

Feasting and its Role in Human Community Formation

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Introduction

Like all primates, humans are intensely social. The formation of both friendships and communities that act as a form of mutual protection against outside threats has been one of their core adaptive strategies and a key to their evolutionary success. Primate social groups are very different to the groups of most other animals in that they rely on a level of bondedness to maintain social coherence as well as functional coordination. In large measure, this functionality derives from the fact that primate (and, of course, human) social groups are implicit social contracts: individuals trade down on their personal demands in order to gain the advantages of collective defence against predators and other external threats. Inhibiting one's instinctive greediness in these contexts is crucial if the social contract is to hold, since taking more than one's fair share of the social benefits, or failing to pay one's share of the costs, rapidly leads to the breakdown of the contract, and the breakup of the social group, if others feel they are being exploited (Nettle & Dunbar, 1997; Dunbar & Machin, 2014). An implicit social contract of this kind depends on a sense of obligation, reciprocity, and trust that allows immediate support in time of need.

Such support depends on the prior existence of a relationship of obligation, and these relationships have to be established well ahead of need, since a request for support out of the blue is unlikely to be granted. This is a general feature of primate coalitions: as Harcourt (1992) noted, the coalitions of most birds and mammals are 'of the moment' and based on immediate mutual benefit, but primate coalitions are established well ahead of need and usually benefit only the recipient of support. In effect, primate friendships are coalitions that promise future support.

Primates use social grooming to build and maintain these coalitionary relationships. Social grooming acts by activating the endorphin system in the brain (Keverne et al., 1989). Endorphins are neuropeptides and neurotransmitters that are chemically closely allied to other more familiar kinds of opiates such as morphine (hence their name, which is a contraction of 'endogenous morphine'). Endorphins produce both analgesia and an opiate-like light-headedness, as well as a sense of contentment and relaxation. PET (positron emission tomography) scanning in humans has shown that light stroking of the torso (our equivalent of grooming in monkeys) causes a dramatic uptake of endorphins throughout the brain (other than in the visual system) (Nummenmaa et al., 2016). This effect is mediated by a specialized neural system known as the afferent c-tactile (or CT) system (Olausson et al., 2010). CT nerves are unusual in that, unlike all other peripheral somatosensory nerves, they are unmyelinated and hence transmit signals very slowly; in addition, they are one-way,

with no return motor loop back from the brain (the loop that normally causes us to withdraw our hand from the fire when we feel the pain) and they respond to only one stimulus (light, slow stroking at a speed of around 2 cm/sec).

In primates, this neuropeptide mechanism seems to set up a pharmacological platform off which the animals build a cognitive relationship of what amounts to trust, reciprocity, and obligation. However, the grooming mechanism has a major limitation: it is strictly dyadic, and it is not possible to groom simultaneously with several other individuals. Chimpanzees, and some large monkeys such as gelada, occasionally groom in triads (A grooms B who grooms C, or A and C simultaneously groom B), but this is rare and never accounts for more than ~5% of grooming bouts in monkeys (gelada: unpublished data) and ~15% in chimpanzees (Nakamura, 2000). Because the quality of a relationship (and hence its likelihood of producing coalitionary support) is directly related to the time invested in it in both monkeys (Dunbar, 2018) and humans (Sutcliffe et al., 2012), it necessarily follows that the number of relationships an individual can service through grooming is limited by the time it has available for social interaction during the day. The time that animals can spend grooming is limited to around 20% of the day, and this sets an upper limit on group size at ~50 individuals (Dunbar, 2009).

This created a problem for our ancestors, since groups provide the main source of protection against predators for primates (and indeed most mammals and birds). If group size could not be increased beyond the natural maximum set by the time available for social grooming (roughly 50 individuals), then it meant it would be impossible to invade habitats that had higher predator densities than the forested habitats where most primates live. For the first four million years after our divergence from the ape rootstock, this was not a problem since it seems that early hominins occupied wooded environments that were not more open to predation than the forested habitats from which their ape ancestors had come.

However, from approximately two million years ago, when the first members of the genus *Homo* appeared, our ancestors began to occupy more open habitats beyond the woodlands. Here, they were exposed to much higher levels of predation risk and would have required much larger social groups to provide protection (Dunbar, 2014). This would have created a major time budgeting problem, since by this stage hominin time budgets had little or no spare capacity for investing more heavily in social grooming with more individuals (Dunbar, 2014). Yet our ancestors must have solved this problem because they were both able to occupy more open habitats very successfully (allowing them, in contrast to their australopithecine ancestors, to migrate out of Africa and colonize the rest of the world) and to live in much larger social groups (eventually giving rise to our natural grouping size of ~150 and our capacity to build these into mega-communities of very large size: Dunbar, 1993). The question is: How did they do it, and what role might alcohol have played in this? The next two sections will try to elucidate this.

How Humans Solved the Social Bonding Problem

Given that their time budgets were already at their limit with little or no spare capacity (Dunbar, 2014), the problem faced by our ancestors as they evolved away from their ape ancestors and gradually needed to increase social group size was, essentially, how to groom with more individuals without increasing the time cost. The solution seems to have been to

exploit several novel behavioural mechanisms that turn out to trigger the endorphin system. Over a period of perhaps two million years, they successively added into their social repertoire a set of behaviours that were very effective in this: laughter, singing (without words) and dancing, and later (after the evolution of fully modern language, perhaps 200 000 years ago) emotionally arousing storytelling and the rituals of religion (Dunbar, 2014).

We have shown, using PET scanning, that laughter triggers the endorphin system (Manninen et al., 2017) and, using changes in pain threshold (a reliable proxy for endorphin activation), that singing (Pearce et al., 2015; Pearce et al., 2017), dancing (Tarr et al., 2015, 2016), and emotional storytelling (Dunbar et al., 2016) also activate the endorphin system. Stroking obviously activates the endorphin system via the CT neural system, and emotional storytelling probably does so because psychological pain is experienced in the same part of the brain as physical pain (Leknes & Tracey, 2008; Hsu et al., 2013; Meerwijk et al., 2013; Eisenberger, 2015; Kross et al., 2015). Laughing, singing, and dancing most likely work via a straightforward pain mechanism because of the stresses that the physical movements involved have for the body musculature.

Between them, these behaviours seem to have allowed humans to increase the size of their social groups from the limiting value of around 50 to the 150 that is currently characteristic of modern humans (Dunbar, 2014). Language has, of course, played a seminal role in much of this during the last few hundred thousand years since it evolved into its fully modern form, mainly because it allows us to manage interactions in conversational contexts. Language allows us to manage the production of laughter through the telling of jokes and allows us to improve the emotional effectiveness of singing by adding words to the humming; and it allows us to tell emotionally charged stories, whether this be in the context of religion or literature.

Although these undoubtedly have functional consequences for bonding at the level of the community, most of them also act at the dyadic level in bonding friendships. This is reflected in the fact that their sphere of action is often very small scale: both laughter (Dezecache & Dunbar, 2012) and conversations (Dunbar et al., 1995; Dunbar, 2016; Krems et al., 2016; Dahmardeh & Dunbar, 2017) have a limiting broadcast group size of around four individuals, and even dancing seems to have a limiting group size only at eight (Robertson et al., 2017). This seems to reflect the fact that all of these activities require focussed attention (eye-to-eye contact) between those involved. We cannot be in a conversational group but not paying attention to the speaker, and still expect to benefit from the bonding process.

This conversational level process seems to underpin one further activity that seems to be intimately involved in human social bonding, namely feasting. Feasting generally has two components: social eating and the consumption of alcohol. Both eating and alcohol appear to have similar endorphin activating abilities to those identified for the social behaviours we considered earlier. Eating causes an increase in heat as well as a physical distension of the stomach, and both of these are likely to activate the endorphin system. This is simply a side effect of the fact that any kind of muscular activity (running, rowing, working out in the gym) triggers the endorphin system as part of its natural function in managing low level somatic pain (the 'runner's high' effect: Boecker et al., 2008; Cohen et al., 2010). Alcohol, in contrast, appears to be an exceptionally effective trigger of the endorphin system in and of itself (Froehlich, 1997; Herz, 1997; Gianoulakis, 2004). Indeed, current practice in alcohol addiction clinics is to give endorphin blockers (naltrexone, naloxone) to wean patients off alcohol by removing the hedonic effects of alcohol and leaving the patient exposed only

to the negative sensations. Alcohol's opiate-like properties have a positive effect on social intercourse, reducing our stress levels and making us more talkative. Notwithstanding such social facilitation, the very fact that alcohol activates the endorphin system will, on its own, enhance social bonds among those who indulge together—irrespective of any effect it might have on our talkativeness.

Although uncontroversial evidence for feasting and alcohol use dates back only around 10 000 years or so (see Guerra-Doce, Chapter 5; Dietrich & Dietrich, Chapter 7), social eating and drinking seem likely to have played an increasingly significant role in human social bonding since considerably earlier in human evolution, perhaps since the appearance of archaic humans roughly 500 000 years ago. In this respect, social eating is likely to have preceded the consumption of alcohol. There is convincing archaeological evidence to suggest that control over fire dates from around 400 000 years ago, when hearths first appear as regular features in human fossil sites (Roebroeks & Villa, 2011; Dunbar & Gowlett, 2014; Dunbar, *in press*). At a point when time budgets were under intense pressure with little freedom of movement, deferring the main meal of the day to the evening (as opposed to continuously foraging throughout the day, as all monkeys and apes do) would have had a significant advantage in terms of freeing off the day for foraging (Dunbar, 2014, *in press*). It would have allowed humans, in effect, to extend the length of the active day by around 4 hours, in a context where the only viable activity for the new evening activity period would have been socializing (given that fine craftwork would have been impossible under the poor light levels of a campfire). In contemporary hunter-gatherers, most conversations around the evening campfire involve storytelling and are essentially social in nature, whereas those during daylight are typically related to more practical matters such as land rights or complaints about others' behaviour (Weissner, 2014).

The social use of alcohol may have had to wait until the invention of pottery during the Neolithic around 7000–10 000 years ago in order to have the containers in which fermentation could occur (Guasch-Jané et al., 2006; Sicard & Legras, 2011; Dietrich et al., 2012; Hayden et al., 2013), although it is possible that natural containers like gourds or leather might have been used earlier (see also Guerra-Doce, Chapter 5). However, archaic humans may have been very familiar with fermented fruits long before this, and may well have consumed them avidly—much as chimpanzees and elephants and other animals are reported to do (see Dudley, Chapter 2; Carrigan, Chapter 3; Hockings et al., Chapter 4).

The Benefits of Bonding

The relationships (or friendships) that we form through these bonding behaviours turn out to have a dramatic effect on our health, well-being, and happiness. This has, perhaps, been one of the big surprises of the last decade and a half: consistently, study after study has revealed that the social networks into which people are embedded have a bigger effect on their health and well-being than almost anything else (Waxler-Morrison et al., 1991; House, 2001; Kana'iaupuni et al., 2005; Min et al., 2007; Rodriguez-Laso et al., 2007; Reblin & Uchino, 2008; Smith & Christakis, 2008; Dominguez & Arford, 2010; Pinquart & Duberstein, 2010; Liu & Newschaffer, 2011; Chou et al., 2012; Tilvis et al., 2012). To give just one example, Holt-Lunstad et al. (2010) carried out a meta-analysis of 148 epidemiological studies of heart attack patients (hence a very large sample of ~310 000

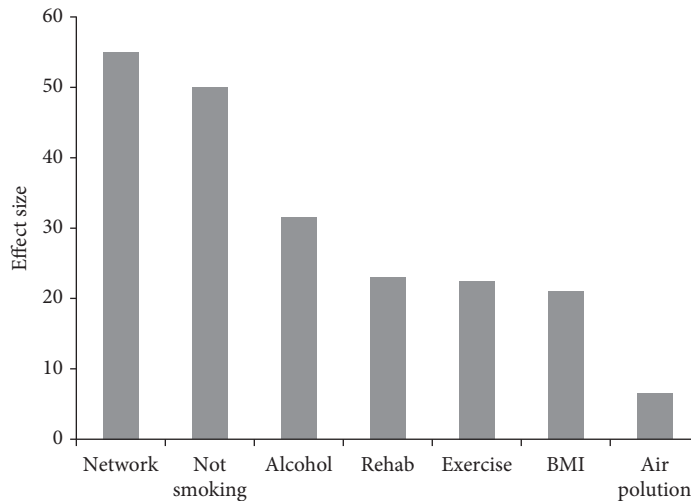


Figure 11.1 Effect sizes (indexed as rescaled odds ratio of surviving versus dying within 12 months of first heart attack) for different factors in 148 epidemiological studies of heart attacks patients. Network is an average of three indices of social network quality.

Source: Data from Holt-Lunstad J, Smith TB, Layton JB (2010). Social Relationships and Mortality Risk: A Meta-analytic Review. *PLoS Med* 7(7): e1000316. <https://doi.org/10.1371/journal.pmed.1000316>.

people) and asked what factors best predicted a patient's survival for 12 months after their first heart attack. They found that the best predictors were indices of social network quality (how well individuals were embedded within their social networks), with giving up smoking running these a close second. All other factors (how much exercise a patient took, how obese they were, how much alcohol they drank, what medication they were on, the air quality where they lived, and so on) had effect sizes that were, at best, half those for friendship and not smoking and, hence, significantly less important (Figure 11.1). Not only are our social networks, and the bonding behaviours on which these are based, crucial for our survival in the face of external threats, they also play a central role in our ability to cope with, and survive, the many diseases, troubles, and traumas that everyday life throws at us.

The Social Correlates of Feasting

Since behaviours do not fossilize, it is obviously not now possible to explore the role that feasting played in ancestral human populations. However, we can gain some insights into this by exploring how it is used among contemporary humans. In this section, I present the results from two studies that we carried out to determine how feasting and alcohol consumption might influence our sense of social engagement and our well-being. These involved collaborating on two national UK surveys of social eating and the social use of alcohol (indexed by the regular use of pubs). These surveys aimed to assess the extent to which eating socially and the social consumption of alcohol mediate individuals' psychological well-being, social engagement in their communities, and general life satisfaction.

Most of the indices were simple questions rated on a conventional 1–7 Likert scale or a 1–10 analogue scale, and are based on standard UK government social survey questions.

Both studies used stratified national surveys carried out by professional polling agencies in the United Kingdom in which geographical region, age, and gender were sampled proportionately to demographic representation. The sample size for the social eating study (commissioned from OnePoll by The Big Lunch: <https://www.edenprojectcommunities.com/thebiglunchhomepage>) was 2000 individuals and that for the social drinking study (commissioned from YouGov by the Campaign for Real Ale, CAMRA) was 2254. The aim of the surveys was to try to understand the social benefits of these two activities. The detailed results for the two studies can be found in Dunbar (2017) and Dunbar et al. (2017), respectively.

The Benefits of Social Meals

Most people (93%) have meals with family and friends at least sometimes. Even so 15% of respondents said they hadn't had a meal with another family member in the last six months, 30% said they hadn't done so with a best friend in that time, and 45% hadn't done so with an old friend. Women were more likely to have eaten with others than men, although the difference was not significant. Respondents were also asked how often they ate with people other than their immediate family. Nearly 70% said they had never had a meal with a neighbour, 15% had never had a meal with a work colleague, and 37% had never had a meal with a member of their wider community. As many as 65% felt there was someone they should make more effort to see or spend time with, and 75% thought this was best done by sharing a meal.

Lunch groups were significantly smaller than dinner groups (within-individual matched pairs *t*-test, $t_{1914} = 10.14$, $p < 0.0001$), although both were skewed towards pairs (including the respondent). The average sizes of lunch and dinner groups (means of 3.3 ± 1.2 and 3.6 ± 1.3 , respectively, including the respondent) were virtually identical to the average size of free-forming conversational groups (~ 3.5 : Dunbar et al., 1995; Dunbar, 2016; Krems et al., 2016; Dahmardeh & Dunbar, 2017). Only 21% of lunch groups contained more than four individuals, while only 27% of dinner groups did so.

Respondents rated themselves on five social indices that are used in UK government social surveys: life satisfaction, how happy they had been on the previous day, how worthwhile they felt their life to be, how much they trusted the people they lived among and how engaged they were with their local community, each rated on a 1–7 Likert scale. In terms of life satisfaction, 69% of respondents felt satisfied with their life, 67% had been happy on the previous day, and 70% felt that their life was worthwhile. However, only 46% of people trusted the people they met, and only 30% felt engaged with their local community. These indices of life satisfaction all correlated highly with each other (Kendall's $0.756 \geq \tau \geq 0.106$, $p < 0.01$). The two sexes did not differ on any of these indices ($F_{1,1998} \leq 0.95$, $p \geq 0.331$).

On average, respondents said they had 4.63 ± 3.06 people they could count on for emotional and other forms of support and help (their support clique). This value is very close to the typical value of ~ 5 individuals (usually split evenly between family and friends) reported for the support clique in many previous studies (Dunbar & Spoors, 1995; Hill & Dunbar, 2003; Stiller & Dunbar, 2007; Sutcliffe et al., 2012; Burton-Chellew & Dunbar,

Table 11.1 Multiple regression model of the predictors of the frequency with which respondents had evening meals with other people

Variable	β^*	t^\S	p
Life satisfaction	0.129	2.80	0.005
Happiness yesterday	0.058	1.35	0.176
Life is worthwhile	0.052	1.34	0.182
Trust in people	0.039	1.64	0.100
Engaged with community	-0.044	-2.00	0.046
Support clique size	0.178	7.78	<0.001

* standardized slope; \S df = 1991; Model: $F_{6,1991} = 43.993$, $p < 0.0001$.

2015). As in most previous studies, females had a significantly larger support clique than males ($F_{1,1998} = 6.63$, $p = 0.01$), although, in absolute terms, the difference (on average, ~0.5 individual) is small. Those who rarely ate socially had many fewer friends and family they could count on for moral, social, emotional, or financial support when they needed it—as few as half the number of intimate friends as those who regularly ate socially. Those who ate socially gave significantly higher ratings on the five social indices than those who always ate alone ($F \geq 37.4$, $df = 1,1712-1870$ depending on index, $p < 0.001$).

A multiple regression with the frequency of social evening meals as the dependent variable and these five social indices plus support clique size as predictors yields a significant model ($F_{6,1991} = 43.993$, $p < 0.0001$), with life satisfaction, engagement with the community, and support clique size as the only significant factors (Table 11.1). Including age and sex in the model does not change the results, and sex itself was not a significant factor.

A path analysis using the partial standardized slope coefficients from multiple regression analyses with each of the variables in Table 11.1 (excluding age and sex, which are not of particular interest and, in any case, were not significant) in turn as the dependent variable yielded the path model shown in Figure 11.2. Cases where there was a clear directional difference (one coefficient was significant and its reciprocal not, or one coefficient was at least twice the value of the other) are indicated by a single headed arrow indicating causal direction; negative relationships are indicated by dashed arrows. While the overall pattern is complex and involves many feedback loops and multivariate effects, the path analysis suggests a clear causal pathway in which eating social dinners both correlates with clique size and increases life satisfaction; enhanced satisfaction in turn increases one's happiness, trust in others, and sense that life is worthwhile. Notice that clique size, satisfaction, happiness, and a worthwhile life all increase trust in others. Finally, number of close friends, trust in others, and the feeling that life is worthwhile all positively enhance engagement with the wider community (independently of life satisfaction). It is noteworthy that the relationship between clique size and eating together is bi-directional. This could be interpreted as implying that eating with people is a way of creating and servicing relationships, and in consequence those who have many friends are likely to eat socially more often.

Asked if sharing a meal was a good way to bring people closer together, 76.4% said it was (with 18.1% not sure). When meeting a new acquaintance (i.e. a stranger), women exhibited a greater preference for a lunchtime meeting (41% against 20% for an evening event, an

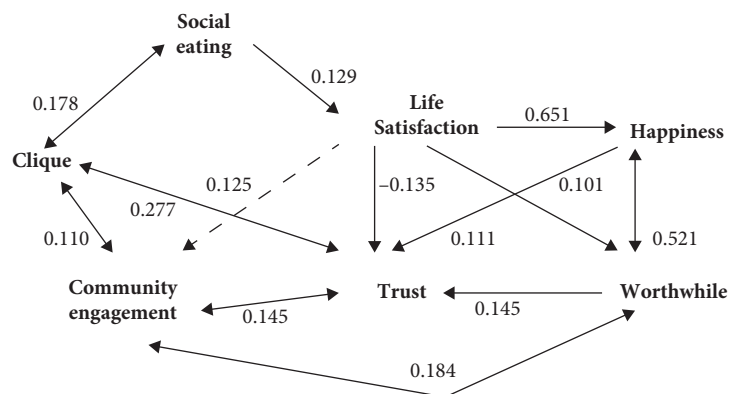


Figure 11.2 Path analysis of the relationship between the main variables in Table 11.1 for the social eating sample ($N = 2000$). All significant partial standardized coefficients are shown. Solid lines: positive coefficients; dashed lines: negative coefficients. Numbers beside the lines are the standardized coefficients. Single headed arrows indicate cases where one coefficient was significant and the reciprocal coefficient not, or where one was at least double the other. Double arrows indicate cases where both coefficients were significant and of similar magnitude; in these cases, the larger of the two coefficients is given.

Reproduced from R.I.M. Dunbar, *Breaking Bread: the Functions of Social Eating*, *Adaptive Human Behavior and Physiology*, 3 (3), pp 198–211, Figure 7, <https://doi.org/10.1007/s40750-017-0061-4> © 2017 R.I.M. Dunbar. This work is licensed under the Creative Commons Attribution License (CC BY). It is attributed to the author R.I.M. Dunbar.

evening event being considered generally more intimate), whereas men had a very slight preference for the evening (25% lunch vs. 30% evening, respectively). In contrast, 34% of people felt that an evening meal would be the better occasion to meet up with an old friend or family member, with 30% opting for a lunch event. A matched pairs t-test suggests that respondents felt significantly closer to a fellow diner after an evening meal than they did after a midday meal ($t_{1732} = -6.058$, $p < 0.0001$).

It is not obvious whether it is eating together *per se* or something else that happens during the meal that creates the sense of social engagement. We can gain some insight into this by considering some of the activities that occur during social meals. Respondents were asked to rate how much closer they felt to the people with whom they had had their most recent evening meal (on a scale of 0 = not at all to 10 = a great deal), how many people had been present (four categories), and (as binary presence/absence variables) whether laughter, reminiscences, jokes, singing, dancing, party games, and the consumption of alcohol had occurred. An analysis of variance, with sense of closeness as the dependent variable and all nine variables as factors, was highly significant ($F_{11,17} = 25.89$, $p < 0.0001$). However, only four of the variables had significant independent effects: number of diners, laughter, reminiscences, and the consumption of alcohol (Table 11.2). Of these, laughter and reminiscences had by far the strongest effects. Including sex and age in the model does not change the results (though in this case there was a significant effect due to sex, with females typically responding more strongly: $p = 0.045$). Notice that the frequency of jokes was not of itself important; rather, even though jokes might be used because they trigger laughter, it seems to be the laughter itself, whatever it is triggered by, that creates the sense of bonding.

Table 11.2 ANOVA of factors influencing increased sense of feeling closer to dinner companion after eating with them in the evening for the UK social eating sample

Variable	Frequency (%) [‡]	Mean square	F* [§]	p
Number of diners	(mean = 3.6 [#])	21.5	6.8	<0.001
Laughter	67.9	188.8	59.5	<0.001
Jokes	22.3	7.8	1.8	0.174
Reminiscences	51.5	20.0	37.8	<0.001
Party games	4.2	0.5	0.2	0.679
Singing	4.1	7.8	2.5	0.118
Dancing	5.1	0.5	0.2	0.698
Alcohol	53.9	37.1	11.7	0.001

[‡] % of dinners at which behaviour indicated occurred. [#] including respondent.

* df = 1,1718, except number of diners where df = 3,1718; [§] full model: $F_{11,1718} = 25.9$, $p < 0.0001$.

The Social Consumption of Alcohol

Of the 2254 respondents that responded to the YouGov pub use survey, 708 declared that they were non-drinkers or rare drinkers, 946 said they regularly drank alcohol but had no 'local' (i.e. a traditional, old fashioned community-style pub) that they visited regularly, and 447 that they had a 'local' (153 respondents did not answer the question). The differences across the three categories in personal happiness, perceived worthwhileness of life and satisfaction with life were all significant (Kruskal–Wallis analysis of variance (ANOVA): happiness, $\chi^2 = 25.88$, $df = 2$, $p < 0.0001$; life worthwhile, $\chi^2 = 12.63$, $df = 2$, $p = 0.002$; life satisfaction, $\chi^2 = 36.20$, $df = 2$, $p < 0.0001$). In each case, pairwise comparisons reveal a significant difference between drinkers and non-drinkers (drinkers rated themselves higher: $p < 0.05$), but there were no differences between regular drinkers with and without a 'local'. Scores for trust in others and engagement with the local community also differed significantly between categories (trust, $\chi^2 = 39.18$, $df = 2$, $p < 0.0001$; engagement, $\chi^2 = 30.50$, $df = 2$, $p < 0.0001$), with all pairwise differences significant ($p < 0.01$). Again, regular drinkers rated themselves higher than non-drinkers.

The number of intimate friends (support clique) averaged $6.29 \pm 7.69SD$, which is on the high side but within the range of variation observed in other samples (Dunbar et al., 1995; Sutcliffe et al., 2012; Burton-Chellew & Dunbar, 2015). The differences between the three categories in support clique size are significant ($\chi^2 = 33.40$, $df = 2$, $p < 0.0001$): the difference between non-drinkers and drinkers was highly significant, but regular drinkers without a 'local' were only marginally significantly different from those who had a regular 'local'.

A multiple regression with the frequency of visiting pubs as the dependent variable and life satisfaction, happiness, how worthwhile life is, trust in the local community, embeddedness in the local community and support clique size as independent variables yielded a significant model, with life satisfaction, trust in the community, and embeddedness in the community as the only individually significant predictors (Table 11.3). Broadly speaking, these results are very similar to those obtained for the social eating sample (Table 11.2), aside from the fact that support clique size was a significant factor in social eating but not visiting pubs. It is important to note that people do not visit pubs more often simply because

Table 11.3 Multiple regression model of the predictors of the frequency with which respondents visited pubs

Variable	β^*	t^\S	p
Life satisfaction	0.119	3.11	0.002
Happiness yesterday	-0.023	-0.68	0.497
Life is worthwhile	-0.008	-0.24	0.813
Trust in people	0.058	2.44	0.015
Engaged with community	0.072	3.13	0.002
Support clique size	0.022	0.97	0.331

* standardized slope; § df = 2121; model: $F_{6,2121} = 11.237$, $p < 0.0001$.

they are more sociable (have more intimate friends). Rather, as I show next (Figure 11.3), the direction of causality in fact appears to be the reverse: they have more friends because they visit pubs more often.

To ensure that these patterns reflected real life, we carried out a study of drinkers in four community pubs (‘locals’) and two city centre bars, sampling 95 individuals (31 women;

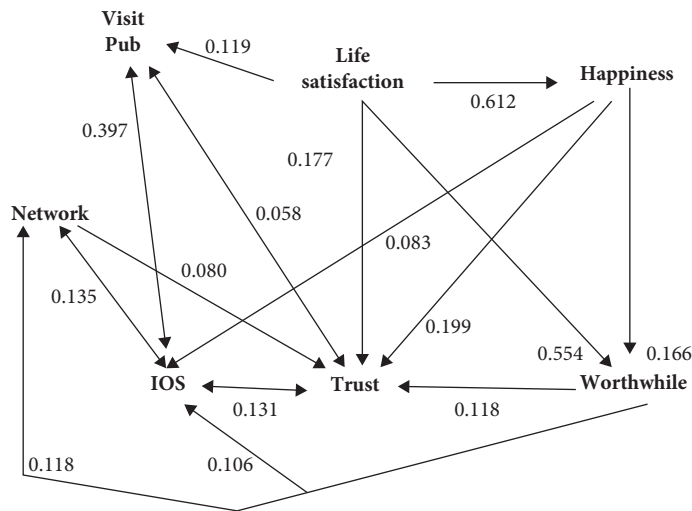


Figure 11.3 Path analysis of the main variables in the UK national poll data set of pub use (N = 2254 participants). Arrows indicate significant ($p < 0.05$) standardized β s (given by the numbers against the arrows) from multiple regressions with each variable in turn as the dependent variable. Single headed arrows: relationships in which the β for the indicated direction is at least twice that for the converse direction. Double headed arrows: significant relationships of approximately equal weight (the larger β is indicated in each case). Strength of the relationship is indicated by line weight.

Adapted from R.I.M. Dunbar, Jacques Launay, Rafael Wlodarski, Cole Robertson, Eiluned Pearce, James Carney, and Pádraig MacCarron, Functional Benefits of (Modest) Alcohol Consumption, *Adaptive Human Behavior and Physiology*, 3 (2), pp. 118–33, Figure 2, <https://doi.org/10.1007/s40750-016-0058-4> © 2017 The Authors. This work is licensed under the Creative Commons Attribution License (CC BY). It is attributed to the authors R.I.M. Dunbar, Jacques Launay, Rafael Wlodarski, Cole Robertson, Eiluned Pearce, James Carney, and Pádraig MacCarron.

mean age 34.1 ± 11.7 years, range 18–63). In addition to asking them to state how many drinks of different kinds they had consumed that evening, we also recorded their blood alcohol using a standard breathalyser: only 13% yielded values that exceeded the UK drink-drive alcohol limit (35 µg of alcohol per 100 ml breath, equivalent to 80 mg of alcohol per 100 ml of blood) and only 3% returned scores that were twice the legal limit. This sample of individuals was, in other words, sober and in full command of their faculties. The results we obtained for this more detailed sample for the same questions were virtually identical to those obtained from the national survey.

One important finding, however, was that while those in city centres bars had significantly larger conversation groups than people in community-style ‘locals’, the duration of their conversations (essentially the duration of a conversational group) was significantly shorter and conversations were significantly more fragmented as individuals joined and left at high rates, suggesting that their social interactions were more casual and they were investing less time in individual relationships. We know from other studies that time invested in a relationship determines its quality, especially for friendships (as opposed to family kinships), such that relationship quality declines very rapidly when individuals engage with each other less often (Sutcliffe et al., 2012; Saramäki et al., 2014).

These differences are also likely to have important consequences for the dynamics of the wider pub community: in smaller ‘locals’, the clientele mostly know each other and the bar staff, and these personal relationships probably function as an effective self-policing mechanism to prevent excessive consumption over the course of an evening, as well as managing disputes more effectively before they get out of hand. The anonymity and social transiency of the larger city centre bars leads naturally to a less respectful environment: individuals who consume too much are less likely to be admonished (and are more likely to respond belligerently if they are) such that if and when disputes break out, they are more likely to spill over into fights.

A path analysis was again used to evaluate the most likely causal relationships between the variables in the national survey sample. Figure 11.3 shows all the significant partial βs, with a number of these being explicitly one-directional. These suggest a causal sequence that runs from satisfaction with life to both happiness and increased frequency of pub visits, which between them independently influence one’s sense that life is worthwhile and the level of trust in, and connection with, the local community, which in turn influence the number of intimate friends one has. Taken together, these data suggest that there are social and well-being benefits to be derived directly from alcohol consumption in social contexts, especially in relaxed social environments. These effects are clearly involved in a complex feedback process, and it is evident from the path analysis that certain types of people (those who feel more satisfied with their lives) are more likely to visit pubs regularly and benefit from these effects.

The Social Role of Alcohol

Between them, these two studies suggest that feasting (eating and drinking together) plays an important role in the maintenance of intimate friend and family relationships in contemporary societies, as much as it appears to do in ethnographic societies (see Daly, Chapter 9; Rosinger & Bethancourt, Chapter 10). Whatever role social eating on its own might play

in this bonding process, there is no doubt that (with the exception of a handful of teetotal societies) the consumption of alcohol is, and has always been, an important component in feasting and likely contributes in its own right to the social bonding effect. Of course, there are, in addition, a number of other behaviours that augment these effects—laughter, singing, dancing, and storytelling—which all play a regular part in social meals and feasts alike.

The significance of these social processes should not be overlooked: the relationships that they create play a singular, and unexpectedly important, role in our sense of happiness and well-being, and in our general health. Maintaining a coherent, bonded social network is key to a stable social group, and all the benefits that this provides. Failure to do so leads to social isolation, and to the many morbidity and mortality consequences that we in modern societies have become all too familiar with in the last few decades (Waxler-Morrison et al., 1991; House, 2001; Rodriguez-Laso et al., 2007; Pinquart & Duberstein, 2010; Liu & Newschaffer, 2011; Chou et al., 2012; Tilvis et al., 2012). This is not, of course, to suggest that the social consumption of alcohol is the panacea for all the diseases of the modern world. Indeed, it is clear that overconsumption creates its own problems (GBD 2016 Alcohol Collaborators, 2018; Sabia et al., 2018). However, as with almost all biological phenomena, the relationship between alcohol consumption and resulting benefit (or harm) is not always a simple linear one, but can be quadratic or \cap -shaped.

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