personal social networks: sympathy group & full active network

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I recently wrote a blog post on *"Personal social networks: Dunbar's 5-15-50-150 model"*. I emphasised the huge importance of our social networks for improving life expectancy, protecting against psychological disorders, and boosting our happiness & wellbeing. What's not to like?! I went on to introduce Robin Dunbar's work and his layered model of personal social network structure. I then talked about the key inner support clique layer. Outside the support clique is the sympathy group or – stated possibly less awkwardly – outside our very closest relationships we have a layer of close relationships. If the support clique numbers about 5 (including a possibly even more central 1-2), then the sympathy group (see the linked four-slide *"Social network layers"* handout) includes these 5 and adds approximately another 10 (0 to 30?!). As with all network layers, too few people in the layer can produce vulnerability, while too many tends to result in weaker emotional connection.

Sympathy group members who aren't in the support clique are typically contacted at least monthly and are judged to be a bit less emotionally close than the inner clique members (who are typically spoken to at least weekly). They are still really important for our health & wellbeing. And anyway, the membership of our network layers is fluid. There is a kind of relationship *"convoy"* around us as we travel through our lives, and others move closer or further away from us as the circumstances of our lives change. This is partly out of our control, but becoming more aware of the structure and importance of our personal relationship networks allows us to look after them more wisely. As a general rule, family/kin relationships are *"hardier"* ... they can often tolerate less social time investment while still maintaining their importance. Non-kin friendships however are often more time-demanding if one wants to maintain the same (or a closer) level of emotional connection – see, for example *"Communication in social networks: effects of kinship, network size, and emotional closeness".*

Somewhat extraordinarily though, the distinction between kin (genetically-related) and friendship (apparently non-genetically-related) relationships may be less clear than one might have thought. The paper *"Friendship and natural selection"* comments *"More than any other species, humans form social ties to individuals who are neither kin nor mates, and these ties tend to be with similar people. Here, we show that this similarity extends to genotypes. Across the whole genome, friends' genotypes at the single nucleotide polymorphism level tend to be positively correlated (homophilic). In fact, the increase in similarity relative to strangers is at the level of fourth cousins ... the degree of correlation in genotypes can be used to create a "friendship score" that predicts the existence of friendship ties ... some of the overall correlation in genotypes can be explained by specific systems; for example, an olfactory gene set is homophilic and an immune system gene set is heterophilic, suggesting that these systems may play a role in the formation or maintenance of friendship ties. Friends may be a kind of 'functional kin.'"* So maybe we're right when we note that the chemistry between us and another person seems good or poor.

Often though attraction between people is based on more obviously shared characteristics. This is illustrated in value & personality overlap with online *'friends'* - see *"Homogeneity of personal values and personality traits in Facebook social networks"* - and other research suggests tastes in music, religion, and ethical views are often also important - see *"Playing with strangers: which shared traits attract us most to new people?"*. Unsurprisingly, extraversion is significant - *"Popularity, similarity, and the network extraversion bias"* - as too is mood state - *"It takes three: selection, influence, and de-selection processes of depression in adolescent friendship networks"*. I particularly like the paper *"Do birds of a feather flock together?"* with its abstract stating *"Cooperation requires that individuals are able to identify, and preferentially associate with, others who have compatible preferences and the shared background knowledge needed to solve interpersonal coordination problems. The present study investigates the nature of such similarity within social networks, asking: What do friends have in common?"* The authors looked at similarity & emotional closeness for friends/acquaintances (not kin) in the sympathy group (contacted monthly), in the active social network (contacted yearly), and in the total network (contacted every few years). This information about the typical importance of similarity in building emotional closeness ***[Cont.]***

can be helpful when looking at our relationships - see the further post in this sequence *"Personal social networks (4th post): birds of a feather flock together".*

So outside the support clique and sympathy group layers of our personal social networks are the affinity group, the full active network, and our total network. The latter - our total network - is made up of everyone we vaguely know. In this outermost area, beyond our active network frontier, are people we might half smile at if we saw them in some public place. But we might be hard-pushed to remember their names, and we have no particular wish to try to maintain relationships with them. The shift from total network to active network lies particularly in this wish to actively maintain some kind of contact with the other person. If we typically have contact with those in our support clique at least weekly, and those in our sympathy group at least monthly, we're likely to be in contact with those in our full active network at least yearly. In the days when nearly everyone sent Christmas cards, the full active network often overlapped pretty well with our Christmas card list - see *"Social network size in humans"*.

Human beings' full active social networks are significantly bigger than those of other primates. In our evolutionary hunter-gatherer pasts, this had major advantages for survival and the success of our species. Managing relationships with up to approximately 150 people pushes the capacity of our brains, and was probably a major factor in brain evolution. Robin Dunbar, professor of evolutionary psychology at Oxford, argued convincingly for this viewpoint in his important paper *"The social brain hypothesis"* published back in 1998. He has written a number of popular books including *"Human evolution: our brains & behaviour"* and *"How many friends does one person need?: Dunbar's number and other evolutionary quirks"*, while his website gives links to over 240 of his academic publications.

Our affinity group and our full active network are less about emotional closeness and more about having acquaintances who may be helpful contacts and sources of useful information. Outer, larger relationship layers have had territorial, mate access, and anti-predator functions. These tribes & hunting bands were probably traditionally kept more cohesive by meeting for seasonal rituals, making music, and singing & dancing together. This kind of activity has powerful effects on our brains - see, for example, the paper *"Group music performance causes elevated pain thresholds and social bonding in small and large groups of singers"* with its abstract commenting *"The finding that singing together fosters social closeness - even in large contexts where individuals are not known to each other - is consistent with evolutionary accounts that emphasize the role of music in social bonding, particularly in the context of creating larger cohesive groups than other primates are able to manage."* Similar points are made in the papers *"Music and social bonding: "self-other" merging and neurohormonal mechanisms"* and *"Synchrony and exertion during dance independently raise pain threshold and encourage social bonding"*.

It's important to emphasise an additional point about these outer network layers. This is to acknowledge the often underestimated value of group membership for both our physical and psychological health. These issues are explored in *Social identity theory* - see the two blog posts *"Social relationships, group membership and health: background"* and *"Social relationships, group membership and health: what we can do"*. And, as I wrote in the first of these two posts: Sani & colleagues, in their 2012 paper *"Comparing social contact and group identification as predictors of metnal health",* challengingly stated *"Current research on social integration and mental health operationalizes social integration as frequency of interactions and participation in social activities (i.e., social contact). This neglects the subjective dimension of social integration, namely group identification. We present two studies comparing the effect exerted by social contact and group identification on mental health (e.g., depression, stress) across two different groups (family; army unit), demonstrating that group identification predicts mental health better than social contact."* And as for physical health - after reviewing the research evidence, in his book *"Bowling alone"* - Robert Putnam concluded *"As a rough rule of thumb, if you belong to no groups but decide to join one, you cut your risk of dying over the next year in half"* (2000, p.331).

The next post in this sequence - *"Personal social networks: assessing how we're doing"* - provides a way of charting our personal networks and starting to look at how to better look after them.

(note, links to all articles mentioned are on the 7.03.17 www.goodmedicine.org.uk blog post)