

Social Network Theories, Findings and Challenges for Epidemiology, Health Services and Policy

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Series of Reports: The Challenge

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Basic Problem

- Limits of biomedical and socio-behavioral approaches in predicting who gets sick, who seeks treatment, and who recovers

Call:

- Understanding “contexts”
- Integrating health sciences

Dilemma

- How to synthesize
- How to select among panorama of influences
- How to “translate” across disciplines and subfields to practice and to policy

IOM (Committee on Assessing Interaction Among Social, Behavioral, and Genetic Factors and Health)

- How should social environments be conceptualized and measured?
- Which aspects of the social environment should be included and at what levels of analysis?
- How do we consider present influences and those that have accumulated over the life course?

Possible Solution

- Contexts as social structures
- Social structures as “association” or “interaction”
- Social networks

Why Social Networks Have Moved to Prominence

- Consider and articulate the full set of contextual levels that have a documented role in past empirical research
- Offer an underlying mechanism or “engine of action” that connects levels, is dynamic, and allows for a way to narrow down focal research questions
- Employ a metaphor and analytic language familiar to both social and natural science that can facilitate synergy
- Understand the need for and use the full range of methodological tools proven useful in the social and natural sciences.

The Key: Social Network Perspective

- Relationships are “fundamental mediators of human adaptations.”
- Networks are the “active ingredients of environmental influences.”
 - *Neurons to Neighborhoods*
- Puts human face on issues of access, barriers, intervention, by conceptualizing these as actions of individuals
- Provides points of direct intervention and also mapping to understand the context surrounding medical treatment, the mechanisms of reform, etc.

Exploring Interconnections Aims

- Describe state of the art advances
- Identify obstacles and opportunities
- Stimulate translation of social network findings to understand, prevent and treat SA as well as support ongoing recovery

Why Theoretical Models Are Not Only Useful But Necessary

- Adapted from Ostrom, *Science* 2009, *PNAS* 2007
- Complex systems draw on disciplinary knowledge to integrate interdisciplinary understanding
- How do the social and biological systems interact to generate resilience, problems, solutions?
- Frameworks
 - Build common diagnostic framework and use it to conduct research
 - Develop common metatheoretical language for positing the effect of a common set of structural variables on interactions and outcomes over time
 - Provide a method to unpack the common components of systems in operation
 - Avoid overgeneralization

Key Insight in Network Episode Model

- It is the convergence or clash among network systems that drives the onset and response to problems such as SA and MI.
- Health, health behavior, illness behavior and health care outcomes are shaped by five systems
 - Two individual/internal systems embedded in three external systems
 - These shape the dynamic health and illness careers of individuals

The NEM III Under Construction

- Source: Pescosolido, B.A. 2006. "Of Pride and Prejudice: The Role of Sociology and Social Networks In Integrating the Health Sciences." *Journal of Health and Social Behavior* 47(September): 189-208.
- Source: Pescosolido, B.A. Forthcoming. "Organizing the Sociological Landscape for the Next Decades of Health and Health Care Research: The Network Episode Model – Phase III as Cartographic Subfield Guide." in B.A. Pescosolido, J.K. Martin, J.D. McLeod, and A. Rogers, eds., *The Handbook of Health, Illness & Healing: Blueprint for the 21st Century*. New York, NY: Springer.

Network Based Systems

Community

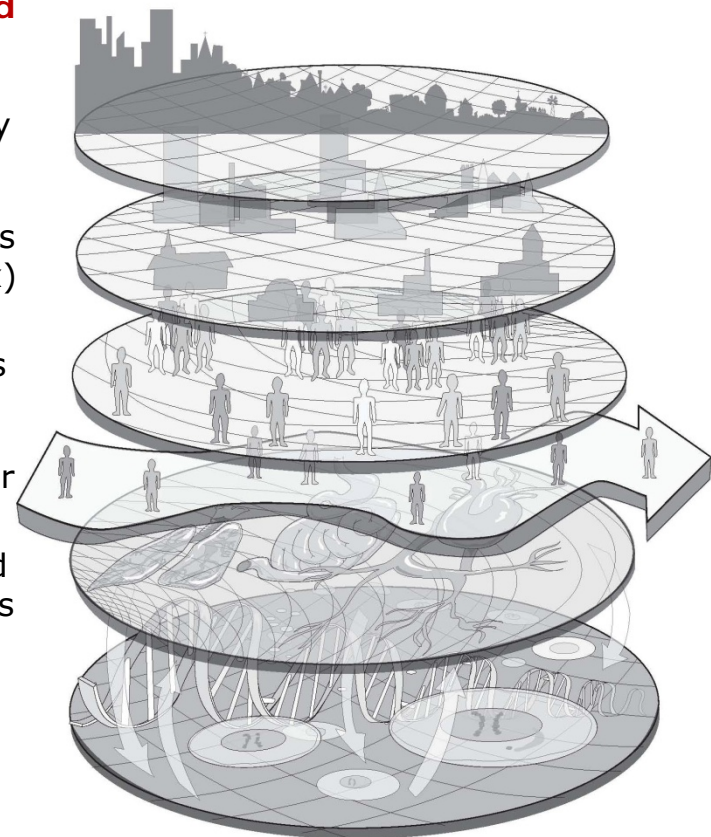
Organizations
(including Tx)

Personal Ties

Dynamic career

Individual and organ systems

Genetics



The Foundation of a Dynamic, Network Perspective

- Individuals as pragmatic and social; rational choice subsumed as one option in a social network influence process
- Focus — network reconceptualization of phenomena of interest and of the cross-system influences
- Explicitly dynamic and event-based
- Focus on the episode, not the choice
- Interaction in social networks as underlying mechanism connecting multiple systems/contexts

Finding #1: Healthcare Utilization Defined by Social Interactions -- There are Different Pathways to Treatment

Percentage of Individuals Reporting Different Accounts of Initial Entry into the Mental Health System, INMHS, 1990-1994 (n=109)

Story Theme	N	%
Choice	50	45.9
Coercion	25	22.9
"Muddling through"	34	31.2

Source: Pescosolido, B.A., C. Brooks-Gardner and K.M. Lubell. 1998. "How People Get Into Mental Health Services: Stories of Choice, Coercion and 'Muddling Through' From 'First-Timers.'" *Social Science and Medicine* 46(2): 275-286.

Finding #2: Social Networks Shape Pathways to Care

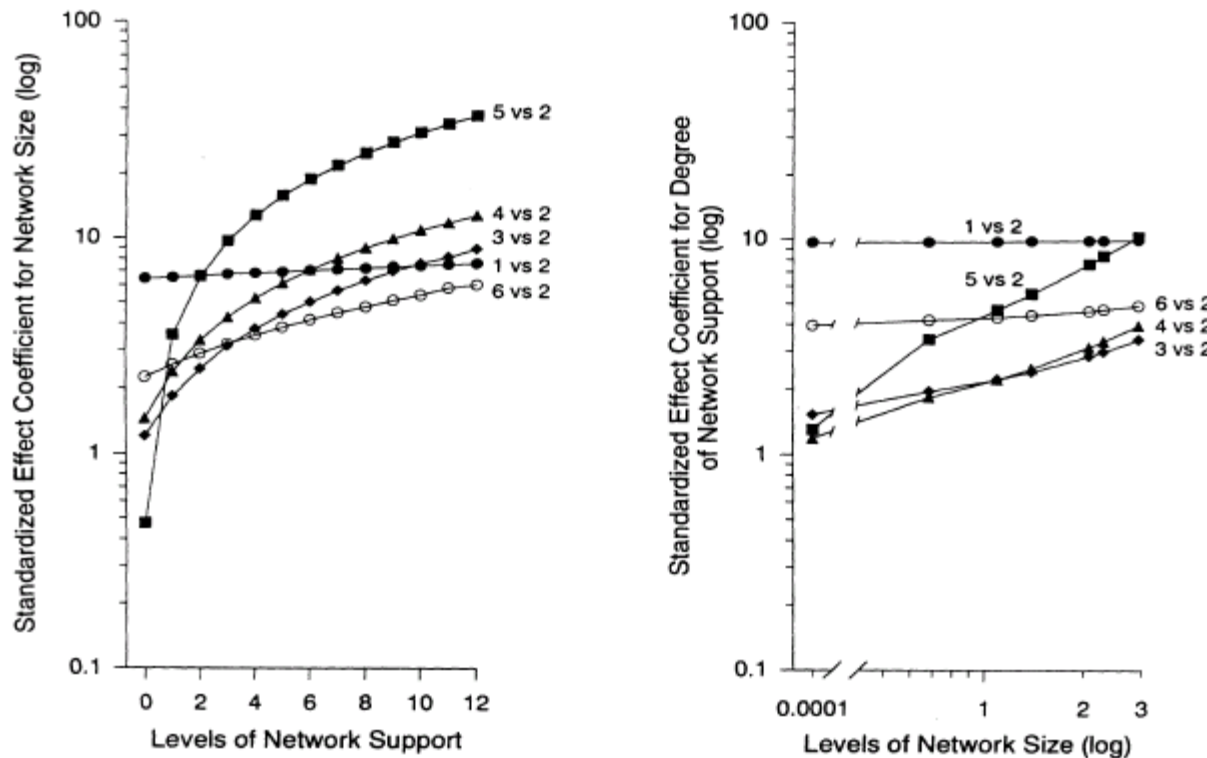


FIG. 3. Effect of network variables on pathways to care (comparison with Pattern 2).

PATTERNS

- 1 = Lay plus GP
- 2 = Direct Specialty Use
- 3 = GP
- 4 = Clergy
- 5 = Lay
- 6 = Lay plus Specialty

Source: Pescosolido, B.A., E.R. Wright, M. Alegría and M. Vera. 1998. "Social Networks and Patterns of Use Among the Poor with Mental Health Problems in Puerto Rico."

Medical Care 36(7): 1057-1072.

Finding #3: Social Networks Shape Pathways to Care But Not in Isolation to Biological Systems

- Social networks interact with type of symptom to shape pathway to care
- Larger social networks are more potent for individuals with bipolar disorder to result in coercive pathway

Source: Pescosolido, B.A., C. Brooks-Gardner and K.M. Lubell. 1998. "How People Get Into Mental Health Services: Stories of Choice, Coercion and 'Muddling Through' From 'First-Timers.'" *Social Science and Medicine* 46(2): 275-286.

Finding #4: Social Networks Operate Differently in Different Contexts

- Kadushin, 1966: people reporting more social networks more likely to use mental health care
 - **Source:** Kadushin, Charles. 1966. "The friends and supporters of psychotherapy: on social circles in urban life." *American Sociological Review* 31:786-802.
- Pescosolido et al., 1998: people with more social networks report lower use of mental health services
 - **Source:** Pescosolido, B.A., E.R. Wright, M. Alegría and M. Vera. 1998. "Social Networks and Patterns of Use Among the Poor with Mental Health Problems in Puerto Rico." *Medical Care* 36(7): 1057-1072.
- Kadushin, 1983: social support networks related to better mental health for Vietnam vets in urban areas; worse mental health for Vietnam vets in rural areas.
 - **Source:** Kadushin, Charles. 1966. "Mental health and the interpersonal environment." *American Sociological Review* 48:188-198.

Finding #5: Treatment Networks Alter the Treatment Process

- More integrated social networks among treatment staff translate into more integrative care.
 - Socially integrated cultures and climates result in greater family involvement

Source: Wright, Eric R. 1997. " The Impact of Organizational Factors on Mental Health Professionals' Involvement with Families." *Psychiatric Services* 48(7):921-927.

Hypothesis: Social Networks Shapes What Happens in Tx and Research

- Jensen, Peter S. et al. 2007. "3-Year Follow-up of the NIMH MTA Study." *Journal of the American Academy of Child & Adolescent Psychiatry* 46(8): 989-1002. [Source for Figure 2]

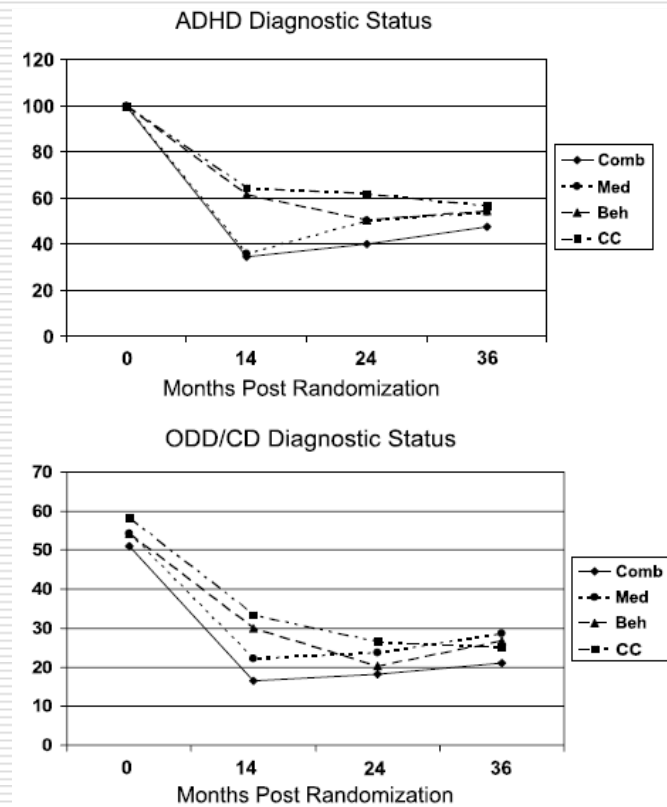


Fig. 2 Percentage of subjects meeting ADHD and ODD/CD criteria from baseline through 36 months. Comb = combination of medication management and behavior therapy; Med Mgt = medication management; Beh = behavior therapy; CC = usual community care.

Finding #6: Tx Organization Types Shape Potential for Recovery and Community Integration

- Supportive (therapeutic community) as opposed to transitional (practical skill development) sheltered care housing \Rightarrow emotional and instrumental networks

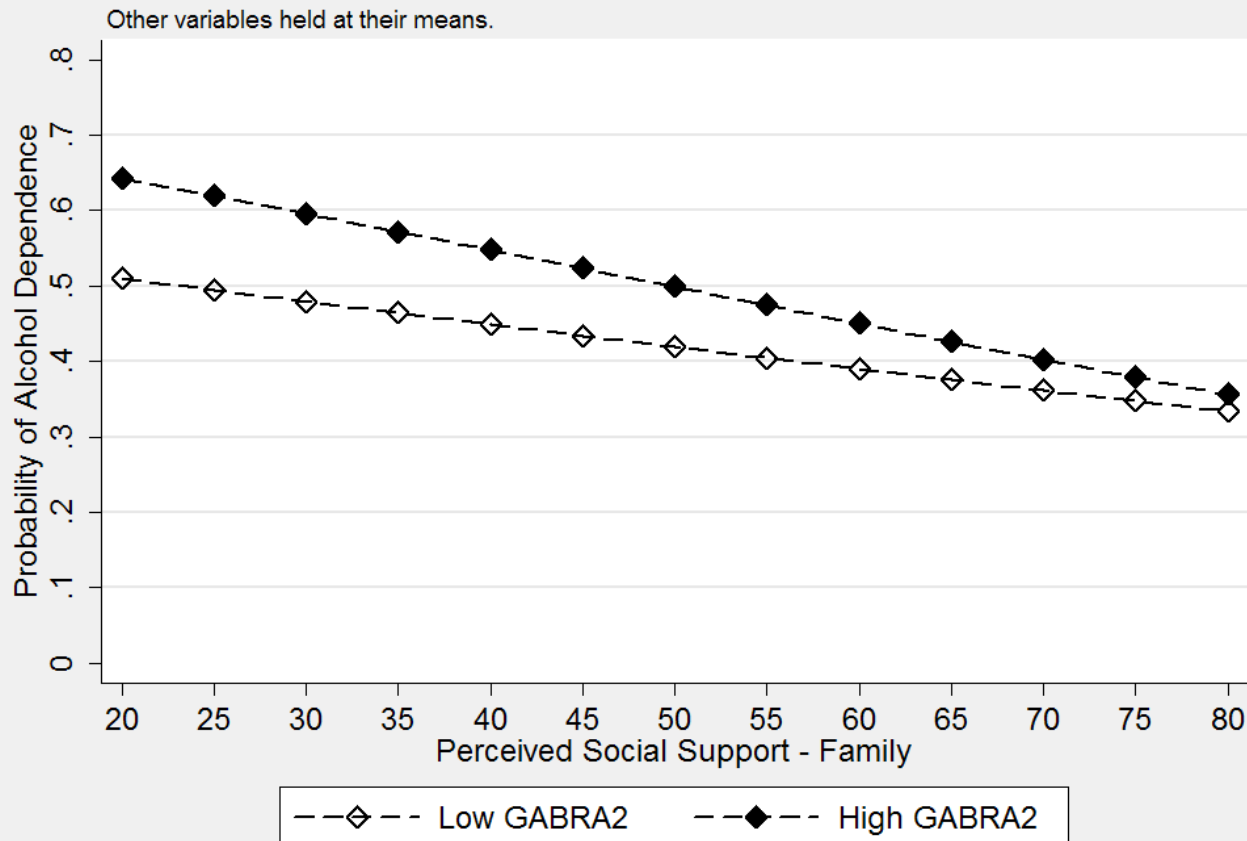
Source: Segal, S. P., & Holschuh, J. 1991. "Effects of sheltered care environments and resident characteristics on the development of social networks." *Hospital and Community Psychiatry* 42(11):1125-1131.

- Institutional care \Rightarrow multiplex social ties

Source: Holschuh, J. and S. P. Segal. 2002. "Factors related to multiplexity in support networks of persons with severe mental illness" *Social Networks & Health* 8:293-322.

- Social Networks symptom reduction, relapse

Finding #7: Network Ties Change Genetic Effects



Source: Pescosolido, B.A., B.L. Perry, J.L. Long, J.K. Martin, J.I. Nurnberger, V. Hesselbrock. 2008. "Under the Influence of Genetics: How Transdisciplinarity Leads Us to Rethink Social Pathways to Illness," *American Journal of Sociology* 114(Suppl.): S171-S201.

Challenges

- Network research revamped measures and analytic techniques
- Inclusion of social network data in RCT, epidemiological survey-based and institutional data collection
- Tailoring network theory and data collection

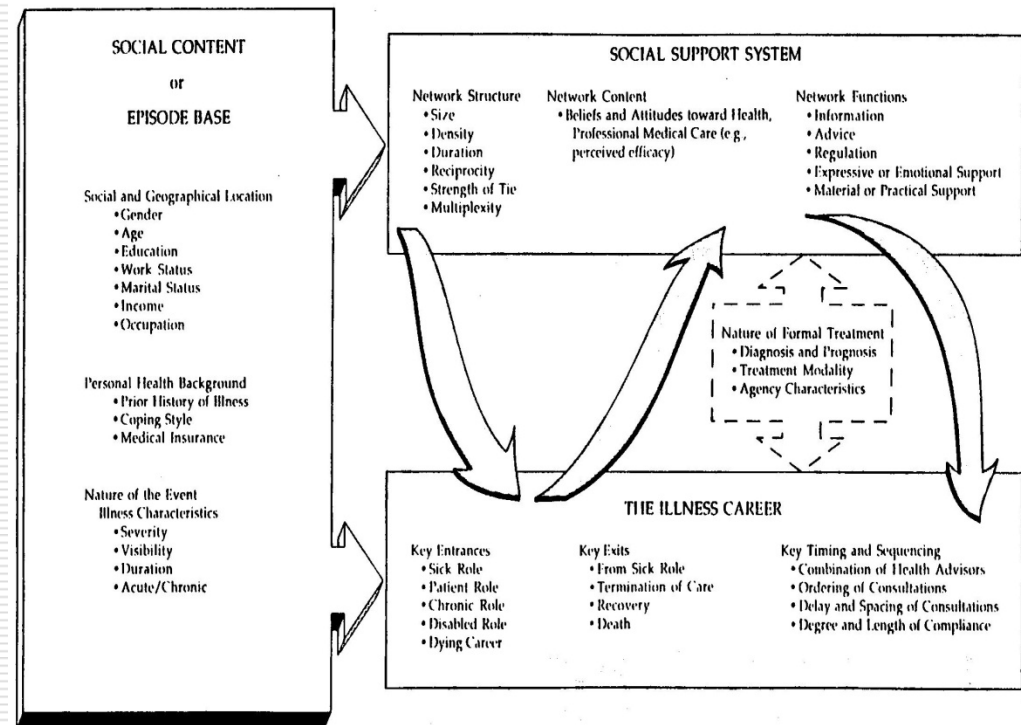
Source: Perry, B.L. and B.A. Pescosolido. 2009. "Functional specificity in discussion networks: Social regulation and the influence of problem-specific networks on health outcomes." Unpublished manuscript.

- Tailored spin offs:
 - Family Network-based Model (Costello et al. 1998)
 - Gateway Provider Model (Stiffman et al. 2004)
 - Socio-cultural Framework of Health Services Disparities (Alegría et al. 2010)
- Network data collection in open systems (The Sampling Problem)



Network-Episode Model – Phase I

- Health care utilization
- Dynamic “illness career”, “patterns” & “pathways”
- Rational choice subsumed as one option in a social influence process

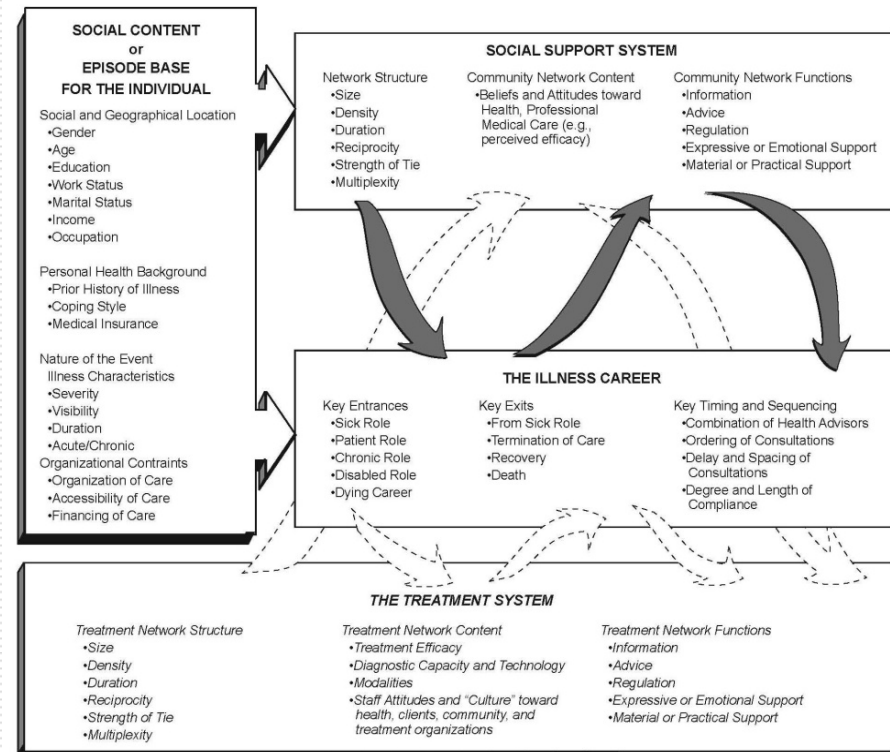


Sources:

- 1)Pescosolido, B.A. 1992. "Beyond Rational Choice: The Social Dynamics of How People Seek Help." *American Journal of Sociology* 97:1096-1138.
- 2)Pescosolido, B.A. 1991. "Illness Careers and Network Ties: A Conceptual Model of Utilization and Compliance." Pp. 161-184 in Gary Albrecht and Judith Levy (eds.), *Advances in Medical Sociology, Volume 2*. Greenwich, Connecticut: JAI Press.

Network-Episode Model – Phase II

- Elaboration of dynamics of treatment, organizational and policy choice
- “Outside,” “Inside” Network



Sources: B.A. Pescosolido and C.A. Boyer. 1999. “How Do People Come to Use Mental Health Services? Current Knowledge and Changing Perspectives,” Pp. 392-411 in A.V. Horwitz and T.L. Scheid, eds., *A Handbook for the Study of Mental Health: Social Contexts, Theories, and Systems*. New York: Cambridge University Press; and Pescosolido, B.A. and C.A. Boyer. 2010. “Understanding the Context and Dynamic Social Processes of Mental Health Treatment,” Pp. 420-438 in A.V. Horwitz and T.L. Scheid, eds., *A Handbook for the Study of Mental Health: Social Contexts, Theories, and Systems, 2nd Edition*. New York: Cambridge University Press.

Network-Episode Model – Phase II

- The elaboration of “contexts”
- Focus on multi-disciplinary integration and synergies
- People as the agents of change
- Networks as the mechanism that connect different levels and processes