

The SMART Fund
**THE LINKS BETWEEN SOCIAL SUPPORT AND
IMPROVED HEALTH OUTCOMES**
January 2011



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2	Executive Summary
3	Introduction
4	Section I: Introduction to Social Support Social Support Defined Theoretical Models Linking Social Support to Health Outcomes Suggested Biological Pathways Linking Social Support to Health Outcomes
8	Section II: Social Support and Improved Health Outcomes Senior Populations Homeless and Street-involved Populations Mental Health Consumer Populations
11	Discussion
12	Challenges and Limitations
13	Conclusion
14	References
18	Appendix A <i>Table 1.</i> Social support and health outcomes: Senior populations <i>Table 2.</i> Social support and health outcomes: Homeless and street-involved populations <i>Table 3.</i> Social support and health outcomes: Mental health consumer populations

Our personal social network is a stable but evolving relational fabric comprising our family members, friends, and friendly acquaintances; work and study connections; and relations resulting from our participation in formal and informal communal organizations, including religious, social, recreational, political, vocational, health-related, and the like. Our social network includes, in fact, all those with whom we interact and who distinguish us (and, reciprocally, we distinguish) from the faceless, anonymous crowd. This social cocoon accompanies us, in an evolving form, from cradle to tomb, and constitutes a key repository of our identity and our history; it is a key ingredient of our sense of satisfaction and fulfillment with life. (Sluzki, 2010, p. 2)

EXECUTIVE SUMMARY

Identified by the Public Health Agency of Canada as one of the twelve key determinants of health (Public Health Agency of Canada), social support is a complex concept, consisting of the structural characteristics of social networks and the functional support that they provide. Through the components of emotional, informational, and instrumental support, social support can influence health outcomes in a variety of ways, including building self-esteem and coping abilities, improving knowledge and understanding of available health and support services, and encouraging healthy behaviours.

There exists an extensive collection of research linking the various aspects of social support to positive impacts on a variety of illnesses including cancer, dementia, post-partum depression, and cardiovascular disease; as well as health behaviours; and health outcomes among certain vulnerable populations. Research has also begun to examine the behavioural, psychological, and biological processes in the pathway between social support and health outcomes.

For seniors, who often have unstable, shrinking social support networks and increasing physical and cognitive decline, social engagement becomes an integral part of healthy ageing. Social support helps to slow cognitive decline, the onset of dementia, and the progression of disability. It has a positive impact on longevity, and both physical and mental health status.

Homeless and street involved populations also experience unstable social support networks and are susceptible to the negative influences of deviant peer groups. Increased social support leads to better physical and mental health; increased self-esteem and self-confidence; increased social skills and coping abilities; as well as encourages improved healthy behaviours; and the use of essential mental health services for illness recovery.

Among mental health consumer populations, where individuals often have very small social support networks, the development and strengthening of networks is especially important. Evidence shows that social support plays a significant role in the recurrence and recovery of severe mental illness; fewer hospitalizations; decreased symptomology; and increased self-esteem; social skills; overall functioning; and satisfaction with health.

The evidence presented and discussed in this report supports the ongoing efforts of the Sharon Martin Community Health Fund (SMART Fund) and its partner organizations in their work to improve the health and wellbeing of vulnerable populations and their communities. The evidence supports their efforts to enhance social support – to strengthen existing network relationships and extend network ties; to reduce isolation and promote connectedness; to increase self-esteem and coping abilities; to develop new skills and promote productive participation; and to promote and enhance collective problem solving and reciprocal support.

INTRODUCTION

The SMART Fund, a Vancouver Coastal Health (VCH) granting program, invests in innovative, community-based health promotion initiatives. These initiatives respond to the health needs of vulnerable populations by supporting community capacity-building strategies that demonstrate positive impact on the health and well-being of individuals and the community. Through sustainable initiatives and community partnerships, the aim is to build skills and assets that allow vulnerable populations to take greater control over their own health and well-being.

Part of the upstream efforts of SMART Fund supported programs involves the creation and enhancement of *social support* systems. Social isolation is frequently identified by community-based organizations as one of the root causes of ill health among vulnerable populations. Through community capacity building strategies that engage individuals in their communities the SMART Fund programs work towards reducing isolation and enhancing the social support of vulnerable populations.

Identified by the Public Health Agency of Canada as one of the twelve key determinants of health (Public Health Agency of Canada), social support is a complex concept, consisting of the structural characteristics of social networks and the functional support that they provide. Through the components of emotional, informational, and instrumental support, social support can influence health outcomes in a variety of ways, including building self-esteem and coping abilities, improving knowledge and understanding of available support services, and encouraging healthy behaviours.

There exists an extensive body of literature documenting the association between social support and better health and longevity, both physically and mentally (Hogan, 2002; House, Landis, & Umberson, 2003; Seeman, 2001). One of the first prospective studies in this field was the Alameda County Study, conducted in the 1970s in the United States. It linked social support to reduced mortality, with the results confirmed by various subsequent studies conducted in the US, Europe and India (Cohen, 2003; Stansfeld, 1999). These first studies conducted, in the 1970s and 1980s, tended to examine the structural aspects of social networks, such as size and identity of network members, and their impacts on health outcomes (Stansfeld, 1999).

As studies continued into the 1990s more work was done to examine the functional aspects of social networks, looking more closely at the details and level of social interaction and integration (Stansfeld, 1999). This was during a time of increased discussions surrounding stress, psychosocial factors, and the etiology of health and illness. Chronic diseases were being studied more extensively, with a look beyond single causal factors (usually microbial) to multilevel factors that included social and environmental influences (House, Landis, & Umberson, 2003).

This resulted in studies that now link social support to a range of positive health outcomes in regards to a variety of illnesses, including cancer (Pinquart & Duberstein, 2009; Nausheen, Gidron, Peveler, & Moss-Morris, 2009; Zaza & Baine, 2002), dementia (Fratiglioni, Paillard-Borg, & Winblad, 2004), post-partum depression (O'Hara & Swain, 1996; Robertson, Grace, Wallington, & Stewart, 2004), and cardiovascular disease (Stansfeld, 1999), as well as health related behaviours such as adherence to medical treatment (DiMatteo, 2004). These studies examine varying stages of the illnesses, from onset, to progression, and recovery (Cohen, 2003).

Studies have also gone on to examine the impact of social support among various vulnerable populations, including seniors, the homeless and street involved, mental health consumers, LGBTQ2S, and immigrant populations. The health impacts observed among some of these populations are discussed in detail in this report.

With the association between social support and positive health outcomes established, studies are now looking to determine the mechanistic processes at play, seeking an understanding of the behavioural, psychological, and biological processes along the pathway between social support

and health outcomes ((House, Landis, & Umberson, 2003; Stansfeld, 1999; Uchino, 2006). Great progress has been made in this area, with evidence linking social support to cardiovascular, neuroendocrine, and immune function, with research continuing into the integrative aspects of these processes (Uchino, 2006).

This report first looks to define social support, and introduce some of the current theoretical models and proposed behavioural, psychological, and biological processes linking social support to health outcomes. It then goes on to review the research linking social support to positive health outcomes among senior, homeless and street-involved, and mental health consumer populations. The significance of this research is then discussed, linking it to the social support enhancing activities conducted by the community-based programs supported by the SMART Fund.

SECTION I: AN INTRODUCTION TO SOCIAL SUPPORT

Social Support Defined

Although the literature lacks consistency and consensus on the definition of social support, common categories arise, with social support most commonly broken down into structural support and functional support (Cohen, 2003; Uchino, 2004).

Structural Support

Structural support is a measure of integration through social networks (Hogan, 2002); networks that exist through marriage, friend and family ties, group and organization membership, religious group membership, and other community ties (Cohen, 2003; Uchino, 2004). Greater social integration through increased social networks is seen to reduce isolation and create social roles for individuals, giving them a greater sense of meaning and purpose in life (Uchino, 2004). Structural support can be examined in regards to the number, type, structure, strength, density and reciprocity of the ties (Williams, Barclay, & Schmied, 2004).

Functional Support

Functional support refers to the type of supportive resources that are gained through social networks. It can be broken down into various components, with the most commonly measured being: emotional support, informational support, and instrumental/tangible support (Hogan, 2002; Uchino, 2004; Williams, Barclay, & Schmied, 2004).

Emotional support can exist as verbal and non-verbal expressions of caring and concern (Hogan, 2002), leading to increased self-esteem and sense of acceptance, and reduced loneliness, which then result in increased coping abilities (Uchino, 2004). The provision of the other types of functional support is often perceived by the receiver to contain some element of emotional support (Uchino, 2004).

Informational support is the provision of advice, guidance, and skill development, which results in increased perceptions of control by reducing confusion, and providing coping mechanisms (Hogan, 2002).

Instrumental/tangible support is the direct provision of aid, whether financial or through the provision of food, clothing, shelter, transportation, or other goods, which results in decreased sense of loss of control and decreased stress (Hogan, 2002; Uchino, 2004).

All aspects of social support can be assessed as *perceived* or *received* levels of support (Uchino, 2004). It is important to define which is being assessed as the impact can vary significantly depending on the individual, population, and current life situation and stresses.

Another important facet to consider is the reciprocal nature of social support, as the support that an individual gives in a relationship also has an impact on their health and wellbeing (Stansfeld, 1999; Brown, Nesse, Vinokur, & Smith, 2003). This reciprocity likely adds to the stability of an

individual's social networks, bolstering the positive impact of the networks (Stansfeld, 1999). (See Box 1, p. 7 & Box 2, p. 8)

For the purpose of this report social support is defined as follows:

Social support encompasses social networks and the functional support that they provide. Social support works to strengthen existing network relationships and extend network ties; to reduce isolation and promote connectedness; to increase self-esteem and coping abilities; to develop new skills and encourage productive participation; and to promote and enhance collective problem solving and reciprocal support.

Theoretical Models Linking Social Support to Health Outcomes

There are several proposed models for how social support is linked to health outcomes. These models fall into two general categories: *Stress-related Models* and *Direct-effect Models* (Cohen, 2003; Uchino, 2004). The proposed models are likely not mutually exclusive, but rather, complementary, and suggest that social support acts as a promoter of improved health, and that a lack of social support can lead to poor health (Cohen, 2003).

Stress-related Models

Prolonged or excessive stress is linked to cumulative strain on the body, both mentally and physically, resulting in illness (Stansfeld, 1999). Stress-related models suggest that social support is only or primarily important during times of stress, and that it works to decrease stress-related cardiovascular activities (elevated heart rate, increased blood pressure), which influences long-term health outcomes (Uchino, 2004).

The buffering model proposes that social support diminishes the negative effects of stress on a person's life and health, buffering the pathogenic influence of stressful events (Stansfeld, 1999; Uchino, 2004).

The stress-prevention model proposes that increased social networks result in increased resources, and reduced exposure to stressful life events.

Direct-effect Models

Direct-effect models suggest that social support is effective in influencing health outcomes regardless of stress levels (Cohen, 2003; Stansfeld, 1999; Uchino, 2004).

The social control hypothesis proposes that social networks can directly influence a person to improve health behaviours through peer pressure and social norms (Cohen, 2003), or indirectly influence individuals by providing an individual with social roles that lead to greater sense of purpose and reason for life, and thus a reason to maintain their health (Cohen, 2003; Uchino, 2004).

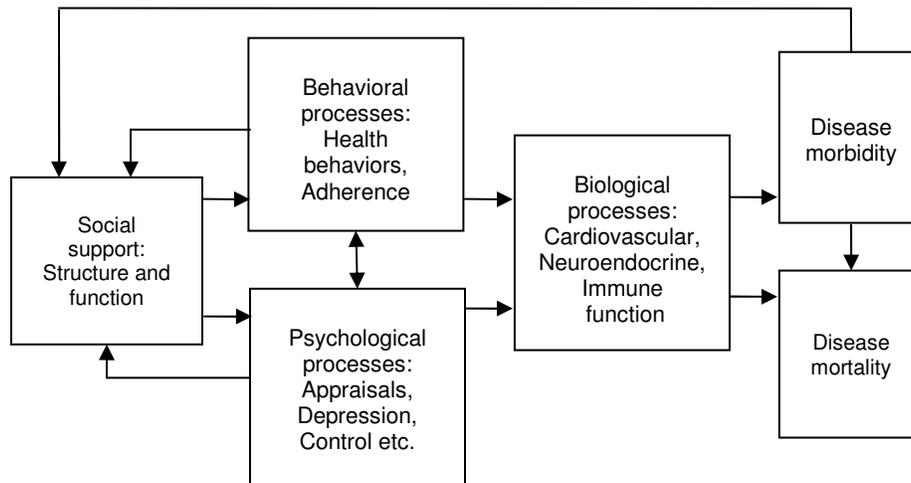
Identity and self-esteem models suggest that increased social support networks lead to increased feelings of self-esteem, self-identity, control, and self-worth which lead to fewer feelings of stress and greater motivation to take care of oneself (Cohen, 2003).

The loneliness hypothesis suggests that increased networks and engagement, and increased emotional support reduce loneliness and the negative health outcomes associated with it (Uchino, 2004).

Information-based models (Uchino, 2004) and *tangible-resource models* (Cohen, 2003) suggest that increased networks lead to increased access to information or tangible resources, which result in better access to health care, or resources that protect against poor health outcomes (e.g. food or shelter).

Whether through social norms or peer influence that impact health-related behaviours (diet, exercise, tobacco and alcohol use, support-seeking behaviours), or through psychological processes (self-esteem, self-worth, coping), the behavioural and psychological processes proposed by these models then go on to affect the biological processes along the pathway between social support and health outcomes (see Figure 1).

Figure 1. Potential pathways linking social support to health outcomes



(Uchino, 2006, p. 378)

It should be noted that there is potential for behavioural and psychological processes to affect each other, for example, a stress response may result in poor health behaviours (Uchino, 2006). As well, behavioural and psychological processes may impact the type of support an individual receives or their perceptions of that support (Uchino, 2006).

There is a feedback loop between social support and morbidity, where each can impact on the other. Social networks can work to encourage integration and maintain an individual's health, which in turn allows them to further participate in social activities and act in a supporting role in the networks of others (Sluzki, 2010), but recurrent illness can impact the availability and quality of support (Cohen, Hammen, Henry, & Daley, 2004) with increased disability leading to decreased social interaction, and further accelerated decline in health (Mendes de Leon et al., 2001).

Suggested Biological Pathways Linking Social Support to Health Outcomes

Current research suggests that behavioural and psychological processes affect biological processes through: 1) cardiovascular, 2) neuroendocrine, and 3) immune function (Uchino, 2006). In response to social support these processes likely work through coordinated, integrated mechanisms resulting in the observed health outcomes, as hormones and neurotransmitters play a role in aspects of cardiovascular and immune function (Uchino, 2006).

Social Support and Cardiovascular Function

The beneficial role of social support may occur through the buffering of stress induced cardiovascular activity such as high blood pressure or heart rate, with the assumption that this would have a cumulative affect over a lifetime. Studies are beginning to show evidence of this, with social support linked to lower resting blood pressure in older adults, to less underlying atherosclerosis, and to slowed progression of diagnosed cardiovascular disease (Uchino, 2006).

Social Support and Neuroendocrine Function

It is proposed that social support can modulate the neuroendocrine activity associated with stress. Stress stimulates the hypothalamic-pituitary-adrenal (HPA) axis, resulting in raised cortisol secretion – a hormone with known immunosuppressant effects that can increase susceptibility to infection (Stansfeld, 1999). Studies have linked social support to lower cortisol levels, and research continues on other hormones of interest including opioids (role in pain perception), catecholamines (fight or flight hormones), and oxytocin (associated with reduced cortisol levels, blood pressure, and sympathetic activity, and increased parasympathetic activities) (Uchino, 2006).

Social Support and Immune Function

Research has shown links between social support and higher level of natural killer cell activity, tumour-infiltrating lymphocytes (important for cancer patients), and helper T-cell activity (in HIV positive individuals). These are important associations to consider, as cancer rates continue to rise, and the population continues to age, with older adults the most susceptible to infectious diseases (Uchino, 2006).

Considering these behavioural, psychological, and biological processes linking social support to health outcomes it is important to acknowledge that some social relationships have the potential to produce negative health outcomes. Social relationships that cause stress, or that encourage risky health behaviours can have damaging effects to an individual's health (Bruhn, 2009).

Box 1: The Impact of *Giving* Social Support

The benefits of the reciprocal aspects of social support are evidenced through the positive impacts that acting as a peer-supporter, a volunteer, or simply as a productive supporter within the social networks of others has on the health of the support provider.

In group-level peer-led health interventions it is seen that bidirectional supporters report better overall wellbeing than those who are simply givers or receivers of support (Hogan, 2002). A review of studies on mental health peer-supported interventions reveals that mental health peer supporters experience similar benefits to those of the support receivers, including reduction in hospitalizations, and personal growth through increased confidence, coping skills, self-esteem and sense of empowerment (Solomon, 2004). This creates a feedback loop where peer supporters are then even better able to assist others in their recovery (Solomon, 2004).

A review of longitudinal studies of the links between volunteerism and health outcomes among senior populations reveals that individuals who volunteer are less likely to report poor health and disability related to daily activities, have significantly lower mortality rates, report increased self-efficacy for arthritis pain management, and experience reduced depression (Gottlieb & Gillespie, 2008).

Among senior populations it was found that providing instrumental support to friends, relatives, and neighbours is associated with reduction in mortality risk (Brown, Nesse, Vinokur, & Smith, 2003), and protects against functional decline (Hays, Saunders, Flint, Kaplan, & Blazer, 1997). Individuals with low feelings of usefulness have poor psychological wellbeing, lower social integration and social activity levels, and poorer health behaviours. They are also at increased risk of disability and mortality (Gruenewald, Karlamangla, Greendale, Singer, & Seeman, 2007).

SECTION II: SOCIAL SUPPORT AND IMPROVED HEALTH OUTCOMES

Senior Populations

There are a large number of studies highlighting the positive impacts of social support on the health outcomes of senior populations. The SMART funded programs that support senior populations work to improve social support by reducing isolation and enhancing connectedness and engagement of senior populations. This is accomplished through a variety of program initiatives including neighbourhood outreach to isolated seniors, training of peer volunteers through mentorship and leadership programs, the provision of one-on-one support, and the coordination of social activities.

Box 2: Social Support through Peer Support

Social support provided by peers has the potential for equal, if not greater, impact than support provided by non-peer program staff and health professionals. It is suggested that social support is most effective when the type of support provided matches a person's life events (Uchino, 2004) – peers are in a position to best understand these life events. Peers are able to provide experiential knowledge, which is both unique and pragmatic, and to provide validation and promote self-determination among those seeking support (Solomon, 2004).

Peer support is more likely to lead to positive behaviour change, as peers are seen as more credible role models, sharing their confidence building and coping techniques (Solomon, 2004). It has been shown that referrals to self-help groups are more effective when made by a peer, suggesting that peer support services could be effective in linking individuals to a variety of necessary health services, that if not utilized could result in exacerbated health problems. Peer support services work to enhance the benefits of traditional health services (Solomon, 2004).

A review of peer-related interventions in the mental health field reveals links between peer support and reduction in number of hospitalizations, reduced hospitalization times, increased coping skills, improved medication adherence, decreased substance use, higher satisfaction with health, improved daily functioning, and improved illness management (Solomon, 2004). It was also shown that the longer an individual had been attending a peer-led program, the greater the health benefits to that individual, with the extent of the benefits increasing with greater integration and participation within the group setting (Solomon, 2004).

Research shows that seniors with extensive social networks report better self-rated health (Zunzunegui, Kone, Johri, Beland, Wolfson, & Bergman, 2004), with the size of an individual's network associated with reduced risk of cognitive decline (Bassuk, Glass, & Berkman, 1999), dementia (Crooks, Lubben, Petetti, Little, & Chiu, 2008), and disability (Mendes de Leon, Gold, Glass, Kaplan, & George, 2001).

Social disengagement and disconnectedness of seniors are associated with probability of cognitive decline, increased mortality (Bassuk, Glass, & Berkman, 1999), and poor self-rated health (Cornwell & Waite, 2009). In contrast, increased social engagement and frequency of social contacts are linked to decreased risk of dementia (Crooks et al., 2008), positive impact on disability status (Mendes de Leon, Glass, & Berkman, 2003), increased self-rated health (Zunzunegui et al., 2004), and increased longevity (Glass, Mendes de Leon, Marottoli, & Berkman, 1999). Social vulnerability, which includes measures of support, engagement, and activity, is linked to decreased longevity (Andrew, Mitnitski, & Rockwood, 2008).

Social activities (including participation in social and church groups), productive activities (including volunteer work), and physical activities are all associated with increased self-rated health (Zunzunegui et al., 2004), and increased longevity (Glass, Mendes de Leon, Marottoli, & Berkman, 1999), with self-rated health improving as the number of activities increases (Zunzunegui et al., 2004). It was found that the impact of social and productive activities were just as significant as that of physical activity, and that the impact of

social and productive activities are most significant among individuals with low physical activity (Glass, Mendes de Leon, Marottoli, & Berkman, 1999). Also, the magnitude of the association between aspects of social support and overall health are comparable to those for biological and behavioural risk factors for poor health (Zunzunegui et al., 2004).

Among senior populations higher levels of emotional support are linked to better cognitive function (Seeman, Lusignolo, Albert, & Berkman, 2001) and reduced risk of disability in activities of daily living (Mendes de Leon et al., 2001), while higher levels of instrumental support were actually linked to increased disability (Mendes de Leon et al., 2001). A proposed reason for this is that increased access to instrumental support may result in an individual developing a sense of dependency, where they begin to rely less on themselves, causing them to lose the confidence and ability to perform certain tasks (Mendes de Leon et al., 2001).

See Appendix A: Table 1

Homeless and Street Involved Populations

Studies show a significant link between social support and health outcomes among homeless and street-involved populations. SMART funded programs in this area work to strengthen existing positive networks and develop new supportive links. The programs enhance social support through a variety of services and activities including outreach to isolated individuals, the development of social skills and coping abilities, training of peer volunteers through mentorship and leadership programs, the coordination of social events and activities, and the promotion of employment activities.

Among homeless adult and youth populations in North America, larger social support networks and group participation are associated with lower levels of depressive symptomology (Bao, Whitbeck, & Hoyt, 2000; Irwin, LaGory, Ritchey, & Fitzpatrick, 2008; Unger et al., 1998), as is high levels of perceived social support (Hwang, Kirst, & Chiu, 2009; Toro, Tulloch, & Ouelette, 2008). Larger social networks are also associated with increased levels of access to mental health services (Bonin, Fournier, & Blais, 2007).

Perceived access to general social support and instrumental support are associated with better physical health in the adult homeless populations (Hwang, Kirst, & Chiu, 2009; Toro, Tulloch, & Ouelette, 2008) and good subjective health in youth populations (Unger et al., 1998). As well, homeless individuals are less likely to be victimized on the street if they have higher levels of perceived social support (Hwang, Kirst, & Chiu, 2009).

Among the homeless and street-involved youth population health-related behaviours are significantly influenced by aspects of social support. Stronger social support networks are associated with decreased odds of using illicit drugs, having multiple sex partners, and engaging in survival sex (Ennett, Bailey, & Federman, 1999). Increased social support is also associated with better sexual self-concept, intention to use condoms, self-efficacy to use condoms, and assertive communication (Taylor-Seehafer et al., 2007). It was also found that increased support networks are associated with decreased drug and alcohol

Box 3: Self-esteem and Health Outcomes

Self-esteem is an evaluative judgement of a person's own value, and is influenced by both individual and social factors (Mann, Hosman, Schaalma, & de Vries, 2004). A review of the literature linking self-esteem to health outcomes shows that high self-esteem is associated with mental wellbeing, better recovery from severe diseases, adjustment, happiness, academic achievement, and satisfaction (Mann, Hosman, Schaalma, & de Vries, 2004). The literature also shows that low levels of self-esteem are associated with depression, anxiety, eating disorders, poor social functioning, school dropout, and risky behaviours (Mann, Hosman, Schaalma, & de Vries, 2004). Thus, depending on the level of self-esteem it can act as a protective factor or a risk factor related to morbidity and mortality, and there exists a feedback loop, where self-esteem can exist as a determinant or a consequence of healthy behaviours (Mann, Hosman, Schaalma, & de Vries, 2004).

use, increased physical activity, improved eating habits, and increased support-seeking behaviours (Stewart, Reutter, Letourneau, & Makwarimba, 2009).

Among this population increased social networks are associated with increased self-esteem and self-confidence through the development of social skills, and increased coping skills (Stewart, Reutter, Letourneau, & Makwarimba, 2009), with increased problem-focused coping strategies as opposed to emotion-focused coping strategies (Unger et al., 1998). Both self-esteem and problem-focused coping strategies are associated with good subjective physical health (Kidd & Shahar, 2008; Unger et al., 1998), with improved self-esteem also associated with lower levels of suicidal ideation, and substance use (Kidd & Shahar, 2008) (see Box 3, p.9). It was found that coping skills and social support are beneficial regardless of the level of stress of the youth (Unger et al, 1998).

It has also been shown that employment among the street-involved and homeless is significantly associated with cessation of injection drug use (Steensma, Boivin, Blais, & Roy, 2005), and youth are 80 percent less likely to have traded sex if they have some form of employment (Tyler, 2009).

It is important to note that among youth populations the association with deviant peer groups has been shown to have negative impacts on health, with interaction with deviant peers associated with depressive symptoms (Bao, Whitbeck, & Hoyt, 2000).

See Appendix A: Table 2

Mental Health Consumer Populations

Mental health consumers are another vulnerable population for which studies show a significant relationship between social support and health outcomes. SMART funded programs working with mental health consumers work to strengthen existing support networks, develop new networks, and promote engagement with other members of the community. The programs enhance social support through activities that encourage social engagement, by training peer volunteers through mentorship and leadership programs, and by improving self-esteem and self-confidence through the development of social skills and coping abilities.

A lower incidence of severe mental illness (SMI) episodes is associated with higher levels of perceived social support (Cohen, Hammen, Henry, & Daley, 2004). Recurrence of illness is predicted by lower levels of perceived social support (Cohen, Hammen, Henry, & Daley, 2004), but protected against through the development of strong informal (non-professional) relationships (Husted & Ender, 2001). Higher levels of social support have thus also been linked to fewer hospitalizations for individuals with SMI (Cohen, Hammen, Henry, & Daley, 2004; Norman et al., 2005).

Increased negative symptoms (symptoms with deficit characteristics such as social withdrawal) are associated with smaller social network size (Goldberg, Rollins, & Lehman, 2003; Hamilton, Ponzoha, Cutler, & Weigel, 1989), as well as lower satisfaction with overall social support (Corrigan & Phelan, 2004). Increased depression (a general psychopathology symptom) is linked to lower perceived social support (Cohen, Hammen, Henry, & Daley, 2004; Johnson, Winett, Meyer, Greenhouse, & Miller, 1999), lower satisfaction with overall social support (Corrigan & Phelan, 2004), and social network size (Goldberg, Rollins, & Lehman, 2003). Positive SMI symptoms (expressive symptoms such as hallucinations) do not appear to be linked to social support (Goldberg, Rollins, & Lehman, 2003).

Increased social network size (Goldberg, Rollins, & Lehman, 2003) and increased social participation (Petryshen, Hawkins, & Fronchak, 2001) are associated with increased self-esteem, and increased satisfaction with social relationships and social activities. Larger social network size is also associated with increased social skills and cognitive function, and greater satisfaction

only 4 to 5 people in their social network in comparison to those without SMI, who can name 20 to 30 social network members (Goldberg, Rollins, & Lehman, 2003). With evidence showing that social support plays a significant role in the recurrence and recovery of SMI; fewer hospitalizations; decreased symptomology; and increased self-esteem; social skills; overall functioning; and satisfaction with health, there becomes an obvious call for increased social support interventions within this population.

There should be ongoing development and provision of social support interventions that provide network-enhancing activities, as well as work to enhance self-esteem and self-confidence and overall functioning through the development of social skill and coping mechanisms for mental health consumer populations.

Also, when developing and implementing health promotion initiatives it is important to keep in mind the potential added benefit when the support is peer-provided (see Box 2, p. 8), and that acting as the giver of social support also has significant positive impacts on health outcomes (see Box 1, p. 7). As well, the feedback loop that exists between social support and morbidity means that as increased social support leads to improved health outcomes, those improved health outcomes then allow for individuals to better participate and be further integrated in social support networks.

CHALLENGES AND LIMITATIONS

Many challenges and limitations exist in the analysis, interpretation, and application of the existing research in the field of social support and health outcomes.

Social support is a complex concept. The multitudes of components that social support is comprised of make it difficult to establish a cohesive and comprehensive definition – evidenced by the lack of consistency throughout the literature. This complexity also leads to great variability in intervention design and implementation, study design and methods, and measurement techniques. Studies are completed on a wide selection of populations, components of social support, potential pathways, and health outcomes. There are also specific challenges in studying the impacts of social support among the vulnerable populations discussed in this paper.

During a person's senior years there is a continual shift in their social network as they lose significant others and friends, and possibly become more reliant on their family network (Mendes de Leon et al., 2001). This continual shift can make the assessment of social support difficult. Studies of mental health consumer populations are often limited by sample size, and it may be challenging for individuals with SMI to accurately report on aspects of their social support networks (Hamilton, Ponzoha, Cutler, & Weigel, 1989). The transient nature of homeless and street-involved populations make it difficult to conduct long-term studies, and may make it difficult for individuals to report on their social support networks.

Although several validated measurement tools do exist, they may not apply directly or completely to the aspects of social support that a study is attempting to assess and thus it may be necessary to use a selection of these tools, also in combination with non-validated tools developed specifically for the study.

In this subject area many of the studies are of cross-sectional design, which fails to establish a temporal relationship between social support and health outcomes. Social support is not static, but rather a dynamic aspect of a person's lifecycle, and so a single measurement in time may not be an accurate assessment (Bruhn, 2009).

The above-mentioned complexities, variability, and inconsistencies make it very challenging to produce summary reviews or to conduct meta-analyses of study results (Hogan, 2002). Also, it is incredibly challenging for one study to conduct the multi-level research necessary to draw the

links between the socio-cultural level at which support exists, to the stress response and biological processes, and then the resultant morbidity/mortality (Uchino, 2006). Therefore stepwise connections are necessary for the integration of results from various studies.

Despite these challenges and limitations researchers are confident in the evidence linking social support to improved health outcomes, and the implications for program and policy development, and further research in the field (for example: Cohen, Hammen, Henry, & Daley, 2004; Toro, Tulloch, & Ouelette, 2008; Zunzunegui et al., 2004).

This report was not based on the results of summary reviews and meta-analyses, but rather on individual study results directly linked to the populations supported by the SMART Fund. Only studies conducted in Canada and the United States were presented in this report, as they were considered to be most relevant to the populations within the VCH region.

CONCLUSION

The relationship between social support and health outcomes is incredibly complex, with the various components of social support linked to health outcomes through a range of behavioural and psychological pathways and various integrated biological mechanisms. It is a relationship that exists and is influenced across multiple levels – from sociocultural influences, to behavioural responses, to biological processes – with feedback loops occurring throughout these levels. Regardless of the complexity of the relationship, and the subsequent challenges in conducting and summarizing research there is strong evidence that reveals social support as a significant determinant of health and wellbeing. This is especially true for vulnerable populations as individuals are often at high risk of experiencing social isolation, having unstable social support networks, or being exposed to deviant peer groups. This report highlights the research associated with seniors, homeless and street-involved, mental health consumer populations, but there is a growing body of evidence showing similar results in other vulnerable populations such as LGBTQ2S, and immigrant populations.

The evidence presented and discussed in this report supports the ongoing efforts of the SMART Fund and its partner organizations in their work to improve the health and wellbeing of vulnerable populations and their communities. The evidence supports their efforts to enhance social support – to strengthen existing network relationships and extend network ties; to reduce isolation and promote connectedness; to increase self-esteem and coping abilities; to develop new skills and promote productive participation; and to promote and enhance collective problem solving and reciprocal support.

REFERENCES

- Andrew, M.K., Mitnitski, A.B., & Rockwood, K. (2008). Social vulnerability, frailty and mortality in elderly people. *PLoS One*, 3(5), e2232.
- Baker, F., Jodrey, D., Intagliata, J., & Straus, H. (1993). Community support services and functioning of the seriously mentally ill. *Community Mental Health Journal*, 29(4), 321-331.
- Bao, W.N., Whitbeck, L.B., & Hoyt, D.R. (2000). Abuse, support, and depression among homeless and runaway youth. *Journal of Health and Social Behavior*, 41(4), 408-420.
- Bassuk, S.S., Glass, T.A., & Berkman, L.F. (1999). Social disengagement and incident cognitive decline in community-dwelling elderly persons. *Annals of Internal Medicine*, 131, 165-173.
- Bonin, J.P., Fournier, L., & Blais, R. (2007). Predictors of mental health service utilization by people using resources for homeless people in Canada. *Psychiatric Services*, 58(7), 936-941.
- Brown, S.L., Nesse, R.M., Vinokur, A.D., & Smith, D.M. (2003). Providing social support may be more beneficial than receiving it: Results from a prospective study of mortality. *Psychological Science*, 14(4), 320-327.
- Bruhn, J. (2009). *The group effect: Social cohesion and health outcomes*. US: Springer.
- Cohen, S. (2003). Psychosocial models of the role of social support in the etiology of physical disease. In P. Salovey & A.J. Rothman (Eds.) *Social psychology of health* (227-44). New York: Psychology Press.
- Cohen, A.N., Hammen, C., Henry, R.M., & Daley, S.E. (2004). Effects of stress and social support on recurrence in bipolar disorder. *Journal of Affective Disorders*, 82, 143-147.
- Cornwell, E.Y., & Waite, L.J. (2009). Social disconnectedness, perceived isolation, and health among older adults. *Journal of Health and Social Behavior*, 50(1), 31-48.
- Corrigan, P.W., & Phelan, S.M. (2004). Social support and recovery in people with serious mental illnesses. *Community Mental Health Journal*, 40(6), 513-523.
- Crooks, V.C., Lubben, J., Petitti, D.B., Little, D., & Chiu, V. (2008). Social network, cognitive function, and dementia incidence among elderly women. *American Journal of Public Health*, 98(7), 1221-1227.
- DiMatteo, M.R. (2004). Social support and patient adherence to medical treatment: A meta-analysis. *Health Psychology*, 23(2), 207-218.
- Ennett, S.T., Bailey, S.L., & Federman, E.B. (1999). Social network characteristics associated with risky behaviors among runaway and homeless youth. *Journal of Health and Social Behavior*, 40(1), 63-78.
- Forchuk, C., Jewell, J., Tweedell, D., & Steinnagel, L. (2003). Reconnecting: The client experience of recovery from psychosis. *Perspectives in Psychiatric Care*, 39(4), 141-150.
- Fratiglioni, L., Paillard-Borg, S., & Winblad, B. (2004). An active and socially integrated lifestyle in late life might protect against dementia. *Lancet Neurology*, 3, 343-353.

- Glass, T.A., Mendes de Leon, C., Marottoli, R.A., & Berkman, L.F. (1999). Population based study of social and productive activities as predictors of survival among elderly Americans. *British Medical Journal*, 319, 478-483.
- Goldberg, R.W., Rollins, A.L., & Lehman, A.F. (2003). Social network correlates among people with psychiatric disabilities. *Psychiatric Rehabilitation Journal*, 26(4), 393-402.
- Gottlieb, B.H., & Gillespie, A.A. (2008). Volunteerism, health, and civic engagement among older adults. *Canadian Journal on Aging*, 27(4), 399-406.
- Gruenewald, T.L., Karlamangla, A.S., Greendale, G.A., Singer, B.H., & Seeman, T.E. (2007). Feelings of usefulness to others, disability, and mortality in older adults: The MacArthur study of successful aging. *Journal of Gerontology*, 62B(1), 28-37.
- Hamilton, N.G., Ponzoha, C.A., Cutler, D.L., & Weigel, R.M. (1989). Social networks and negative versus positive symptoms of schizophrenia. *Schizophrenia Bulletin*, 15(4), 625-633.
- Hays, J.C., Saunders, W.B., Flint, E.P., Kaplan, B.H., & Blazer, D.G. (1997). Social support and depression as risk factors for loss of physical function in later life. *Aging & Mental Health*, 1(3), 209-220.
- Hendryx, M., Green, C.A., & Perrin, N.A. (2009). Social support, activities, and recovery from serious mental illness: STARS study findings. *Journal of Behavioral Health Services and Research*, 36(3), 320-329.
- Hogan, B.E. (2002). Social support interventions: Do they work? *Clinical Psychology Review*, 22, 381-440.
- House, J.S., Landis, K.R., & Umberson, D. (2003). Social relationships and health. In P. Salovey, & A.J. Rothman (Eds.) *Social psychology of health* (218-26). New York: Psychology Press.
- Husted, J., & Ender, E. (2001). Understanding successful community living by individuals with serious and persistent mental illness. *Psychological Reports*, 89, 135-141.
- Hwang, S.W., Kirst, M.J., & Chiu, S. (2009). Multidimensional social support and the health of homeless individuals. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 86(5), 791-803.
- Irwin, J., LaGory, M., Ritchey, F., & Fitzpatrick, K. (2008). Social assets and mental distress among the homeless: Exploring the roles of social support and other forms of social capital on depression. *Social Science & Medicine*, 67, 1935-1943.
- Johnson, S.L., Winett, C.A., Meyer, B., Greenhouse, W.J., & Miller, I. (1999). Social support and the course of bipolar disorder. *Journal of Abnormal Psychology*, 108(4), 558-566.
- Kidd, S., & Shahar, G. (2008). Resilience in homeless youth: The key role of self-esteem. *American Journal of Orthopsychiatry*, 78(2), 163-172.
- Mancini, M.A., Hardiman, E.R., & Lawson, H.A. (2005). Making sense of it all: Consumer providers' theories about factors facilitating and impeding recovery from psychiatric disabilities. *Psychiatric Rehabilitation Journal*, 29(1), 48-55.
- Mann, M, Hosman, C.M.H., Schaalma, H.P., & de Vries, N.K. (2004). Self-esteem in a broad-spectrum approach for mental health promotion. *Health Education Research, Theory & Practice*, 19(4), 357-372.

- Mendes de Leon, C.F., Glass, T.A., & Berkman, L.F. (2003). Social engagement and disability in a community population of older adults: The New Haven EPESE. *American Journal of Epidemiology*, 157(3), 633-642.
- Mendes de Leon, C.F., Gold, D.T., Glass, T.A. Kaplan, L., & George, L.K. (2001). Disability as a function of social networks and support in elderly African Americans and whites: The Duke EPESE 1986-1992. *Journal of Gerontology* 56B(3), S179-S190.
- Nausheen, B., Gidron, Y., Peveler, R., & Moss-Morris, R. (2009). Social support and cancer progression: A systematic review. *Journal of Psychosomatic Research*, 67, 403-415.
- Norman, R.M.G., Malla, A.K., Manchanda, R., Harricharan, R., Takhar, J., & Northcott, S. (2005). Social support and three-year symptom and admission outcomes for first episode psychosis. *Schizophrenia Research*, 80, 227-234.
- Oetjen, H., & Rothblum, E.D. (2000). When lesbians aren't gay: Factors affecting depression among lesbians. *Journal of Homosexuality*, 39(1), 49-73.
- O'Hara, M.W., & Swain, A.M. (1996). Rates and risk of post-partum depression: A meta-analysis. *International Review of Psychiatry*, 8, 37-54.
- Petryshen, P.M., Hawkins, J.D., & Fronchak, T.A. (2001). An evaluation of the social recreation component of a community mental health program. *Psychiatric Rehabilitation Journal*, 24(3), 293-298.
- Pinquart, M., & Duberstein, P.R. (2009). Associations of social networks with cancer mortality: A meta-analysis. *Critical Reviews in Oncology/Hematology*, 75(2), 122-137.
- Public Health Agency of Canada. *Population health approach: What determines health?*
Accessed at: <http://www.phac-aspc.gc.ca/ph-sp/determinants/index-eng.php>
- Robertson, E., Grace, S., Wallington, T., & Stewart, D.E. (2004). Antenatal risk factors for postpartum depression: a synthesis of recent literature. *General Hospital Psychiatry*, 26, 289-295.
- Seeman, T. (2001). How do others get under our skin?: Social relationships and health. In C.D. Ryff & B.H Singer (Eds.), *Emotion, social relationships, and health* (189-210). New York: Oxford University Press.
- Seeman, T.E., Lusignolo, T.M., Albert, M., & Berkman, L. (2001). Social relationships, social support, and patterns of cognitive aging in healthy, high-functioning older adults: MacArthur studies of successful aging. *Health Psychology*, 20(4), 243-255.
- Sluzki, C. (2010). Personal social networks and health: Conceptual and clinical implications of their reciprocal impact. *Families, Systems, & Health*, 28(1), 1-18.
- Solomon, P. (2004). Peer support/peer provided services: Underlying processes, benefits, and critical ingredients. *Psychiatric Rehabilitation Journal*, 27(4), 392-401.
- Stansfeld, S.A. (1999). Social support and social cohesion. In M. Marmot & R.G. Wilkinson (Eds.), *Social determinants of health* (155-178). Oxford: Oxford University Press.
- Steensma, C., Boivin, J.F., Blais, L., & Roy, E. (2005). Cessation of injecting drug use among street-based youth. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 82(4), 622-637.

- Stewart, M., Reutter, L., Letourneau, N., & Makwarimba, E. (2009). A support intervention to promote health and coping among homeless youths. *Canadian Journal of Nursing Research, 41*(2), 54-77.
- Taylor-Seehafer, M., Johnson, R., Rew, L., Fouladi, R.T., Land, L., & Abel, E. (2007). Attachment and sexual health behaviours in homeless youth. *Journal for Specialists in Pediatric Nursing, 12*(1), 37-48.
- Toro, P.A., Tulloch, E., & Ouellette, N. (2008). Stress, social support, and outcomes in two probability samples of homeless adults. *Journal of Community Psychology, 36*(4), 483-498.
- Tyler, K. (2009). Risk factors for trading sex among homeless young adults. *Archives of Sexual Behavior, 38*(2), 290-297.
- Uchino, B.N. (2004). *Social support & physical health: Understanding the health consequences of relationships*. US: Yale University Press.
- Uchino, B.N. (2006). Social support and health: A review of physiological processes potentially underlying links to disease outcomes. *Journal of Behavioral Medicine, 29*(4), 377-387.
- Unger, J.B., Kipke, M.D., Simon, T.R., Johnson, C.J., Montgomery, S.B., & Iverson, E. (1998). Stress, coping, and social support among homeless youth. *Journal of Adolescent Research, 13*(2), 134-157.
- Vancouver Coastal Health, SMART Fund, 2009. *Strategic Plan 2009-2014*. Available at: <http://smartfund.ca/>
- Williams, P., Barclay, L., & Schmied, V. (2004). Defining social support in context: A necessary step in improving research, intervention, and practice. *Qualitative Health Research, 14*(7), 942-960.
- Zaza, C., & Baine, N. (2002). Cancer pain and psychosocial factors: A critical review of the literature. *Journal of Pain and Symptom Management, 24*(5), 526-542.
- Zunzunegui, M.V., Kone, A., Johri, M. Beland, F., Wolfson, C., & Bergman, H. (2004). Social networks and self-rated health in two French-speaking Canadian community dwelling populations over 65. *Social Science & Medicine, 58*, 2069-2081.

APPENDIX A

Table 1. Social support and health outcomes: Senior populations

Author, year, country	Dataset	Sample size; Pop.	Study design	Social support variables	Health outcome variables	Results
Andrew, M.K., Mitnitski, A.B., & Rockwood, K., 2008, Canada	Canadian Study of Health and Aging; National Population Health Survey	3707, 2648; community dwelling 65 years and over	Prospective cohort (7 yr; 9 yr)	Social vulnerability (including social support, social engagement and leisure, daily activity, empowerment, socioeconomic status)	Mortality	Survival decreased progressively with increased social vulnerability
Bassuk, Glass, & Berkman, 1999, USA	New Haven site of the established populations for epidemiological site of studies of the elderly (EPESE)	2812; non-institutionalized 65 years and over	Prospective cohort (12 yr)	Social disengagement; perceived emotional support	Cognitive function	Social disengagement significantly associated with probability of cognitive decline; as number of social ties increased the probability of cognitive decline was reduced; social disengagement predicted higher mortality rate
Cornwell & Waite, 2009, USA	National Social Life, Health, and Aging Project	2910; community residing adults aged 57 to 85	Multi-stage cross-sectional	Social disconnectedness, perceived isolation	Self-rated physical and mental health	Both disconnectedness and perceived isolation independently associated with poor self-rated physical health; individuals who were socially connected and reported high levels of perceived report had a 70% chance of reporting very good or excellent health; perceived isolation had a stronger association with mental health than social disconnectedness; individuals who did not perceive themselves to be isolated had an 85% chance of reporting very good or excellent health
Crooks, Lubben, Petitti, Little, & Chiu, 2008, USA	Women's Memory Study	2249; women 78 years and over	Prospective (5 yr)	Social network: size of network, frequency of contact, satisfaction	Dementia	Both social network size and frequency of contact were associated with dementia risk; compared to risk of 1.00 for contact <1 time/wk, daily contact reduced risk to 0.57 HR (hazard ratio)

Glass, Mendes de Leon, Marottoli, & Berkman, 1999, USA	New Haven site of the established populations for epidemiological site of studies of the elderly (EPESE)	2761; random pop sample of 65 years and over	Prospective (13 yr)	Social activity, productive, and physical activity	Mortality	Social, productive, and physical activity all associated with increased longevity, with social and productive activities most effective among those with low physical activity
Mendes de Leon, Glass, & Berkman, 2003, USA	New Haven site of the established populations for epidemiological site of studies of the elderly (EPESE)	2812; adults 65 years and over	Prospective (9 yr)	Social engagement (11 types of social and productive activities, including social interactions, paid and volunteer work)	Three measures of self-rated disability status (essential self-care tasks, task requiring certain degree of strength and basic mobility, basic upper and lower extremity function)	Social engagement associated with positive impact on all three measures of disability
Mendes de Leon, Gold, Glass, Kaplan, & George, 2001, USA	North Carolina site of the established populations for epidemiological site of studies of the elderly (EPESE)	4162; adults 65 years and over	Prospective (6 yr)	Structural support: network size and social integration; and emotional support; instrumental support	Activities of daily living; activities of mobility/strength	Higher levels of network size and social integration associated with reduced risk of disability; instrumental support strongly associated with increased risk of disability; higher levels of emotional support associated with reduced risk of disability in activities of daily living
Seeman, Lusignolo, Albert & Berkman, 2001, USA	MacArthur Study of Successful Aging	1189; high-functioning adults aged 70-79	Prospective (7.5 yr)	Marriage status; number of close ties; number of groups; emotional support; instrumental support; conflict/demand in relationship; support provided to others	Cognitive function	Baseline analysis showed: greater frequency of emotional support significantly related to cognitive function; not married and more conflict/demands from social relationships related to better cognitive function. Prospective follow-up showed: higher levels of emotional support predictive of better cognitive performance
Zunzunegui et al., 2004, Canada	Author developed survey	1500 (Montreal), 1518 (Moncton); community dwelling aged 65 years and over	Cross-sectional	Social networks, social engagement, social support	Self-rate health (SRH)	Individuals with extensive social networks reported better SRH; social engagement closely linked to SRH; lack of friends strongly associated with poor SRH; no social activity linked to poor SRH, with SRH improving as the number of activities increased

Table 2. Social support and health outcomes: Homeless and street-involved populations

Author, year, country	Dataset	Sample size; Pop.	Study design	Social support variables	Health outcome variables	Results
Bao, Whitbeck, & Hoyt, 2000, USA	Author developed survey	602; adolescents aged 12-22 years, using youth services agencies in Missouri, Iowa, Nebraska, Kansas	Cross-sectional	Perceived family support; perceived friend support; affiliation with deviant peers	Depressive symptoms	Perceived family support and perceived friend support both significantly negatively associated with depressive symptoms; affiliation with deviant peers significantly associated with depressive symptoms
Bonin, Fournier, & Blais, 2007, Canada	Subset of larger health survey	439; people with affective disorder, using services for homeless in Montreal and Quebec	Cross-sectional	Social support	Utilization of mental health services	Larger social support networks linked to greater mental health service utilization
Ennett, Bailey, & Federman, 1999, USA	Author developed interview	327; youth aged 14-21, on the street or at service centres in Washington, DC	Cross-sectional	Network status	Current marijuana use; current heavy alcohol use; current illicit drug use; lifetime multiple sex partners; lifetime survival sex; recent unprotected sex	The odds of using illicit drugs, having multiple sex partners, and engaging in survival sex were higher for homeless youth who reported not having a social network; odds of survival sex 8 times higher for those reporting no network; illicit drug use was 38.5 percent for youth without a network and 21.7 for those with a network; multiple sex partners was 61.7 percent for those without a network and 39.3 for those with; survival sex was 80.9 percent for youth without a network and 38.2 for those with
Hwang, Kirst, & Chiu, 2009, Canada	Author developed survey	544; homeless adults, recruited from shelters and meal programs	Cross-sectional	Perceived instrumental, emotional, and financial support from friends, family, and neighbors; received social support from friends, family, and neighbors	Self-rated physical and mental health; levels of victimization	Perceived access to emotional support associated with better mental health status; perceived access to financial support associated with physical health; perceived emotional and instrumental support both independently predictive of no victimization in previous 12 months
Irwin, LaGory, Ritchey, & Fitzpatrick, 2008, USA	Author developed interview	155; homeless people in mid-sized US city	Cross-sectional	Social support; group participation	Depressive symptomology	Both social support and group participation significantly negatively associated with depressive symptomology

Kidd & Shahar, 2008, Canada/USA	Author developed interview and survey	208 (100 New York, 108 Toronto); homeless youth, recruited on the street, and drop-in service centers	Cross-sectional	Social involvement; secure attachment; self-esteem	Loneliness; feeling trapped; suicidal ideation; subjective health status; substance use	Social involvement negatively associated with loneliness; secure attachment positively associated with subjective health; self-esteem negatively associated with loneliness, feeling trapped, suicidal ideation, and substance use; self-esteem positively associated with subjective health
Stewart, Reutter, Letourneau, & Makwarimba, 2009, Canada	Assessment of 20-week pilot intervention program, focused on peer influence with pre-, mid-, and post- interviews	56; homeless youth aged 16-24 years in Edmonton	Cross-sectional	Social support; social networks	Loneliness; mental health; coping; health behaviours	Homeless youth reported increased support networks, a significant decrease in loneliness, increased support-seeking behaviours, increased coping skills, increased self-esteem and self-confidence through development of social skills, decreased drug and alcohol use, increased physical activity, improved eating habits
Taylor-Seehafer et al., 2007, USA	Secondary analysis of larger ongoing intervention data	176; homeless youth aged 16-20 years using street youth outreach program in south central US	Cross-sectional	Social connectedness; perceived social support	Sexual self-concept; assertive communication; intention to use condoms, self-efficacy to use condoms	Social support positively associated with assertive communication, sexual-self concept, intention to use condoms, and self-efficacy to use condoms; no associations with connectedness
Toro, Tulloch, & Ouellette, 2008, USA	Author developed survey	249, 219; homeless adults in area surrounding Detroit	Cross-sectional	Social Network Inventory (SNI) Family Index; SNI Support Index; Interpersonal Support Evaluation List (ISEL)	Brief Symptom Inventory (BSI) (current psychological symptoms); Diagnostic Interview Schedule (DIS) alcohol abuse/dependence; DIS drug abuse/dependence; Physical Health Symptoms Checklist (PHSC)	More perceived social support associated with fewer psychological symptoms and fewer physical health symptoms

Unger et al., 1998,
USA

Author developed
interview

432; homeless
youth recruited
from service sites
and street sites,
Los Angeles, aged
13-23

Cross-
sectional

Social support and
social networks; coping;
stress

Symptoms of
depression; subjective
health status; alcohol and
drug abuse disorders

Higher levels of social support,
emotional social support, and social
isolation associated with problem-
focused coping strategies; emotion-
focused coping strategies associated
with higher levels of stress; use of
problem-focused coping associated
with good subjective health;
instrumental social support positively
associated with subjective health and
negatively associated with symptoms
of depression; social isolation
positively associated with symptoms of
depression; stress associated
positively with symptoms of depression
and negatively with subjective health;
problem-focused coping strategies
associated with lower risk of alcohol
abuse

Table 3. Social support and health outcomes: Mental health consumer populations

Author, year, country	Dataset	Sample size; Pop.	Study design	Social support variables	Health outcome variables	Results
Baker, Jodrey, Intagliata, & Straus, 1993, USA	Baseline and follow-up interviews	729; clients of Community Support Systems (CSS) programs in New York; 65.2% schizophrenic, 13.7% affective disorder	Prospective (9 month)	Social support	Global Assessment Scale GAS (overall functioning)	Social support significantly linked to GAS score
Cohen, Hammen, Henry, & Daley, 2004, USA	Baseline and 1-year follow-up questionnaires	52; individuals with bipolar I disorder, eligible when reached remission or best clinical state	Prospective (1 yr)	Network support; total objective stress	Recurrence (minor depression, hypomania, major depression, mania, mixed state)	Perceived social support associated with having fewer episodes and fewer hospitalization; higher levels of objective stress and lower levels of perceived social support significantly associated with prediction of recurrence of any type over 1 year; lower levels of social support especially predicted depressive episodes
Corrigan, & Phelan, 2004, USA	Baseline data from Consumer Operated Services Project	1824; individuals with diagnosis of severe mental illness and significant functional disability	Cross-sectional	Objective social support (size of network); subjective social support	Recovery Assessment Scale RAS (personal confidence and hope, willingness to ask for help, goal and success orientation, reliance on others, not dominated by symptoms); Brief Psychiatric Rating Scale BPRS (depression, thought disturbance, social withdrawal)	Overall network support positively associated with 2 of the 5 dimensions of RAS; satisfaction with social support positively associated with all 5 dimensions of RAS; satisfaction with social support inversely correlated with depression and social withdrawal dimensions of BPRS
Goldberg, Rollins, & Lehman, 2003, USA	Baseline and 6-month assessments for 2 year period	219; individuals with severe mental illness, enrolled in Baltimore site of Employment Intervention Demonstration Project (EIPD); 75% psychotic disorder, 25% mood disorder	Prospective (2 yr)	Network size, composition (friend, family, mental health professional), density (linkages within network), and multiplexity (average number of functions served by a member of the network)	Hospitalization; positive, negative, and general psychiatric symptoms; quality of life; social skills; self-esteem; estimated IQ	Smaller network size associated with more negative and general psychiatric symptoms; larger network size associated with social skills, cognitive performance, and self-esteem; larger social networks associated with QoL measures of satisfaction with activities, health, social relations, and safety; no associations with network density

Hamilton, Ponzoha, Cutler, & Weigel, 1989, USA	Author developed survey	39; men with schizophrenia	Cross-sectional	Social network size and quality	Positive and negative symptom status	Smaller social network size significantly associated with increased negative symptoms, but not positive symptoms
Hendryx, Green, & Perrin, 2009, USA	Larger longitudinal study: Study of Transitions and Recovery Strategies (STARS)	153; 39.9% schizophrenic, 60.1% bipolar or mood disorder	Retrospective, longitudinal, using medical /clinical records	Social network; social support; activity level	Recovery	Social network, social support and activity level positively correlated with better recovery; interaction between social support and activity level, with activity level more important for those with low social support
Husted & Ender, 2001, USA	Author developed survey	34; individuals actively involved in Community Support Program	Cross-sectional	Relationships; community support	Time to relapse	Factor most commonly associated with non-relapse was the development of strong informal (nonprofessional) relationships, with subcategories of having fun with people important to me; friends; Community Support Workers
Johnson, Winett, Meyer, Greenhouse, & Miller, 1999, USA	2-, 6-, 12-, 18-, and 24- month interviews	52; recruited from treatment center at time of index episode	Prospective (2 yr)	Social support	Changes in symptom severity; time to recovery from index episode	Higher social support associated with decreased time to recovery; low social support associated with higher depression over time, but not mania
Norman et al., 2005, Canada	Baseline and 3-year follow-up interviews after initiation of treatment	113; patients from the Prevention and Early Intervention Program for Psychoses (PEPP), vast majority schizophrenic	Prospective (3 yr)	Social support	Symptoms; hospital admission	Higher social support predicted lower symptomology and fewer psychiatric hospital admissions at 3-year follow-up
Petryshen, Hawkins, & Fronchak, 2001, Canada	Baseline and 1-year follow-up survey	36; new clients eligible for social recreation component of program; 67% affective disorder, 22% schizophrenic, 11% non-psychotic disorder	Prospective (1 yr)	Participation measures	Loneliness, self-esteem, quality of life	At 1-year follow-up participation in social recreation associated with increased general life satisfaction, lower levels of loneliness, increased self-esteem, and improved QoL dimensions of social functioning, satisfaction with social relationships, and satisfaction with leisure activities