SOCIAL NETWORKS

The focus for this module is social networks and how they impact health.

References

- Berkman LF, Kawachi I, & Glymour MM (eds). *Social Epidemiology* (2nd edition). Oxford University Press, 2014.
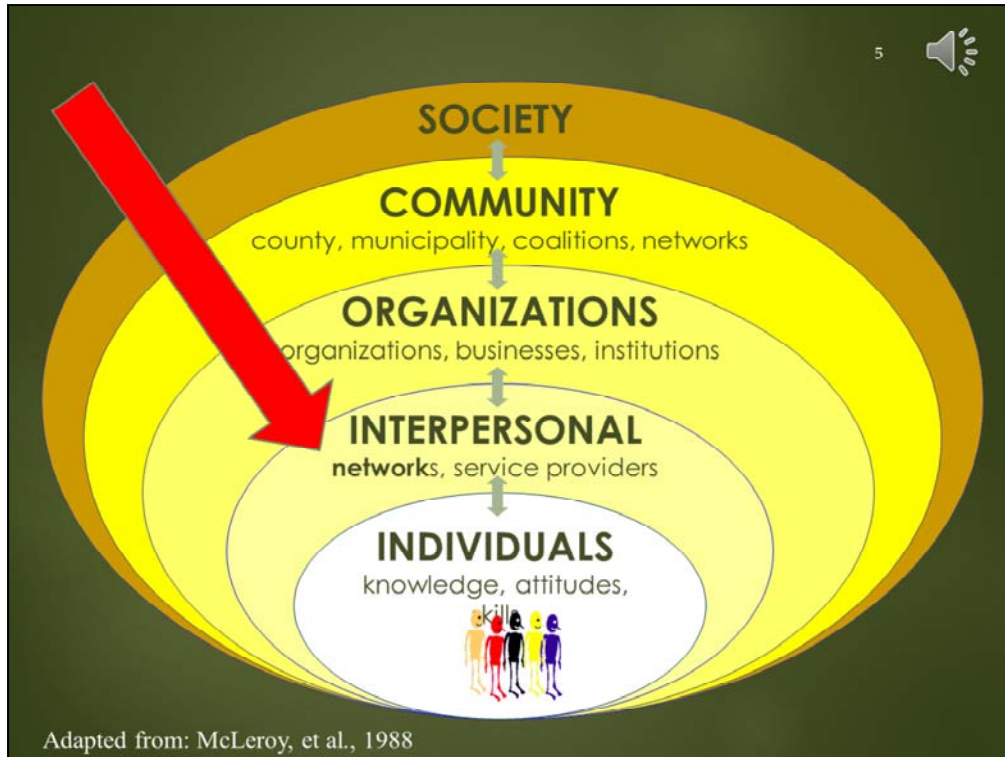 - Chapter 7: Social Network Epidemiology
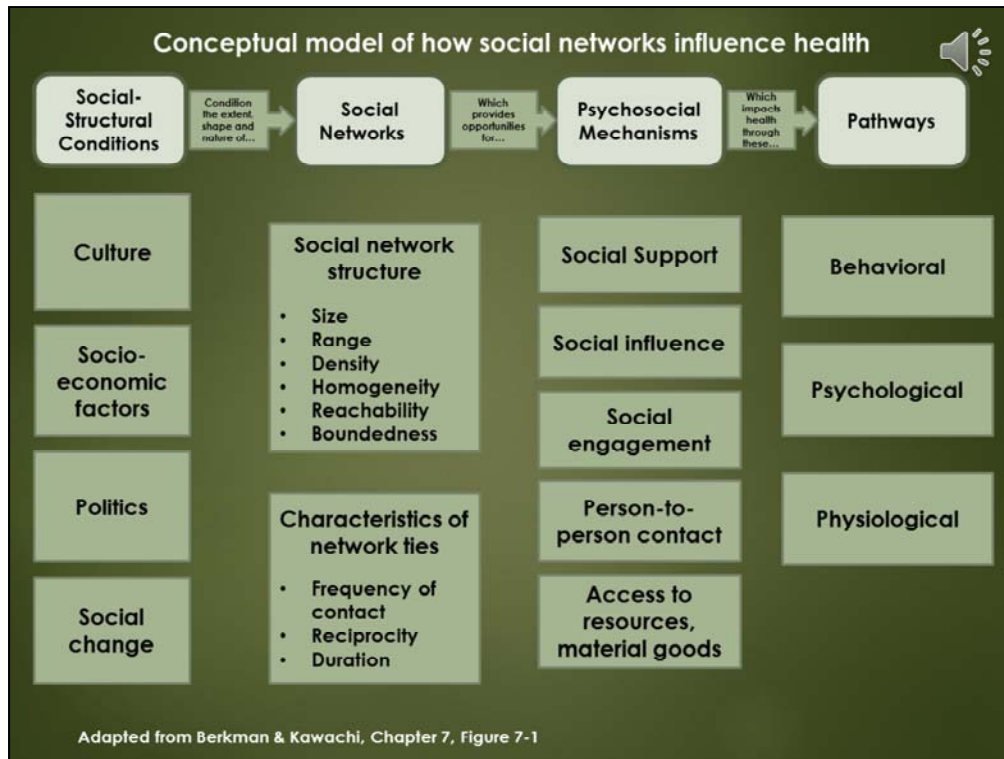
Social networks and health

► Persons who are socially isolated are:
  ► 2-5 times as likely to die (all causes)
  ► More likely to maintain cognitive function

The evidence is in: social support is associated with a number of health outcomes. A couple of examples include:

- Research that shows that persons who are socially isolated and disconnected from others have between 2 and 5 times greater risk of dying from all causes compared to those who maintain strong ties to friends, family, and community.

- Consistent findings that social engagement may be very important in cognitive function. Social activities likely help to reduce rates of aging-related cognitive decline because of the cognitive demands of social interaction – such as receptive and expressive communication, recall of experiences, and problem-solving.

- There are many other examples of the effect of social networks and social support on health outcomes in the areas of injury, cancer, heart disease, and other areas.

Adapted from: McLeroy, et al., 1988

The socio-ecological model suggests that there are many levels of influence for health. Individuals are, of course, the central focus, with their knowledge, attitudes, behaviors, genetics, and other intra-individual factors. Those individuals, however, are also influenced by their networks and other interpersonal interactions in their environments. Thus, social networks are conceptualized as having a significant impact on health – and being embedded within a larger social and cultural context.

Conceptual model of how social networks influence health

| Social-Structural Conditions | → Condition the extent, shape and nature of... | Social Networks | → Which provides opportunities for... | Psychosocial Mechanisms | → Which impacts health through these... | Pathways |

Culture	Social network structure • Size • Range • Density • Homogeneity • Reachability • Boundedness	Social Support	Behavioral
Socio-economic factors		Social influence	Psychological
		Social engagement	
Politics	Characteristics of network ties • Frequency of contact • Reciprocity • Duration	Person-to-person contact	Physiological
Social change		Access to resources, material goods	

Adapted from Berkman & Kawachi, Chapter 7, Figure 7-1

This model developed by Lisa Berkman and her colleagues, to depict how social networks influence health. This model starts with the social and structural conditions that are the context for social networks – conditions like culture, socio-economic factors, politics and social change. These are very compatible with organizational, community, and societal contexts that are proposed in the socio-ecological model presented on the previous slide. Those social/structural conditions affect the extent, shape, and nature of the social networks. Factors to consider in the structure of social networks include size, range, density, homogeneity, reachability and perhaps others. Those networks, then, provide opportunities for the psychosocial mechanisms of influence – including social support, social influence, social engagement, person-to-person contact, and access to resources and material goods. We'll talk more about those mechanisms in the next few slides. The model proposes, however, that the psychosocial mechanisms impact health through three primary pathways – behavioral, psychological, and physiological action.

Mechanisms for Social Network Influences on Health

▶ Social support
▶ Social influence
▶ Social engagement
▶ Person-to-person contact
▶ Access to material resources
▶ Negative interactions

There are at least 6 primary mechanisms through which social networks are thought to operate: social support, social influence, social engagement and attachment, person-to-person contact, access to material goods and services, and negative interactions. The next few slides will present each of these mechanisms separately.

There are 4 types of social support, including:

- Emotional support is most often provided by a friend or confidant.
- Instrumental support refers to help, aid or assistance with tangible needs, such as running errands, providing transportation, housekeeping, and the like.
- Appraisal support relates to help in decision-making, giving feedback, helping to weigh options and decide which course of action to take.
- Informational support is related to giving advice or information in particular areas of need.

The types often overlap (for example, appraisal support and informational support). An important point, however, is that social support depends on interactions, interpersonal transactions, social exchanges.

Shared norms around health behaviors may be among the most powerful sources of influence wielded by social networks. Establishing and enforcing norms for behavior within the group – and enforcing direct consequences for behavior that violates the norms – is a potentially important mechanism for the influence of social networks on health.

Through opportunities for engagement, social networks define and reinforce meaningful social roles, including parental, familial, occupational, and community roles. The adoption of these roles directly influences individual behavior but also creates a sense of coherence and identity in the lives of network members.

Networks can also serve to restrict or promote exposure to infectious disease agents. Public health nurses and epidemiologists use social network analysis all the time to investigate outbreaks, trace contacts. The concept is based in part on the realization that within networks, exposure between individuals is not random – that belonging to the network increases the likelihood of exposure for the individual.

Mechanisms :
Access to resources

► Access to resources and services by virtue of belonging to the network
  ► Risk reduction
  ► Preventive care
  ► Screening and early detection
  ► Coping skills

It is also believed that, at least in some cases, belonging to the network – perhaps because of shared work experiences, health experience, or religious affiliation – provides access to resources and services that have a direct bearing on health outcomes. These resources and services might include, for example:

- Risk reduction programs, such as weight management programs, smoking cessation programs
- Preventive care, such as immunizations
- Screening and early detection services, such as screening for diabetes, hypertension, high cholesterol, depression
- Coping skills, such as employee assistance programs or faith-based health promotion programs.

Mechanisms : Negative interactions

▶ Psychological stress pathways

▶ Negative influences

Not all interactions within networks are positive. To the extent that they are negative, they may create physiological and psychological stress within the individual – which both have their own pathways to influence health. In addition, it must be recognized that not all network influences are positive and helpful. To the extent that the network or social group encourages, promotes, or values unhealthy or risky behavior (for example, smoking, riding in motor vehicles without a seatbelt, unprotected sex, and many others), the overall network influence is not going to be a positive one.

Pathways

▶ **Health behavior**
  ▶ Smoking
  ▶ Alcohol consumption
  ▶ Diet
  ▶ Exercise
  ▶ Adherence to medical recommendations
  ▶ Help-seeking behavior

The model suggests that there are at least 3 primary pathways through which social support affects health: through health behavior, psychological pathways, and physiologic pathways. The first of these, health behaviors, is the most frequently thought of pathway – particularly among those in public health. Social networks influence the frequency of all sorts of health behaviors – in, as we have noted, either positive or negative ways. They may influence an individual's diet, exercise patterns, tendency to smoke and/or consume alcohol (how often, how much), and engage in other risk or health-promoting behaviors. They may also affect help-seeking behavior and the extent to which the individual adheres to medical recommendations – that is, takes medications as prescribed, does whatever it is that the doctor recommended.

There are also psychological pathways that may be at play. For example, social networks may affect the individual's self-esteem or self-efficacy. They may contribute to the individual's ability to cope with stressful situations, thus lessening the effect of the stress. They may mitigate the effect of depression or other mental health conditions, and generally affect the individual's sense of well-being. Again, these contributions may be positive or negative, so we need to be aware of all the effects of social networks.

Third, social networks may operate through physiological pathways, such as the functioning of the immune system, transmission of infectious diseases, cardiovascular reactivity, and cardiopulmonary function. Whatever the pathway, social networks have a strong influence on the health of individuals. We as public health professionals can harness those influences and use them in our interventions to help people engage in positive, health-promoting behaviors.