

<b>HEALTH PROMOTION AND DISEASE PREVENTION</b> <b>A Handbook for Teachers, Researchers, Health Professionals and Decision Makers</b>	
<b>Title</b>	<b>Social Networks and Social Support in Health Promotion Programmes</b>
<b>Module: 1.7</b>	<b>ECTS: 0.5</b>
<b>Author(s),degrees, institution(s)</b>	<b>Doncho Donev</b> , MD, PhD, Professor Institute of Social Medicine, Institutes, Medical Faculty, University of Skopje, Macedonia <b>Gordana Pavlekovic</b> , MD, PhD, Assistant Professor Andrija Stampar School of Public Health, Medical School, University of Zagreb, Croatia <b>Lijana Zaletel Kragelj</b> , MD, PhD, Assistant Professor University of Ljubljana, Faculty of Medicine, Chair of Public Health, Slovenia
<b>Address for correspondence</b>	<b>Doncho Donev</b> , MD, PhD, Professor Institute of Social Medicine, Institutes, Medical Faculty, University of Skopje 50 Divizia 6 1000 Skopje, Macedonia E-mail: donevdoncho@gmail.com; donev@freemail.org.mk
<b>Key words</b>	Social networks, social support, life stress, interaction, health promotion, health determinants
<b>Learning objectives</b>	<ul style="list-style-type: none"> <li>• After the completed module students and professionals in public health will broaden their knowledge and understanding in respect to:</li> <li>• Importance of the social networks and social support in creating and implementation of health promotion programs;</li> <li>• empirical evidence concerning social networks and social support and their relationship to health status and health behaviour;</li> <li>• utilization of social networks in health education programs, e.g. family network interventions, self-help groups, natural helpers and community organizing.</li> </ul>

<b>Abstract</b>	<p>Social networks and social support are general terms to describe different aspects of social relationships, including those mechanisms, which may protect the individual from the negative effects of stress. The social support is offered by the part of the social network, the people around us, that are ready to help us, and on whose help we can always count. Those enjoying strong social ties appear to be at low risk of psychosocial and physical impairment, whereas a lack of social support has been found to be associated with depression, neurosis and even mortality.</p> <p>The availability of the emotional and practical social support varies with the social and economic status. Poverty can lead to social exclusion and isolation. The social cohesion - presence of mutual trust and respect in the local community and wider in society - helps protect the people and their health against the cardiovascular diseases and mental disorders.</p> <p>An expert in public health should recognize the role of social networks and social support in health promotion process and programs and support-enhancing interventions, and should also master the knowledge and skills for implementing the integral health promotion programmes.</p>
<b>Teaching methods</b>	Lectures, focus group discussion, nominal groups, case studies
<b>Specific recommendations for teachers</b>	Case Studies – the students are to collect data on “life histories” for various types of social networks and social support in relation to the health status and health consequences.
<b>Assessment of students</b>	The final mark should be derived from assessment of the theoretical knowledge (oral exam), contribution to the group work and final discussion, and quality of the seminar paper

## **SOCIAL NETWORKS AND SOCIAL SUPPORT IN CREATING AND IMPLEMENTATION OF HEALTH PROMOTION PROGRAMMES**

### **Doncho Doney, Gordana Pavlekovic, Lijana Zaletel Kragelj**

#### **Introduction**

The term *social environment* is encompassing economic, political and cultural spheres and influences. It represents a complex determinant of health, human development and survival. It is supposed and expected that the social environment provides social and economic safety, social stability, acceptance of differences, human rights, cohesion in a community, and so on. Social environment includes moral sentiments defining good and bad thoughts, feelings and conduct, ideologies including religious and secular beliefs, and knowledge as well as the entire repertoire of cultural symbols and their meaning, including language. As Peter Berger (1964) nicely expressed it, »the human being resides in the social environment and the social environment resides within the human being« (1).

On the other side, social-economic turmoil, economic transition, unemployment and poverty, national, religious and other conflicts bring about dramatic changes in one's social environment ensuing in a host of consequences upon one's health. Conditions of war, implying not only physical threats but also a throng of stressful and crisis situations endanger physically, psychologically, and emotionally individuals and populations and especially the most vulnerable categories (women, children, the aged etc.). Resulting health disorders are numerous with acute and long-term consequences. The period of most rapid change in human health status is equivalent to what historians call the Modern Era.

*Social relations* and *supportive networks* of communication and mutual obligation makes people feel cared for, loved, esteemed and valued. Supportive relationships have powerful protective effect on health and may also encourage healthier behaviour patterns. Social relations that can be analysed at a primarily individual level as a social support, and at the community level as a social capital, are particularly important part of a social environment. *Social networks* are enveloping sets of relationships through which individuals develop their identities, which in turn shape the motivation to act in accordance with a sense of self and lifestyle. Networks may thus act to reinforce both positive and negative patterns of health behaviour (1, 2).

*Social support* is the general term to describe different aspects of social relationships, including those mechanisms which may protect the individual from the negative effects of stress (e.g. family, friends, number and frequency of social contacts). Those enjoying strong social ties and support appear to be at low risk of psychosocial and physical impairment, whereas a lack of social support has been found to be associated with depression, neurosis and even mortality. The lack of support increases the susceptibility for certain diseases, and the presence of suitable support can reduce the consequences from the exposure to stress situations and factors that have adverse affects. In general, social support seems to be an important moderating factor in the stress process (2-4).

#### **Social network, social support and social capital**

##### **Definition of social network**

*Social network* is »a person-centred web of social relationships«. Relationships are linkages of various kinds. It does not mean that the network necessarily provides social support. Social networks can be generally defined as »the web of social relationships that

surround individuals«, while social support is a function of those social relationships (5).

Social networks include family and kinship members (father, brother etc.), friends, »fictive kin«, co-workers and social role-persons (teacher, boss), business transactions partners, information exchange persons, and others connected to the individual on a personal level. Social networks and social support refer to the term »personal ties«. Human beings form personal ties with other people throughout the life course, beginning in infancy when the newborn's survival depends upon his/her »attachment to and nurturance by others over an extended period of time«. As the individual matures, personal ties become sources of support and act as buffers against the deleterious effects of stress and disease (5-7).

A tie connects a pair of actors by one or more relations. Pairs may maintain a tie based on one relation only, e.g., as members of the same organization, or they may maintain a multiplex tie, based on many relations, such as sharing information, giving financial support and attending conferences together. Thus ties also vary in content, direction and strength. Ties are often referred to as weak or strong, although the definition of what is weak or strong may vary in particular contexts. Ties that are weak are generally infrequently maintained, non-intimate connections, for example, between co-workers who share no joint tasks or friendship relations. Strong ties include combinations of intimacy, self-disclosure, provision of reciprocal services, frequent contact, and kinship, as between close friends or colleagues (6,7).

Women's social networks consist more of family and friendship ties, whereas men's social networks are more closely connected to relationships formed at work or in the neighbourhood (8).

#### *Structural characteristics and relations of social networks*

*Social network analysis* is the study of the connections between people. These connections are valuable, because they are how people gather the different types of support that they need – emotional, economical, functional, etc. The types of connections – or *ties* – that an individual maintains varies, but they often include family, friends, colleagues, and lovers. In addition to a difference in type, ties vary in value or *strength*. Most commonly, social network theorists refer to two levels of ties – *strong ties* and *weak ties*, where a strong tie is able to offer a much greater magnitude of support than a weak tie. Although it may seem as though weak ties are not particularly valuable, there are distinct advantages to having weak ties, including increased information flow and social mobility. Since weak ties require less effort to maintain, it is in an individual's best interest to maximize their weak ties, if they should want increased access to information (6,9).

Both strong and weak ties, play roles in resource exchange networks. Pairs who maintain strong ties are more likely to share what resources they have. However, what they have to share can be limited by the resources entering the networks to which they belong. Weakly-tied persons, while less likely to share resources, provide access to more diverse types of resources because each person operates in different social networks and has access to different resources:

- *reciprocity* means the extent to which resources and support are both given and received, while
- *intensity* means the extent to which the relationship provides emotional comfort. The cross-cutting »strength of weak ties« also integrates local clusters into larger social systems. The more relations (or strands) in a tie, the more multiplex (or multistranded) is the tie;

- *complexity* means the extent to which the relationship serves multiple functions.

Social network analysts have found that multiplex ties are more intimate, voluntary, supportive and durable. The composition of a relation or a tie is derived from the social attributes of both participants: for example, is the tie between different or same sex dyads, between a supervisor and an underling or between two peers (6,7,9).

Social networks can vary in their *range*: i.e., in their *size*, *density* and *heterogeneity*:

- *size* is very important characteristic of the network. In general, the larger a person's ego network, the more support they receive. This is basically because there are more people available to provide any service someone may need. In addition, it appears that alters in larger networks tend to provide more support. It is unclear why this should be so, but it may be that the alter perceives the ego as important (because they are so well connected) and therefore deserving of more help;
- *density* means the closeness and availability to interact with each other. The density of an ego network is defined as the number of ties in the network divided by the number of pairs of people. If T is the number of ties (not counting ties to ego), and N is the number of people in the ego network (not counting ego), then the equation is:

$$Density = \frac{2T}{N(N-1)}$$

The relationship of density to social support is not yet clear. It is thought on theoretical grounds that density promotes mental health, but that has not been shown enough empirically yet. What is clear is that dense ego networks tend to be better at providing emergency and chronic health care.

Density is one of the most widely used measures of social network structure: i.e., the number of actually-occurring relations or ties as a proportion of the number of theoretically-possible relations or ties. Densely-knit networks (i.e., groups) have considerable direct communication among all members: this is the classic case of a small village or workgroup. Much traditional groupware has been designed for such workgroups. By contrast, few members of sparsely-knit networks communicate directly and frequently with each other. As in the Internet, sparsely-knit networks provide people with considerable room to act autonomously and to switch between relationships. However, the resulting lack of mutual communication means that a person must work harder to maintain each relation separately; the group that would keep things going is not present (6,7).

- *heterogeneity* - larger social networks have more heterogeneity in the social characteristics of network members and more complexity in the structure of these networks. Small, homogeneous networks are characteristic of traditional work groups and village communities; they are good for conserving existing resources (6,7);

### Definition of Social Support

Cobb defined social support in 1976 as »a sense that one is loved and cared for, is esteemed and valued and belongs to a network of communication and mutual obligation«. Cobb identifies three separate elements of social support, which are important in providing assistance or aid to those under stress (4,9), namely:

- *emotional support* (expressions of understanding, trust, sympathy and nurturance);
- *esteem support* (expressions of liking, love and respect), and
- *network support* (social integration and material, tangible aids).

Social support is an extra quality in the social network, for it surmises, beside one's surroundings – network of people and frequency of communication – that people have obligations one to another, decreed and chosen by themselves, and it includes care, attention, readiness to help. (2,10).

Researches show that people with strong social support risk less to die of certain diseases than those without it, and they also recuperate more quickly once a disease has been diagnosed. This is of particular importance in childhood. Thus, the presence of parents in hospital conditions, especially the mother, has a favourable effect upon the course and outcome of an illness. Researches also indicate that lack of social support is an additional factor in premature death cases of smokers, those with high blood pressure, and in other conventional risks. Men with less social support have twice as much chance to die at certain age than their peers with greater social support (10,11).

### Definition of Social Capital

Social capital, as opposed to former social relations which are individual, is a characteristic of a community. In 1993, Puttman defined it as »those features of social organization, such as network, norms and trust that facilitate co-ordination and co-operation for multiple benefit« (12).

It is also defined as »the resource imbedded in social relations among people and organizations that facilitate cooperation and collaboration in communities«. This concept is closely connected to the development of civil society, the one which values solidarity, participation, integrity, and in which social, political, educational, and health institutions are connected horizontally, not vertically (10,13).

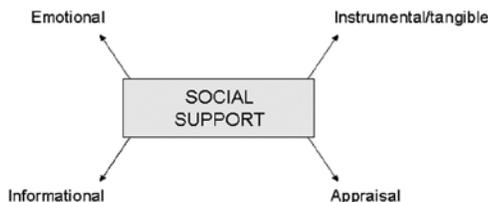
Researchers suggest to a close correlation between the social capital and infant and child mortality – the higher the indicators of social capital the lower the mortality. There is also a connectedness with general mortality (14). This connectedness is explained by the fact that communities/societies with higher level of social capital can act so as to formulate and realize common goals.

### Basic Types/Categories of Social Support

Whereas social networks constitute the structure of social relationships, social support is a function of those relationships. Numerous measures of social support exist, some of which emphasize the multidimensional nature of the construct, while others propose that emotional support is the essential component. In spite of difficulties with definitions and the use of different measures most studies have found that social support is negatively related to loneliness and general wellbeing (4).

According to Heaney and Israel, there are four basic types of social support: emotional, instrumental, informational, and appraisal (5), (Figure 1).

Figure 1. Four basic types of social support.



1. *Emotional social support.*

Emotional support includes the provision of intangible support, such as love, empathy, caring and trust.

2. *Instrumental/tangible social support.*

Instrumental/tangible support includes the provision of services that directly benefit the recipient (e.g. food, money, computer assistance, mechanical help as a ride to the supermarket, etc.). Emotional support was more frequently received from networks of extended family, whereas families of origin provided the largest amount of material support. Instrumental support was provided most often by informal community relations.

3. *Informational social support.*

Informational support is provided by means of offering information and advice or instructions/suggestions to help the recipient address his/her own problems. An example might be telling a neighbour where to find the nearest bank or grocery store, or giving her the name of a good paediatrician for her children.

4. *Appraisal social support.*

Appraisal support refers to the provision of constructive feedback, perception of a positive comparison, encouragement, or other information that will help the recipient to evaluate his/her own sense of self-efficacy or competency. Appraisal support helps one to make sense of things and self-appraisal (4,5,10).

In industrialized societies, social support tends to flow through equals - peers and friends. In contrast, in agricultural societies, aid tends to flow through hierarchical relations like parent-child and boss-worker. According to Social Resource Theory (15) strength of tie is related to the kinds of resources provided. Instrumental actions (buying goods, mechanical help) require diverse social resources and therefore tend to be accomplished via weak ties (one reason is that we tend to have strong ties with people who are similar to ourselves, so diversity is achieved through weak ties). Expressive actions (sharing life experiences, emotional support) are more likely to be done by strong ties (15).

Kinship ties tend to be used for really big things, like life-threatening emergencies. One reason for this is the cultural understanding of the obligations of kin - they are supposed to help. Another reason is that the dense ties among kin make it easy for them to mobilize and coordinate their efforts. A person's friends may not even know each other, but kin typically do.

A large chunk (25%) of active ties in a support network is local. This means that even in today's world of high mobility and excellent transportation and communication media, we still get a lot of our support from people who are physically close by.

Social support is not clearly related to similarity of ego to alter. That is, one gets social support from both people who are similar to one's self, and different from oneself. However, with respect to age, there tends to be a lot of social support provided by people of dissimilar ages. Young people tend to provide older people with physical labour, while old people tend to provide knowledge and impart skill to younger people. Also, with respect to employment similarity, people with similar employment status tend to give aid to each other.

### **Research on social networks and social support linked to personal health**

Consistent relationships had been proven between social support and better health. Mechanism – thought to be a function of stress management and how social support reduces

the impact of stress. The support acts on the individual and on the societal level. The social isolation, loneliness and exclusion are related to increased rates of premature deaths and smaller chances to survive more severe illnesses, such as heart attacks. The people that receive less emotional and practical social support than others, more frequently suffer from depression, the level of incapacity due to chronic diseases is greater, and in women during pregnancy, the risk is higher for complication of the pregnancy (2-4).

Differentiating social networks from social support helps us to understand the different ways in which each one contributes to the individual's health and well being (or lack thereof). There are two main points of differentiation in the context of studying health and health-related behaviours. The first point is that social network research considers characteristics of social relationships beyond social support, such as negative interactions, risky health behaviours, stress, and susceptibility to infectious disease. Second, discussions of social support usually frame the provision and effects of social support in positive terms and as benefits intended by the provider. Social support is always intended by the sender, meaning it is consciously provided. Furthermore, social support is always meant to be helpful, even if the recipient does not perceive it as such (5). The assumption that social support is always intended to be positive leads researchers to highlight the existence of social support as a positive influence on health and health behaviours, and its absence as a negative influence.

Recently there has been research into the study of the implications of social integration for personal health. This research has shown that participation in a diverse social network may have an influence on health. The researchers chose to study social network diversity (number of social roles) and susceptibility to the common cold in people experimentally exposed to a cold virus. What they have found is that the greater the social diversity of the person, the lesser his or her susceptibility to infectious illness will be. Despite these results, the researchers were not able to isolate the pathways through which social diversity was associated with susceptibility. The leading hypothesis is that as social diversity increases, the level of exposure to a certain illness also increases. Thus the immune system is better prepared to defend itself against any future exposure to the sickness. However, the researchers have so far not been able to thoroughly support this hypothesis experimentally. What this research does show is another strong benefit of having high social diversity or social capital (16).

The results found by these researchers are quite surprising, »The magnitude of the health risk of being relatively isolated (socially) is comparable to the risks associated with cigarette smoking, high blood pressure and obesity and is robust even after controlling for these and other traditional risk factors« (16). It appears that cultural isolation can have a profound effect on physical well being. Their research has also shown that the development of mental illness is associated with the level of social contacts a person has. Some researchers believe that this is due to the fact that people's identities are tied to their social roles. By meeting role expectations, individuals are given the opportunity to enhance their self-esteem. They believe that these social roles provide a purpose to life. They imply that a sense of purpose is an integral component of psychological well being (4,16).

#### *Limitations of Social Network Research in the Field of Health*

The social network measures used in studies of health outcomes are not as advanced as those involved in formal social network analysis. A major reason for this is that studies of health outcomes typically involve large samples and include multiple questionnaires or interviews. For these studies, intensive quantitative measurement is reserved for the rare

cases in which the researcher determines that there exists sufficient need for it. Thus the social network results in this type of research do not always hold up to the same academic rigor as other research in the field of social networks does. This does not discredit the research described above. However, it does propose that further research is required before these conclusions can be adequately supported (17,18).

The implications of social network theory extend beyond the applications of business to explain the hierarchy of social and political power that exists in the society. A person's social network can affect them in a variety of ways, from their reputation to their health. Social networks are dynamic and evolve to fit new technologies that are introduced to society. The Internet has allowed social network interaction to expand in ways that were previously not possible (6,7,17).

### **Social networks and social support in the health education and health promotion programmes**

The convincing evidence of the relationship between social networks, social support, and health status has influenced the development of program strategies which are relevant to health education. Linkage between social support and social networks and health education programs involve interventions at the network and community level. Two broad strategies are predominant:

- programmes enhancing entire networks through natural helpers, and
- programmes strengthening overlapping networks/communities through key opinion and informal leaders who are engaged in the process of community wide problem-solving.

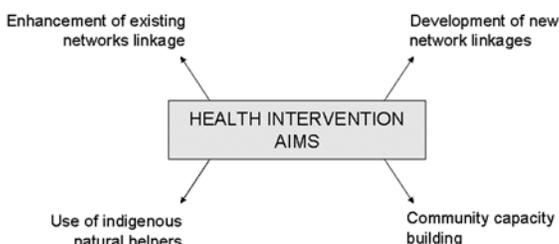
Some network characteristics relate to physical and mental health status. Network characteristics can be applied to the two program strategies. This approach not only recognizes, but also acts to strengthen indigenous skills and resources (2,19).

Considering the number and variety of references to social networks and social support in health literature, it seems apparent that social support is an important contributor to health and positive health behaviours. Unfortunately, as referenced above, not everyone enjoys the beneficial influence of social support on health. On the other side without social support, messages may not have relevance. Programs must use and anticipate the role that social support can play in disseminating an innovation or in »submarining an innovation«. Supporting the innovation requires a training component in the planning and delivery of a program/innovation. It means it is necessary to plan for costs and time to train the support personnel, as well as identifying and training the gatekeepers. As implied by diffusion theory, time and resources will need to be used to get the gatekeepers on board. It is particularly important in the needs assessment to identify the key people and whether they can be brought on board. It is also necessary to identify or develop a core group of potential mentors as an important component of many health promotion programs. It is very important to explore the possibilities how to make use of buddy systems and self-help groups. This approach should be careful in order to assist and not to hinder health promotion program. It means it is necessary to identify the barriers and resources, as well as what training and support is needed (19).

Here are presented a few ways in which support-enhancing health interventions can be accomplished. According to Heaney and Israel, there are four basic ways in which health

interventions can be geared toward enhancing social networks and social support. Health interventions can seek to enhance existing social network linkages, to develop new social network linkages, to enhance networks through the use of indigenous natural helpers, or to enhance networks through community capacity building and problem solving (5), (Figure 2).

**Figure 2.** Health intervention aims.



1. *Enhancement of existing network linkages.*

*Enhancing existing network linkages or ties* involves helping individuals to identify supportive network members and to mobilize and maintain those relationships. Interventions aimed at enhancing existing social networks should also focus on enhancing the quality of the relationships within the network by providing network members with specific skills for providing support.

2. *Development of new social network linkages.*

Interventions that seek to *develop new social network linkages* are particularly beneficial when existing social networks are small or overburdened. Examples include providing individuals with a mentor or »buddy«, or providing opportunities to participate in a self-help or support group. »Buddy« systems and support groups are based on the idea that all parties involved serve both as support provider and receiver, which increases the sense of support reciprocity in the relationships.

3. *Use of indigenous natural helpers.*

The *use of indigenous natural helpers in enhancing social networks/ support* necessitates identifying natural helpers in the community and training them in relevant health topics. All communities have natural helpers - community volunteers and it is very important these people to play a role in the health intervention program. Using indigenous natural helpers to enhance social support is especially important in cases where community members already turn to them for advice and material or instrumental support.

4. *Community capacity building.*

The fourth type of support-enhancing intervention is *community capacity building*. Involving community members to identify and resolve community problems may indirectly strengthen the social networks that exist in the community.

*Limitations of the Social Support Interventions*

All of these intervention possibilities have their *limitations*. Challenges to the first type of intervention, enhancing existing network ties, include difficulty identifying and engaging

existing network members who have the commitment and the resources to provide the necessary support, as well as difficulty measuring attitudinal and behavioural changes that directly result from increased perceived support (5). To ensure that the intervention does not conflict with the established interaction styles within the network might also be difficult. Developing new social network linkages with mentors, buddies, or support groups requires that those people exist and that they have the time, commitment, and other resources necessary to become involved.

While the use of indigenous natural helpers to bolster social support has been beneficial in a variety of cases, this intervention strategy may necessitate larger investments in time and resources in order to train those individuals in specific health topics and community problem-solving strategies. The same difficulty might be a potential limitation to the fourth type of intervention, enhancing networks through community capacity building and problem solving. However, in both cases the positive results of equipping individuals and their communities to work together to identify and resolve specific problems might outweigh these challenges. Given these limitations to each intervention type, it is important to be aware of the alternatives and choose the one that best fits the targeted individuals/communities and health behaviours/outcomes. In some cases, a combination of two or more intervention strategies might be appropriate (5).

### *Policy implications*

Intervention studies have shown that good social relations and providing social support can reduce the psychological response to stress and can improve patient recovery rates from several different conditions. The World Health Organization (2) pointed out the following main directions for action and policy intervention:

- reducing social and economic inequalities and reducing social exclusion can lead to greater social cohesiveness and better standards of health;
- improving the social environment in schools, in the workplace and in the community more widely, will help people feel valued and supported in more areas of their lives and will contribute to their health, especially their mental health;
- designing facilities to encourage meetings and social interaction in communities could improve mental health; and
- in all areas of both personal and institutional life, practices that cast some as socially inferior or less valuable should be avoided because they are socially divisive.

## **Exercise**

### **Task 1:**

Develop a role play by looking at everyday situations in the context of social networks and social support related to health and wellbeing and to the health interventions and health promotion programs.

### **Task 2:**

Analyse, are there different networks established in your target population? How do they get along? What will it take to involve them? Do you need to involve them? How will you allow for them? What will happen if you don't get them on board?

### **Task 3:**

How will you use the social groups in your intervention to keep track of what's going on at the community level? Keep in mind that these groups are paramount in the evaluation of the implementation of the programme.

### **References**

1. Hart N. Social, economic and cultural environment and human health. In: Detels R, McEwen J, Beaglehole R, Tanaka H (editors). Oxford Textbook of Public Health, Fourth Edition. New York: Oxford University Press, 2004:89-109.
2. Wilkinson R, Marmot M (editors). Social determinants of health – The solid facts, Second Edition. Copenhagen: World Health Organization, Regional Office for Europe, 2003. Available from: <http://www.euro.who.int/document/e81384.pdf> (Accessed: August 9, 2007).
3. Donev D, Laaser U. Social determinants of vulnerability of the risk groups and changes in the health status of the population in Macedonia. Macedonian Information Centre - Macedonian Affairs 2002;4:123-55.
4. Litwin H. Social Networks and Self-Rated Health: A Cross-Cultural Examination Among Older Israelis. *J Aging Health* 2006;18:335-58. Available from: <http://jah.sagepub.com/cgi/reprint/18/3/335> (Accessed: August 9, 2007).
5. Heaney CA, Israel BA. Social networks and social support. In: Glanz K, Rimer BK, & Lewis FM (editors). Health Behavior and Health Education: Theory, research, and practice. San Francisco: Jossey-Bass, 2001. p.185-209.
6. Garton L, Haythornthwaite C, Wellman B. Studying Online Social Networks. JCMC 1997. Available from: <http://jcmc.indiana.edu/vol3/issue1/garton.html> (Accessed: August 12, 2007).
7. Gretzel U. Social Network Analysis: Introduction and Resources. Available from: <http://lrs.ed.uiuc.edu/tse-portal/analysis/social-network-analysis/> (Accessed: August 12, 2007).
8. Pugliesi K, Scott L. Gender, ethnicity, and network characteristics: Variation in social support resources. *Sex Roles. J Research*, 1998;38:215-38.
9. Cobb S. Social support as a moderator of life stress. *Psychosom Med* 1976;38:300-14.
10. Cucic V. Social Support and Health (in Serbian). *Srpski arhiv* 1987;115:631-7.
11. Taylor SE. Health psychology: the science and the field. *Am Psychol* 1990;45:40-50.
12. Harrison D. Verona Initiative: Integrating health sector action on the social and economic determinants of health. Verona: World Health Organization, Regional Office for Europe, 1998.
13. Gittel R, Vidal A. Community Organizing. Thousand Oaks: Sage Publications, 1998.
14. Kawachi I, Kennedy BP et al. Social capital, income inequality and mortality. *Am J Pub Health* 1997;87:1491-1498.
15. Lin N. Social networks and status attainment. *Ann Rev Sociol* 1999;25:467-87.
16. Cohen S, Brissette I, Skoner D, Doyle W. Social integration and health: The case of the common cold. *J Soc Struct*, 2000;1. Available from: <http://www.cmu.edu/joss/content/articles/volume1/cohen.html> (Accessed: August 9, 2007).
17. Ethier J. Current research in social network theory. Social network theory. Available from: <http://www.ccs.neu.edu/home/perrolle/archive/Ethier-SocialNetworks.html> (Accessed: August 9, 2007).
18. Ensminger ME, Celentano DD. Unemployment and psychiatric distress: social resources and coping. *Soc Sci Med* 1988;27:239-47.
19. Israel BA. Social networks and social support: implications for natural helper and community level interventions. *Health Educ Q* 1985;12:65-80.

### **Recommended readings**

1. Ethier J. Current research in social network theory. Social network theory. Available from: <http://www.ccs.neu.edu/home/perrolle/archive/Ethier-SocialNetworks.html>
2. Gretzel U. Social Network Analysis: Introduction and Resources. Available from: <http://lrs.ed.uiuc.edu/tse-portal/analysis/social-network-analysis/>
3. Wilkinson R, Marmot M (editors). Social determinants of health – The solid facts, Second Edition. Copenhagen: World Health Organization, Regional Office for Europe, 2003. Available from: <http://www.euro.who.int/document/e81384.pdf>