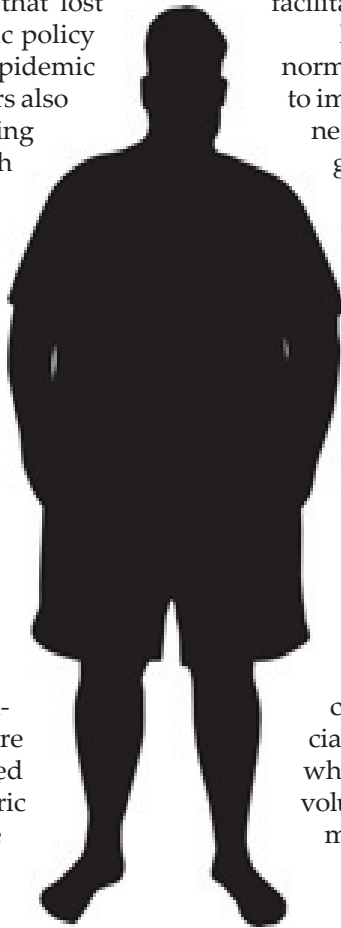


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interestingly, a similar permeating effect occurred among the friends and relations of those that lost weight. This may give some hope for public policy makers charged with tackling the obesity epidemic and improving public health. The researchers also saw smoking cessation [7], happiness, drinking behaviour and food choices spreading through the network in the same way [3], with each person's positive behaviour choices influencing the choices of those around them. If we can understand the patterns and mechanisms of this spread, health initiatives can be devised to take advantage of them and facilitate the adoption of healthier behaviours.

Some elucidation of these mechanisms of spread and their practical use has already been provided by academics at the Centre for Economic Policy Research [8], who tracked how the decision to adopt sunflowers as a new crop spread through a network of farmers in Northern Mozambique. They found that participants were mainly influenced by people of the same religion, revealing the underlying social structure of the population. Furthermore, as also noted in the obesity study, effects were not symmetric across a pair of individuals: the effect of one person's decision on another was not the same as if the situation had been reversed. This emphasises the importance of understanding the network structure and the identity of influential network members, thus allowing policy to be targeted towards these individuals.

Similar methods have already been trialled successfully in HIV prevention. As research from Douglas Heckathorn



most needed, that is, when network structures are facilitating the spread of HIV".

In the 21st century the spread of behaviours and norms through social networks has more potential to impact our lives than ever before. Our personal networks are expanding both numerically and geographically, not least through the evolution of web based social networking sites, such as Facebook and MySpace. These online communities also supply social science researchers with data sets that their predecessors could only have imagined. Many academics [10], are using the sites to test theories about relationships, identity and popularity, and to examine the question of whether our tastes determine our friends or our friends determine our taste. In one example among several, researchers at Harvard and UCLA led by Christakis are tracking a class of 1700 students at a US university over 4 years to attempt to answer just such questions [10].

The results of this ongoing research could confirm current theories about our social lives or reveal surprising connections. Those who model social networks will soon have the volume of real world data needed to compare their models to reality, in an exciting new avenue of interdisciplinary research. It has already been shown that the transmission of social norms can facilitate the spread of obesity, smoking and other detrimental conditions. Now we see

that by understanding the formation of social networks, we can utilise their structures to encourage the spread of positive norms; which is where the real significance of this research lies. ■

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“ Our personal networks are expanding both numerically and geographically ”

(then at the University of Connecticut) and his team showed, preventing risky behaviour such as needle sharing in communities of drug users was more successful using methods based on network models: the same social ties that led to the use of used needles were utilised to disperse the use of clean needles as a social norm [9]. The team concludes “Network interventions work best precisely when they are

Find out more about the causes and solutions of the obesity epidemic from our panel of experts.



Listen to the podcast “It’s Your Fault You’re Fat” on www.camtriplehelix.com

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