
Social Capital And Health: Implications For Working With Minority And Underserved Populations

Roberto P. Treviño, MD

In economy, individuals earn a living by producing and selling goods and services that consumers demand in the market. Production depends on financial, physical and individual capital and sales depend on social capital. Financial capital is money; physical capital is buildings and equipment; and individual capital is psychological aspects (knowledge, beliefs and attitudes) of the individual worker. Worker's level of education, skills and work ethics are important, as money, equipment and buildings are important to having a productive enterprise. Social capital is separate from individual capital because it does not inhere in the individual; it inheres in the relationships between producers and consumers. Social capital lies in the communication exchanges that occur between producer and consumer. It is a medium of exchange and it is these exchanges that change behavior and make sales.

In sociology, financial, individual, and social capitals are resources for human development and productivity (Coleman, 1988). Financial capital is income and individual capital is educational attainment. Usually the higher the education level the more positive is the individual's collection of beliefs and attitudes. Education has a money value that can be bought (college) and sold (wages) in the market. Whereas financial and individual capitals lie in the individual, social capital lies in the communications exchanges among individuals and groups of individuals (organizations). Like financial and individual capital, these communications have value. A set of parents may be low-income and undereducated but still be able to inculcate positive values in their children. The reverse is true too. Because highly compensated and educated parents get home late and tired, they might not have time and energy to provide positive values to their children. Social capital is issue-specific. A teacher, highly certified and compensated, can have high levels of social capital to persuade students to improve their academic performance but low levels of social capital to persuade students to improve their health behaviors. Social capital can be positive or negative. Children can be taught to be honest or to cheat. Social capital can be rich or poor. Children can be taught to help any in need or to help only those of his/her kind.

In health, social capital is excluded and financial and individual capitals are combined to form a socioeconomic index. The socioeconomic status (SES) refers to the income and

educational attainment of an individual. In adults, low SES is shown to be associated with unhealthy behaviors (Winkleby, Kraemer, Ahn, & Varady, 1998), cardiovascular heart disease (Marmot, Rose, Shipley, & Hamilton, 1978), hypertension (Kraus, Borhani, & Franti, 1980) diabetes (Chaturvedi, Stephenson, Fuller, & The EURODIAB IDDM Study Group, 1996), cancer (Cella et al., 1991), higher hospital cost (Epstein, Stern, & Weissman, 1990), and overall mortality (Gornick et al., 1996; Guralnik, Land, Blazer, Fillenbaum, & Branch, 1993; Lantz et al., 1998; Pappas, Queen, Hadden, & Fisher, 1993). In youth, low SES is also shown to be associated with unhealthy behaviors (Lowry, Kann, Collins, & Kolbe, 1996), decreased preventive practices (Newacheck & Halfon, 1988), low-birth weight (Starfield, 1989), overweight (Gortmaker, Must, Perrin, Sobol, & Dietz, 1993), asthma (Starfield, 1989), ear and eye disease (Dutton, 1985), and overall mortality (Wise, Kotelchuck, Wilson, & Mills, 1985). SES might be a better predictor of disease than genes. Mexican-Americans living in low-, middle-, and high-income neighborhoods, had diabetes incidence of 14%, 12% and 8%, respectively (Burke et al., 1999). Same genes but different SES showed a range of predisposition to diabetes.

Low SES is a good predictor of unhealthy behaviors and disease but does nothing to solve health problems. Because giving away a college degree or a generous salary is unlikely in health intervention, providing social capital might be a more likely possibility. Financial, individual and social capitals interact to influence each other and, together and independent, influence health behaviors and disease (Figure 1).

Social capital is the exchange of messages among individuals and organizations. Because these exchanges have value, they are referred to also as social currency. This currency, like money, is exchanged in social interactions. Different aspects of social interactions are presented in the Table 1. Social capital can be sent from and received by an individual and/or an organization. The three levels of rules that regulate the exchange of social capital are norms, reciprocity and altruism. Norms is an agreement with many, reciprocity is an agreement with another, and altruism is an agreement with oneself. Similarly, norms are among individuals, reciprocity is between individuals and altruism is within an individual. Norms are set at home, in school, and at the workplace. Reciprocity is set when an individual does

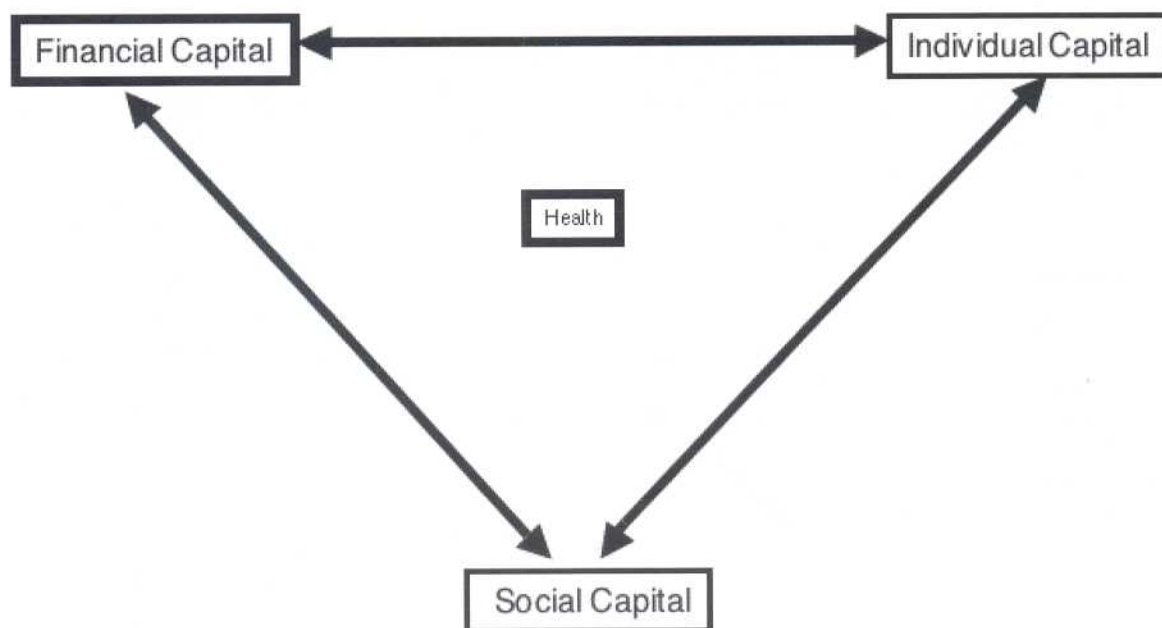


Figure 1.
The interaction of financial, individual, and social capitals to influence each other and health.

a favor to another individual and expects a favor in return. Altruism is the good will of helping others without expecting something in return. Norms, reciprocity, and altruism set the frame of reference to conduct transfers of social capital.

Norms

Social capital is the message and, like genes, it can be transmitted from one generation to the next. Transmitted messages can facilitate or inhibit human action. When messages are organized and transmitted in a structured manner, it becomes a norm. A norm is a standard set by society for the individual to achieve. Standards are set to make individuals more productive in their society. Teachers set test score standards for students to increase their knowledge which in turn, makes them more productive in society. Because individuals are their own engine of action, they can choose against or for achieving those standards. If individuals choose for, they are rewarded and if they choose against, they are punished. If students achieve the test score standard they are passed and if they do not, they are flunked. Rewards and punishments may have nothing to do with money. They can be so subtle like a pat on the back or a face grimace or so pronounced like passing grade or losing a job. Society has an expectation and the individual has an obligation. These expectations and obligations in the norm structure form a binding relationship between society and individual.

Society has beliefs about what is right and what is wrong. If society observes a behavior that is right then it reinforces it; if it is wrong then it represses it. Beliefs form values and values form norms. Norms are formed on a value system. Like money, they influence behavior. A child can be given 50 cents or be told nice words every time he/she eats a pear. The 50 cents carry more value than the nice words but if the 50 cents are given once and the nice words are given everyday, then nice words carry more value. Money and nice words are both a mode of currency that reinforce positive or repress negative behaviors.

A normative structure is a frame of reference. The currency in a normative structure is social capital. Social capital, like financial and individual capital, facilitates some behaviors and constrains others. If an individual is given \$10 to walk 150 minutes a week then he will most likely do it. If an individual knows that walking 150 minutes a week will prevent diabetes then he will most likely do it. If an individual is told repeatedly by his spouse, his children, his neighbors, and his co-workers to walk 150 minutes a week, then he will most likely do it. The group of people is the structure and the repeated message "walk 150 minutes a week" is the norm. This normative structure becomes the frame of reference that molds individual behaviors.

Reciprocity

Social capital exchanges can occur outside a norm structure. With reciprocity, also known as social exchange theory, two individuals form social ties based on trust and obliga-

Table 1 Different aspects of social interactions	
Social Exchange Theory	The relationship between two individuals based on trust (credit) and obligation (debit). Stocks of social capital accumulate when an individual expects another individual to return a favor.
Social Capital	Communication exchanges that occur between two entities aimed at influencing behavior. Communications are bi-directional, have a positive or negative influence and exist at the individual - and group - level.
Social Networks	Contact points made of individuals and/or groups of individuals (organization) that provide social capital. Family, friends, co-workers, organizations, associations, communities and government are examples of social networks.
Social Structures	Describes the intensity (emotional closeness), locality (local and distant), and complexity (function) of a social network.
Social Support	Social capital originates with sender and messages are always positive.
Symbolic Interactionism	Humans seek to understand the meaning of each other's action by interpreting messages coded in symbols.
Social Cognitive	Personal factors (knowledge, beliefs and attitudes), behaviors and environment interact to influence each other. Behaviors and socio-environment shape personal factors through reinforcement, modeling, self-efficacy, observational learning and outcome expectancies.
Social Cohesion	Social ties based on trust.
Social Attachment	Individual's need to belong to a family or an organization. Detachment is accompanied by physiologic changes associated with anxiety (pallor, sweating, tremors, increased breathing and heart rates).
Social Marketing	Application of commercial marketing technologies to the planning, implementation and evaluation of campaigns aimed at influencing behavior of a large audience.

tions (Magdol & Bessel, 2003). Individual A does individual B a favor because individual A trusts (credit) individual B will repay it. Once the favor is done then individual B has an obligation (debit) to repay individual A. If individual A does several favors to individual B then individual A has accumulated stocks of social capital. Whenever individual A needs a favor then he/she goes to individual B to withdraw social capital stock. Individual B reciprocates because of his/her obligation to repay. If individual B does not repay, then individual A loses trust. These relationships are based on a reciprocity agreement.

The exchanges between individual A and B are messages that influence behavior. The exchange starts with a need or a problem. Individual B sends a message (social capital) to individual A revealing he/she is in need. The message is so persuasive that it influences individual A to provide time or money (act) to help individual B. Social capital lies in the message (medium) not in the time or money (outcome). It is the currency of social capital that triggered the act of giving time or money. Individual B now is in debt with individual A and is ready to reciprocate whenever individual A sends a message of distress. These are investments of social capital that have the potential of being drawn if needed. These are non-monetary relationships that have the power of money

in the bank ready to be withdrawn in case of an emergency. While financial capital is in the individual's bank and individual capital is in the individual mind, social capital lies in the communication between both individuals.

The exchange of social capital is informal and unbounded. It is tied together by the power of belonging (Portes, 1998). If individual B does not repay individual A, then individual A might stop interacting with individual B. The type of social capital used to repay favors might be different from the type of social capital used in the original favor that triggered the interaction. The time of repayment is also unspecified. If repayment was similar and specified, then it would leave the realm of social capital and it would enter the realm of financial capital. If money is borrowed, then a contract is written, time period for repayment is specified, and money is repaid.

Reciprocity relationships can be modified by their geographical location and interpersonal relationships. The exchange of favors can be non-portable which refers to investments that are location specific (e.g. asking someone to babysit) and portable which are transferable to new locations (e.g. asking someone to provide moral support). Reciprocity can be influenced by the relationship. Reciprocity might be less certain between newer and non-family relationships than between older and kin-based relationships.

Altruism

Altruism is an unselfish act based on the concern for the well-being of others. Empathy and sympathy are a milder form of altruism. Empathy is the understanding of another person's physical or mental pain and sympathy is the relationship between individuals in which whatever affects one affects the other. In altruism it is not enough to understand and be affected by the pain of another; it is to feel the pain enough that it incites an action to do something about it. Understanding that an obese child will have unwarranted health outcomes is empathy and feeling the pain that the family will suffer once the child develops diabetes is sympathy. Altruism is all the above plus the act of providing messages to the child and parents aimed at modifying the obese-prone behaviors. Any individual, regardless of financial and individual capital and without expecting something in return, can provide social capital aimed at changing high risk behaviors of children.

Forming noble deeds aimed for the good of others is a better social capital. It costs less and it is effective. Teachers, nurses and cafeteria staff are paid to increase academic, provide health care and feed students, respectively. This is not altruism. Altruism is if among themselves they set a normative structure to prevent diabetes by providing repeated messages in the halls, gyms, classrooms, and school cafeterias telling children to eat whole grain products and to exercise regularly. Because this mechanism is set in motion by non-profit, the cost is low and the effects are good in improving health outcomes.

Measuring Social Capital

The message can be coated by adding the study of source, message, medium and target variables (Solomon & Stuart, 2003). Source variables include prestige, credibility, trustworthiness, and attractiveness of the individual or organization that sends the message. Message variables include content, frequency, and duration of the communication. Medium variables include newspapers, magazines, television, radio, billboards, direct mail, hallways, and word of mouth. Target audiences are either focus or general. This field also studies the encoding and decoding of messages by senders and receivers, respectively. This entire field is called social marketing. Social capital is just the core—waves of messages.

The two types of constructs to measure social capital are structural and psychological. Structural constructs ask how many live in a household and psychological constructs ask if reinforcement is provided to practice healthy behaviors. A key source of social capital for children is parents. But if the parent is not home or too many live in the household, then the transmission of messages is missing or diluted. Studies have shown a correlation between high number of siblings

and poor academic performance and behavior problems in children (Coleman, 1988; Parcel & Menaghan, 1993).

In psychological surveys, respondents self-report sources and frequency of social support for specific health behaviors. Examples are: "My parents have encouraged me to eat more fruits and vegetables this week," "My friends have been physically active with me during this week," and "Adults at school have encouraged me to eat less fatty foods this week." An instrument tested to be valid and reliable is the Duke-UNC Functional Social Support Questionnaire (Broadhead, Gehlbach, de Gruy, & Kaplan, 1988). Examples in this questionnaire are: "I get visits with friends and relatives," "I get chances to talk to someone about problems at work or with my housework," and "I get useful advice about important things in life." Psychological constructs that show low levels of social capital have been associated with higher mortality levels (Kawachi, Kennedy, Lochner, & Prothrow-Stith, 1997). Although some instruments exist, more psychometric testing is needed.

Social Capital and Health

Financial, individual, and social capital build on each other and all build health. If some forms of capital are missing, others compensate to protect against disease. In a study with 667 children age 2- to 5-year, a social capital index was developed by combining number of parents at home, number of children in the household, social support of maternal caregiver, neighborhood supports and regular church attendance (Runyan et al., 1998). Health outcomes were measured by the Child Behavior Checklist and the Battelle Developmental Inventory Screening Test. These measure children's behavioral and developmental problems. The relationship between social capital and health indicators were analyzed in a cross-sectional case-control study. The study showed that the presence of any social capital indicator increased the odds of doing well by 29%; adding two increased the odds of doing well by 66%.

Number of sources and number of contacts are important for social capital interventions to be effective in changing unhealthy behaviors. Using multiple sources to provide health messages might be more effective than using a single source (Perri, McAllister, Gange, & Nezu, 1988). The Bienestar children's diabetes control program consists of peers, physical education teachers, parents, school cafeteria staff and after-school caregivers transmitting, over an eight month period, three messages shown to protect against diabetes: decrease dietary saturated fat intake, increase dietary fiber intake and increase physical activity. Although parents' annual household incomes averaged \$11,500 and 82% of mothers had a high school or less level of education, mean fasting capillary glucose decreased in intervention and increased in control schools (Trevino et al., 2004). Intervention students also had higher increases in fitness levels and

dietary fiber intake than control students.

A minimum number of contacts over time might be necessary to change behaviors. The Diabetes Prevention Program is a landmark study that showed the positive effects of lifestyle changes on diabetes prevention in adults. In this study, participants averaged 24 sessions the first year (Diabetes Prevention Program Research Group, 2004). In the Bienestar health program, positive results were observed with an average of 32 sessions of health programming a year (Trevino et al., 2004).

Conclusion

Financial capital is money, individual capital is education and social capital is messages. Whereas money and education are belongings of the individual, messages are the exchanges between them. Social capital exists in the communications among individuals and organizations. Financial capital is tangible, individual capital is less tangible, and social capital is even less tangible. But all have value and all can carry a current to impact health behaviors. Their interaction has a compensatory role. If one source of capital is missing, others make up the deficit. An example is the Bienestar health program. Despite Bienestar children residing in households with low financial and individual capital, social capital made up for the deficit to change unhealthy behaviors.

References

- Broadhead, W. E., Gehlbach, S. H., de Gruy, F. V., & Kaplan, B. H. (1988). The Duke-UNC functional social support questionnaire. *Medical Care*, 26(7), 709-723.
- Burke, J. P., Williams, K., Gaskill, S. P., Hazuda, H. P., Haffner, S. M., & Stern, M. P. (1999). Rapid rise in the incidence of type 2 diabetes from 1987 to 1996. *Archives of Internal Medicine*, 159, 1450-1456.
- Cella, D. F., Orav, E. J., Kornblith, A. B., Holland, J. C., Silberfarb, P. M., Lee, K. W., et al. (1991). Socioeconomic status and cancer survival. *Journal of Clinical Oncology*, 9(8), 1500-1509.
- Chaturvedi, N., Stephenson, J. M., Fuller, J. H., & The EURODIAB IDDM Study Group. (1996). The relationship between socioeconomic status and diabetes control and complications in the EURODIAB IDDM complications study. *Diabetes Care*, 19(5), 423-430.
- Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94, S95-S120.
- Diabetes Prevention Program Research Group. (2004). Achieving weight and activity goals among diabetes prevention program lifestyle participants. *Obesity Research*, 12(9), 1426-1434.
- Dutton, D. B. (1985). Socioeconomic status and children's health. *Medical Care*, 23(2), 142-156.
- Epstein, A. M., Stern, R. S., & Weissman, J. S. (1990). Do the poor cost more? A multihospital study of patients' socioeconomic status and use of hospital resources. *New England Journal of Medicine*, 322, 1122-1128.
- Gornick, M. E., Eggers, P. W., Reilly, T. W., Mentnech, R. M., Fitterman, L. K., Kucken, L. E., et al. (1996). Effects of race and income on mortality and use of services among medicare beneficiaries. *New England Journal of Medicine*, 335, 791-799.
- Gortmaker, S. L., Must, A., Perrin, J. M., Sobol, A. M., & Dietz, W. H. (1993). Social and economic consequences of overweight in adolescence and young adulthood. *New England Journal of Medicine*, 329, 1008-1012.
- Guralnik, J. M., Land, K. C., Blazer, D., Fillenbaum, G. G., & Branch, L. G. (1993). Educational status and active life expectancy among older blacks and whites. *New England Journal of Medicine*, 329, 110-116.
- Kawachi, I., Kennedy, B. P., Lochner, K., & Prothrow-Stith, D. (1997). Social capital, income inequality, and mortality. *American Journal of Public Health*, 87, 1491-1498.
- Kraus, J. F., Borhani, N. O., & Franti, C. E. (1980). Socioeconomic status, ethnicity, and risk of coronary heart disease. *American Journal of Epidemiology*, 111, 407-414.
- Lantz, P. M., House, J. S., Lepkowski, J. M., Williams, D. R., Mero, R. P., & Chen, J. (1998). Socioeconomic factors, health behaviors, and mortality. *Journal of the American Medical Association*, 279, 1703-1708.
- Lowry, R., Kann, L., Collins, J. L., & Kolbe, L. J. (1996). The effect of socioeconomic status on chronic disease risk behaviors among U.S. adolescents. *Journal of the American Medical Association*, 276, 792-797.
- Magdol, L., & Bessel, D. R. (2003). Social capital, social currency, and portable assets: The impact of residential mobility on exchanges of social support. *Personal Relationships*, 10, 149-169.
- Marmot, M. G., Rose, G., Shipley, M., & Hamilton, P. J. S. (1978). Employment grade and coronary heart disease in British civil servants. *Journal of Epidemiology and Community Health*, 32, 244-249.
- Newacheck, P. W., & Halfon, N. (1988). Preventive care use by school-aged children: Differences by socioeconomic status. *Pediatrics*, 82(3), 462-468.
- Pappas, G., Queen, S., Hadden, W., & Fisher, G. (1993). The increasing disparity in mortality between socioeconomic groups in the United States, 1960 and 1986. *New England Journal of Medicine*, 329, 103-109.
- Parcel, T. L., & Menaghan, E. G. (1993). Family social capital and children's behavior problems. *Social Psychology Quarterly*, 56(2), 120-135.
- Perri, M. G., McAllister, D. A., Gange, J. J., & Nezu, A. M. (1988). Effects of four maintenance programs on the long-term management of obesity. *Journal of Consulting and Clinical Psychology*, 56(4), 529-534.
- Portes, A. (1998). Social capital: Its origins and applications

-
- in modern sociology. *Annual Reviews of Sociology*, 24, 1-24.
- Runyan, D. K., Hunter, W. M., Socolar, R. R. S., Amaya-Jackson, L., English, D., Landsverk, J., et al. (1998). Children who prosper in unfavorable environments: The relationship to social capital. *Pediatrics*, 101(1), 12-18.
- Solomon, M. R., & Stuart, E. W. (2003). *Marketing: Real people, real choices* (Third ed.). Upper Saddle River, New Jersey: Prentice Hall.
- Starfield, B. (1989). Child health care and social factors: Poverty, class, race. *Bull. N.Y. Acad. Med.*, 65(3), 299-306.
- Trevino, R. P., Yin, Z., Hernandez, A., Hale, D. E., Garcia, O. A., & Mobley, C. (2004). Impact of the Bienestar school-based diabetes mellitus prevention program on fasting capillary glucose levels: A randomized controlled trial. *Archives of Pediatric Adolescent Medicine*, 158, 911-917.
- Winkleby, M. A., Kraemer, H. C., Ahn, D. K., & Varady, A. N. (1998). Ethnic and socioeconomic differences in cardiovascular disease risk factors. *Journal of the American Medical Association*, 280, 356-363.
- Wise, P. H., Kotelchuck, M., Wilson, M. L., & Mills, M. (1985). Racial and socioeconomic disparities in childhood mortality in Boston. *New England Journal of Medicine*, 313, 360-366.