Andreas Klärner · Markus Gamper ·
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Social Networks and Health Inequalities

A New Perspective for Research

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Social Network Mechanisms

Andreas Klärner (ID) **and Holger von der Lippe** (ID)

Overview
- Social relationship networks are not standard constructs in either sociology or psychology. The development of theories about their effects on health is still in its infancy.
- We present some central theoretical concepts, as well as empirical results, on network effects under the headings of "social support," "social integration," "social influence," and "social contagion."
- Recent work increasingly finds or emphasizes that a simple notion of social relationship effects on health (such as "a lot of support or large networks help a lot") is probably not very realistic.
- Instead, current studies try to show a picture of network effects that is as differentiated as possible. For this purpose, the minimum requirement is the differentiation of (1) direct vs. indirect and (2) positive vs. negative health effects by (3) different actors or sectors of the network.
- So far, there is little consolidated evidence on this more differentiated consideration of network effects on health, and thus, additional research efforts are necessary.

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1   Introduction

The influence and significance of social networks in health research are becoming widely discussed (Cornwell & Hoagland, 2015; Pescosolido & Levy, 2002; Smith & Christakis, 2008; Valente, 2010, 2015). Sociological network research meets the demand for a stronger consideration of "contexts" or the "environment" that influences health and care (see Pescosolido, 2006). Social networks are conceived as a mediating meso-level, which mediates between social macro-structures (e.g., healthcare systems, institutions, and organizations) and individual (not always) rationally acting actors (cf. Berkman & Glass, 2000 and chapter "Social Networks and Health Inequalities: A New Perspective for Research"). This perspective offers the possibility to analyze a *variety of psychosocial mechanisms.* These mechanisms can influence individual health in different ways, including (health) behavior, psyche, or physiology.

Neither in general sociological and psychological network theory (e.g., Agneessens & Wittek, 2008; Antonucci et al., 2010; Borgatti & Foster, 2003; Erickson, 1988; Friedkin, 2001; Marsden & Friedkin, 1993; Westaby, 2012), nor in the field of research on social network influences on health (e.g., Berkman & Glass, 2000; Martin & DiMatteo, 2017), there is an agreement on which *specific mechanisms* should be distinguished and taken into consideration (for a similar dilemma in the area of fertility research, see Bernardi & Klärner, 2014). From this point of view, the following attempt to distinguish between different mechanisms—social support, social integration, social influence, and (social) contagion—should be understood as a proposal to systematize different mechanisms discussed in the literature.

2   Support, Integration, Influence, and Contagion

The following network mechanisms are distinguished in the network model of health inequalities presented in the introduction to this volume (see chapter "Social Networks and Health Inequalities: A New Perspective for Research"). These mechanisms are presented on the basis of various theoretical approaches and models of the influence of social relationships and social networks on health behavior and the mental and physical factors influencing health. They are social support, social integration, social influence, and social contagion.

According to the current state of research, these terms can be understood as *collective terms* that describe a whole range of other subtypes and partial aspects of social network mechanisms (see the following subsections). We pursue this conceptually open and overview-oriented approach to possible network mechanisms on health in this chapter because networks cannot simply be described as a sociological or psychological standard construct (such as *communities,* organizational teams, informal groups, or families). They lack well-established concepts but have their own logic and dynamics, which are not yet fully understood either theoretically or

empirically. In order to elaborate on the context of these terms, we are guided by the current overviews in Harkins et al. (2017).

2.1 Social Support

Social support is a generic term that refers to the general process of exchange of both tangible and intangible goods and services between related actors. The concept of social support is central to various sociological theories dealing with "social capital" (e.g., Bourdieu, 1986; Coleman, 1988; Lin, 1999. For a more precise definition, see chapter "Social Relations, Social Capital, and Social Networks: A Conceptual Classification".

The positive aspects of social support have so far been particularly highlighted in the field of health research. Thus, numerous studies, which now also include meta-analyses (e.g., Barth et al., 2010; Röhrle & Strouse, 2009; Shor et al., 2013), show that the presence and use of social support increase well-being, reduce the probability of clinical diagnoses, and have a positive influence on coping with diseases (cf. Schwarzer & Knoll, 2007; Uchino, 2006). In a study by Kouvonen et al. (2012), for example, emotional support in the network is correlated with the maintenance of health-promoting leisure activities.

Currently, to our best knowledge, there is no research that looks at social networks in the narrower sense, that is, considering the relationships between the network partners and links between social and health inequalities. However, Vonneilich et al. (2012) found indications that social relationships contribute to the explanation of health inequalities. According to this, people in lower-status groups benefit, especially from social contacts and social support. This can have a positive long-term impact on health. Social support helps to cushion the negative health aspects of low socioeconomic status.

Apart from the positive effects of social support on health and the negative effects in the absence of support, the theoretically presumed negative influence of given and received social support has so far received almost no attention (see chapter "Negative Ties and Inequalities in Health"). On the one hand, giving support to network partners can increase one's own well-being, as social recognition and respect are a consequence of the support provided. Since exchange processes are usually based on reciprocity, giving support also increases the chance of getting support back in the future. On the other hand, giving support can also put a strain on one's own resources (financial, temporal, psychological, etc.). Such stress can be detrimental to one's own health. This is particularly important in close social relationships such as with children, with one's own parents, or with one's partner (Laireiter & Lettner, 1993).

While both social capital and support theory assume that the *extent of* social support is crucial for health effects, some studies point out that not all findings show equally strong effects. Thus, the supposed clarity may need closer examination, especially with regard to the composition and structure of support networks. For

example, the study by DiNicola et al. (2013), based on a survey of more than[1] 400 COPD patients, found that a high level of practical support that was received through the network even engendered higher anxiety in the patients. However, it seems important to know *from which concrete sources* such support comes and also *what specific form of support* is provided. For example, Huxhold et al. (2010) with data from the representative German Ageing Survey (DEAS) found that, as expected, the instrumental support received from *friends* or *acquaintances* increases subjective well-being among older people, whereas the same form of support reduces well-being when it is provided by *relatives*. For other forms of social support, this does not seem to apply in the same way. For example, Primomo et al. (1990) found, on the basis of a study of 125 depressed women, that emotional support (*affirmation*) provided by family members has a positive effect on recovery, but the same support provided by friends has no effect.

Overall, there is apparently a need for more differentiated studies, for example, network analytical support studies, in order to be able to name the different mechanisms of action more clearly. In contrast to the positive correlation between support and health, Gleason and Iida (2015) recently concluded in a relevant overview that support services, if observed in practice, can have negative or no effects on health measures more frequently than previously assumed—for example, if the recipient considers himself or herself dependent or feels compelled to provide something in return. Thus, the authors conclude with numerous necessary improvements in current support research, such as a clearer distinction between beneficial and harmful and between direct (e.g., emotional and instrumental) and indirect (e.g., intentional withdrawal and disregard for support wishes) support. In our view, the differentiation of different sources of support by actors or sectors in networks also appears to be an important further addition.

2.2   Social Integration

The mechanisms subsumed under the concept of social integration (cohesion) focus on the fact that people, as social beings, react not only functionally (e.g., through support or direct pressure from others) but also emotionally and conatively (action-related, e.g. "social gathering") in order to contact and exchange with other people and to gain their recognition (*social validation*). For a more precise definition, see chapter "Social Relations, Social Capital, and Social Networks: A Conceptual Classification".

Social recognition by other network partners (these can be individuals, but also institutions), or involvement in groups and the expression of appreciation for one's own person can have a considerable positive influence on self-confidence and thus on well-being. In the event of the absence or failure of this appreciation, or more

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[1]COPD means "chronic obstructive pulmonary disease," i.e., a chronic lung disease caused by narrowing of the airways. This disease does not completely disappear even after treatment.

generally, a lack of social integration, negative consequences for self-esteem can arise, which can lead, among other things, to depressive symptoms (Okamoto et al., 2011).

A classic field of investigation on this topic can be identified in loneliness and social isolation research (e.g., Elbing, 1991). Even the early studies by Berkman and Syme (1979) were able to demonstrate higher mortality among socially less integrated persons. But from a network perspective, the concept of integration goes well beyond the "quantity" of social relationships, because a connection between network position (central/marginal/isolated) and behavior can also be shown. For example, socially isolated persons are more likely to smoke (Seo & Huang, 2012). One of the few studies dealing with the relationship between networks, social inequalities, and health found that homophilia, that is, contact with socially similar persons, increases with socioeconomic status and slightly reduces smoking (Lorant et al., 2017). Kawachi and Berkman (2001) report an initially paradoxical effect, according to which a higher number of relationships are associated with an increase in symptoms of mental illness. They find this to be the case for women with limited socioeconomic resources and especially when these relationships are linked to the social obligation to provide support for others themselves.

Social integration in kinship and friendship networks or in (semi-)institutional contexts such as volunteering and civic engagement can have a buffer effect, like social support, and alleviate stress, feelings of isolation, and so forth. In the area of research on negative health effects of long-term unemployment, it has been shown that the lack of social integration and social isolation is associated with depression and health-damaging behavior. On the other hand, integration in social contexts is associated with positive health effects (see Gore, 1978; Schwarzer et al., 1994; Avison, 2001): Social engagement and an active social network contribute to a sense of belonging, which in turn can lead to an improved ability to deal with the consequences of mental illness (Argentzell et al., 2012).

This raises the question of *why* social embedding can actually have these positive effects. Two socio-psychological mechanisms have been formulated in the relevant literature: *social facilitation* and *social inhibition* (McCarty & Karau, 2017). Both describe the phenomenon that the probability of individual (health) behavior can be increased (*facilitation*) or reduced (*inhibition*) by the presence of others. In the health context, this network effect can be observed more frequently, for example, when individually desired but costly behavior (e.g., healthy diet and regular sport) becomes more likely if it is undertaken together with others. Conversely, individually undesirable but probable behavior can be reduced by the presence of others, for example, when the smoker abstains from consumption in the presence of non-smokers and the alcohol consumer controls his consumption in the presence of others. Here, a proximity to the concepts of social influence is evident—the important difference being that the mechanisms of social integration do not examine direct effects on health, but rather the incidental and indirect consequences of integration or sociability.

Another mechanism discussed in social contexts may be the so-called *groupthink* (McCarty & Karau, 2017). This refers to the effect that usually occurs in closely

linked network segments (e.g., cliques, and families) when, over time, certain information or attitudes regarding a questionable behavioral option are formed between all participants with insufficient consideration of their risks. In the school context, this has been studied in *peer groups*. *Groupthink* describes school friends, for example, who, as they spend more and more time together, come to the shared conclusion that the risks of consuming illegal substances are generally overemphasized and that it is therefore worth giving it a try. For instance, in a given clique each individual has differing opinions on a specific topic, but then, over a period of time, they all gradually come to adopt the group consensus. That change would be an example of a groupthink effect, which could have positive or negative effects on individual health.

2.3 Social Influence (Learning, Pressure, Comparison Processes)

Social influence is a collective term for processes that are difficult to differentiate from one another, in which actors in the network consciously or unconsciously influence one another with their actions, presence, or absence. Social learning and *social pressure* (also *norm enforcement* or *injunctive norms*) as well as *social compliance* (i.e., the individual willingness to comply with social influences, also *norm adherence*) as possible network mechanisms will be discussed below.

S*ocial learning*—the process of adopting, exchanging, or jointly evaluating information and observed actions—is an important mechanism in the field of social influences in a network. Social learning is a concept that is firmly established in social psychology (cf. e.g., Miller & John Dollard, 1941; Bandura, 1962) and can, for example, consist of the adoption of a certain health-related behavior (e.g., trampoline jumping, cycling, and smoking) by other network partners. The assumption is that individuals observe the actions and behavior of others and learn from their experiences. The more often a health-related behavior occurs in the network, the higher is the probability for the individual to observe it and try it out for himself. The term "descriptive norm" describes the result of such an observation: *"Descriptive norms are theorized to describe what most people do in a given situation"* (Guadagno, 2017, p. 119) For example, a study with 2643 individual observations of staircase vs. elevator use by American students in a three-story university building showed that, by putting up a sign indicating the positive health effects of climbing stairs, elevator use slightly reduced from 15.1% to 13.3% (Burger & Shelton, 2011). The same sign in the control conditions indicating that "over 90% of all people here use the stairs" had a significantly stronger effect, namely a reduction from 15.3% to 8.2%.

Individuals can accept or reject (consciously or unconsciously) observed behavior and action models from others, or they can see the consequences of various actions in the "model." Social learning leads to individual behavioral change when

observations, information transfer, and/or discussions within a network change the views of individuals about the feasibility and consequences of certain actions and thus their own attitudes and intentions or intentions for action. In the area of behavioral innovations, for example, the consequences of a new "health trend," individuals are receptive (*susceptible,* Nezlek & Smith, 2017), reticent, or hostile in different ways and intensities, depending on their social position in the network and their personality (cf. Rogers, 2003).

From a network perspective, social learning is dependent on the nature of relationships and the relationship structure in a network. Numerous studies in the field of diffusion of information, as well as technical and social innovations, have shown that especially weak relationships and less dense networks or parts of networks have a special importance in the *diffusion of* new information or innovations (*diffusion of innovation*, e.g., Granovetter, 1974; Rogers, 2003).

Social pressure (sometimes also: *norm enforcement* or *injunctive norms*, see Nolan, 2017) is a term established in sociology and social psychology that describes the process of directly inducing individual actors to act in conformity with the social norms accepted in a reference group through social interaction. This process is undergone, for example, in order to gain recognition in the group or to avoid conflicts with their *peers* (compare the classic works of Festinger et al., 1950 and Asch, 1955). Social norms can apply across cultures, be specific to certain cultures or institutions/organizations, be formulated more or less explicitly, and be accepted to a higher or lower degree. Norms can change over time, such as the expectations linked to certain gender roles (cf. Popitz, 2006). The chance of deviating from norms (and for innovations) is lower in highly interconnected, particularly dense and manageable networks because they are shared by socially similar actors and because sanction mechanisms can be more easily used to demand norm-compliant behavior.

The influence of social pressure is effective in terms of health behavior and can have both positive and negative effects by aiming to maintain or discontinue behavior that is harmful or beneficial to health. The effect of social pressure depends on the structure of the network. In addition, the assessment of the pressure by the actors and the question of retreat, avoidance, or avoidance options play a role (Taylor, 2015).

Social pressure, which has a health-promoting effect, can consist of network partners (e.g., spouses) making sure that people close to them in the network take physical symptoms seriously and see a doctor. Pressure that promotes unhealthy behavior can be exerted by groups of friends and peers, for example, by mocking abstinence from alcohol and other harmful substances. In these cases, membership of a social circle can only be maintained if unhealthy behavior is maintained. This is particularly effective when there are no alternative circles in which social recognition can be achieved by other means (see above, Sect. 2.2). For this purpose, the "classical" psychological learning theories, such as conditioning or model learning, are discussed in the health context (e.g., Taylor, 2015, pp. 51–53).

However, even "well-intentioned" social pressure to stop certain harmful behavior or consumption patterns, or to adopt health-promoting behavior, can have negative, unintended consequences, for example, if it is experienced as a restriction

to one's own freedom and actors deliberately act in opposition to each other (reactance). Social pressure itself can generate stress and thus have a detrimental effect on health, for example, when pressure is exerted by close network partners in order to obtain certain support services and thus financial dependencies arise.

In particular, strong, emotionally close, and multiplex relationships are effective in exerting social pressure because they have a higher power of sanction. Pressure is likewise particularly strong in dense and homogeneous networks in which all network partners know each other and in which commonly shared attitudes are assumed. Peer pressure occurs with a higher probability in homogeneous networks than in less dense, heterogeneous networks, particularly if individual network partners do not act in accordance with the social norms or behavioral patterns that apply in these networks (cf. Burt, 1983; Marsden, 1987; Coleman, 1988). A higher density makes it easier to control individual behavior (deviating from the group norm) and to coordinate incentives and sanctions.

Besides social learning and social pressure, other forms of social influence are conceivable on the health and well-being of actors. For example, problems of network partners, such as chronic and other serious diseases, drug addiction, debt, and long-term unemployment, can also become problems of ego and other network partners who are not directly affected. Particularly in close, intimate relationships or in parent–child relationships, it is typical for problems of this kind from one person in the network to have far-reaching health-related effects on other network members (so-called *spillover effects;* Wendt et al., 2008).

The previous remarks on mechanisms of influence or pressure in relationship networks were conceived strongly under the direction of the effects of social relationships on the individual, but such effects are also examined in the opposite direction. The concepts of *social compliance* or *social conformity* (Guadagno, 2017; Hodges, 2017) serve as examples of this different view. Conformity refers to an individually initiated or intended change in (health) behavior with the aim of achieving agreement with others. Social compliance describes a conscious individual (health) behavioral change that occurs as a direct response to a request from others. The exact conditions and mechanisms of necessary or sufficient conditions for health-related behavioral changes are the subject of research. Current research shows the importance of so-called *local dominance* for both mechanisms (Suls & Wheeler, 2017, p. 82). This means that emotionally close and self-similar (homophile) relationships in the network have a high significance for conformity and consent effects. General descriptive or injunctive norms induce individuals to conformity or consent, but these effects are intensified if—according to a frequent operationalization in current research—the five most important reference persons of a respondent are named as the source of these norms.

2.4   Social Contagion

Research on social contagion focuses primarily on the *concrete mechanism of direct* (physical, emotional, unconscious) *transmission of* health-related entities (pathogens, affects, motives) between actors. The classical form of contagion in a narrower sense (without the adjective "social") means transmission through physical, direct, or indirect contact between carriers of pathogens (viruses, bacteria, etc.). A distinction must be made for social contagion in a broader sense.

Since the 1980s, numerous studies on the spread of communicable diseases such as AIDS/HIV, tuberculosis, malaria, or Ebola have made use of the findings and methods of network research (cf. Klovdahl, 1985; Hagel et al., 2017; Read et al., 2008). Central positions in a network, that is, individuals (groups) or institutions that are connected to a large number of actors, and *bridges* between different subpopulations are of particular importance for the spread of diseases—and also the containment of diseases, for example, through immunization and education programs. School-aged children are particularly at risk from respiratory infections because of the higher number of contacts compared to adults (Mossong et al., 2008). From a social epidemiological perspective, however, poor hygiene and infectious diseases have probably only been a minor cause of the (re)production of health inequalities over the past 40 to 50 years (Bartley, 2017, p. 108).

Social contagion is understood to be the process by which one person takes over an idea, motive, or behavior from another person (Burt & Janicik, 1996), usually assuming the social similarity between the two actors as a prerequisite for this transfer, which makes the takeover more likely. Socio-epidemiological studies have shown that network partners often behave similarly and exhibit similar health risks (eating habits, obesity, physical activity, smoking) (Christakis & Fowler, 2007; Fletcher et al., 2011; Macdonald-Wallis et al., 2012; Tay et al., 2013; Valente, 2015). These findings are often explained by the mechanism of (social) *contagion,* whereby it is seldom clear how exactly the social contagion processes take place or have an effect.

The process of social contagion is first of all dependent on the structures or social networks in which the actors are embedded. The frequency and intensity of contact with other persons or groups increase the probability of contagion. The more complex and unclear the structure is, the less likely it is that social similarities are perceived and contagion processes are triggered. It is not always possible to differentiate between the mechanisms of social learning and of social pressure, and the purely metaphorical use of the term is criticized (Lois, 2013).

One way of distinguishing social contagion from the abovementioned phenomena of social integration is to refer to the social–psychological concepts of *emotional contagion* and *mimicking* (Hodges, 2017; Bernardi & Klärner, 2014). This makes it clear that this is not about facilitating or complicating behavior that is already intended. Rather, emotional contagion describes the observation that individuals can spontaneously absorb emotional moods and associated behavior (laughter, crying, fear, joy, excitement, etc.) from other individuals or groups with whom

they come into contact (cf. Lippitt et al., 1952; Hatfield et al., 1994). Imitation refers to the unconscious or unnoticed adoption of attitudes, goals, or behaviors of others (Aarts et al., 2004; Marsden & Friedkin, 1993). Although this process is often described as unconscious, it is nevertheless selective, meaning that it follows certain patterns: It increasingly imitates other people who are perceived as reliable and are self-similar (homophile) or part of a close clique (Hodges, 2017). This mechanism thus emphasizes that behavior in complex social environments such as social networks can be influenced even below the threshold of one's own perception or consciousness, which consequently puts the rationality assumptions underlying some sociological theories of action into perspective.

The mechanisms of emotional contagion and imitation are placed in a context of rather short-lived and concrete social situations (e.g., a cheering concert audience), but there is evidence that longer-lasting emotional states, such as happiness or loneliness, also spread in social networks (Cacioppo et al., 2009; Fowler & Christakis, 2008; Hill et al., 2010). Martin and DiMatteo (2017) state that "[...] The social influence of health-relevant behaviors often goes largely unrecognized by the individual" (p. 386). They illustrate this with the example of research on food intake: Hetherington et al. (2006) were able to show, on the basis of an experimental study with 37 adults, that eating together with strangers consumes more calories on average than eating alone, although none of the respondents were aware of this effect. Salvy et al. (2009) showed on the basis of an experimental design with 54 adults that physical activity with others can be a suitable substitute for food intake. And Bleich et al. (2012) found on the basis of a representative survey with 500 American general practitioners that with the same education and formal qualification, those physicians with a body mass index in the normal range were significantly more successful in getting their patients to lose weight than the obese physicians—another example of a subliminal contagion mechanism.

3   Conclusion and Outlook

From this compilation of general mechanisms of action in social relationship networks—along the lines of the collective terms "social support," "social influence," "social integration," and "social contagion"—it becomes clear that social networks can be multifaceted and indiscriminating in their effects. In other words, they can have both detrimental and beneficial effects on health. Social relationships and integration in social networks can not only support health, but can also be accompanied by negative role models or even conflicts between individual network actors or (sub)groups in these networks, which can have direct and indirect negative health consequences. These ambivalences and the health-damaging effects of social relationships are discussed in more detail in the chapter "Negative Ties and Inequalities in Health".

With regard to the current state of research on the mechanisms of social networks in the context of health and health inequalities, the conclusion is twofold. On the one

hand, the current literature provides a sufficient amount of evidence pointing to the fundamental importance of social network effects for research and practice, or as Martin and DiMatteo (2017) recently summarized that "The use of social influence processes holds a good deal of promise in fostering health behavior, in individuals as well as in populations. The influence of **family members, friends, peers, and even perceived others** can be harnessed to maximize positive health behaviors across all developmental periods" (p. 390).

On the other hand, this fundamental promise has not yet been satisfactorily tackled, fulfilled, or implemented in many areas of research. An integrative model that places all the concepts and effects presented in a common context, delimits them, and also specifies them is still lacking. In our opinion, some of the conceptual ambiguities that we have found so far, which we have hinted at above, for example, in the close overlap between social integration and social contagion or the variety of constructs for social influence, are due to the low level of integration of the various disciplines involved. Heesacker (2017) also attributes this to the previous distance between the disciplines involved: "Arguably the most important future direction in this area is refocusing the efforts of social influence scholars back onto clinical applications of social influence theory and research" (p. 373).

Thus, the four collective terms we have chosen are quite heuristically useful for structuring the confusing field of social mechanisms of action in relationship networks. We have found that *social support* is a collective term that refers to packages of comprehensive support services for the individual (see also chapter "Social Relations, Social Capital, and Social Networks: A Conceptual Classification"). While there is already meta-analytical evidence for this collective term, which, still differs in the numerical strength of the identified health effects (between weak and moderate effects), two aspects in particular remain as research desiderata. Firstly, it remains unclear whether social support is a causal, concomitant (mediator/moderator), or a resulting variable of health inequalities. This is therefore the question of the conceptual location of social support in research on health inequalities. On the other hand, the question of the concrete partial effects of different network segments needs clarification. As we have seen, sometimes specific support services provided by concrete subsegments of a network seem to have consistently positive effects, but other services provided by other subsegments may also have negative health effects.

With regard to the collective term *social influence* as a generic term for direct health effects in the social context, we have distinguished social effects in the form of descriptive and injunctive (pressure) norms from the special individual prerequisites of *susceptibility, conformity, and compliance* for them. The consideration of network-person interactions seems to be particularly appropriate for further research, which to our knowledge has not been adequately implemented thus far.

However, indirect health effects whereby the individual being embedded in various relationship contexts in the forms of sociability, social engagement, associations, or work contexts ("embedding" was Granovetter's famous term) also seem to be a future field of research that should not be underestimated. In this research area of *social integration,* we are less interested in direct health effects (e.g., in the form of norms) than in previous areas. Instead, we are looking at the extent to which social

recognition and appreciation as well as the socio-psychological effects of *facilitation, inhibition, or groupthink* can indirectly contribute to or make less likely the promotion of psychological well-being, but also behavior that can strengthen or weaken well-being in the long term.

While the first three collective terms are appropriate for the research-sided search for network factors for health inequalities, the fourth collective term of *social contagion* deals directly with possible and direct effects mechanisms beyond this. The empirical reconstruction of how and at what speed concrete pathogens or health-relevant motives, emotions, or ideas diffuse in relationship networks (often below the threshold of consciousness of individuals) points to further important research aspects that can supplement the aforementioned research on the effect factors of social relationship networks.

The need for a general, economical, and selective theoretical model is certainly not satisfied. If future research takes greater account of the distinctions that have been called for, especially between (1) direct vs. indirect and (2) positive vs. negative health effects caused by (3) different actors or sectors of the network, the theoretical situation should also be clarified and standardized as the number of empirical findings increases. Here, we see the interdisciplinary connectivity of the paradigm of social network research as particularly called for and suitable to initiate these future steps and to formulate them more concretely than before.

Reading Recommendations

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