








SOCIAL NETWORK MAP: A TECHNOLOGY FOR THE APPROACH TO PEOPLE WITH PULMONARY TUBERCULOSIS

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ABSTRACT

Objective: to understand the primary social network map as a technology for the approach to people with pulmonary tuberculosis.

Method: a qualitative study, grounded on the Social Network theoretical-methodological framework and carried out from January to February 2020 with 32 individuals diagnosed with pulmonary tuberculosis at Basic Health Units in Rio de Janeiro, Brazil. The data were collected in semi-structured interviews by means of a script to characterize the participants and prepare the social network map. The content analysis technique was used.

Results: in the representation of the maps there was presence of a strong connection between the participants and the members of their primary network, comprised by family members, close friends and colleagues. In this interpersonal experience, the types of support received were especially emotional and/or material.

Conclusion: using a social network map as an approach technology proved to be innovative and original with regard to the care provided to people with pulmonary tuberculosis, allowing health professionals to carry out their care practice in an integrated way with members of this network, especially those who may assist in care, prevention of abandonment and treatment of the disease.

DESCRIPTORS: Social network. Social support. Pulmonary tuberculosis. Technology. Nursing.

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MAPA DA REDE SOCIAL: TECNOLOGIA PARA ABORDAGEM DA PESSOA COM TUBERCULOSE PULMONAR

RESUMO

Objetivo: compreender o mapa da rede social primária como uma tecnologia de abordagem à pessoa com tuberculose pulmonar.

Método: estudo qualitativo, fundamentado no referencial teórico-metodológico de Rede Social, realizado com 32 pessoas com diagnóstico de tuberculose pulmonar, em Unidades Básicas de Saúde do Rio de Janeiro, Brasil, de janeiro a fevereiro de 2020. Os dados foram coletados em uma entrevista semiestruturada, por meio de um roteiro para a caracterização dos participantes e elaboração do mapa da rede social. Utilizou-se a técnica da análise de conteúdo.

Resultados: na representação dos mapas, observou-se a presença de vínculo forte dos participantes com os membros da sua rede primária, composta por familiares, amigos vizinhos e colegas. Nessa vivência interpessoal, os apoios recebidos foram especialmente o emocional e o material.

Conclusão: a utilização do mapa da rede social como uma tecnologia de abordagem mostrou-se inovadora e original no que tange à assistência da pessoa com tuberculose pulmonar, permitindo ao profissional de saúde exercer sua prática assistencial de forma integrada com membros dessa rede, especialmente aqueles que poderão auxiliar no cuidado, prevenção do abandono e tratamento da doença.

DESCRITORES: Rede social. Apoio social. Tuberculose pulmonar. Tecnologia. Enfermagem.

MAPA DE REDES SOCIALES: TECNOLOGÍA PARA EL ENFOQUE HACIA PERSONAS CON TUBERCULOSIS PULMONAR

RESUMEN

Objetivo: comprender el mapa de la red social primaria como una tecnología para el enfoque hacia personas con tuberculosis pulmonar.

Método: estudio cualitativo fundamentado en el marco teórico-metodológico de las Redes Sociales y realizado en enero y febrero de 2020 con 32 personas diagnosticadas con tuberculosis pulmonar en Unidades Básicas de Salud de Río de Janeiro, Brasil. Los datos se recolectaron en entrevistas semiestructuradas, por medio de un guión para caracterizar a los participantes y elaborar el mapa de las redes sociales. Se empleó la técnica de análisis de contenido.

Resultados: en la representación de los mapas se observó la presencia de un fuerte vínculo entre los participantes y los integrantes de su red primaria, compuesta por familiares, amigos, vecinos y colegas. En esta experiencia interpersonal, los tipos de apoyo recibidos fueron especialmente el emocional y el material.

Conclusión: utilizar mapas de redes sociales como tecnología de enfoque demostró ser innovadora y original en lo que respecta a la asistencia brindada a las personas con tuberculosis pulmonar, permitiendo así que los profesionales de la salud ejerzan su práctica asistencial en forma integrada con integrantes de dichas redes, especialmente los que podrán asistir en la atención, prevención del abandono de la terapia, y tratamiento de la enfermedad.

DESCRITORES: Red social. Apoyo social. Tuberculosis pulmonar. Tecnología. Enfermería.

INTRODUCTION

At the global level, around 10 million people suffer from tuberculosis (TB) annually, a disease that is among the ten main causes of death according to the World Health Organization (WHO). In this context, Brazil is in the list of the 30 countries with high TB and TB/HIV burden; in addition, 73,864 new cases of the disease were recorded in 2019. The highest incidence coefficients of the disease in the country are mainly found in the states of Amazonas and Rio de Janeiro¹⁻².

In Brazil, social problems faced by people with TB are common, such as unemployment, low schooling levels, use of psychoactive substances and alcohol consumption³. This reality often results in treatment abandonment, leading to evolution of the disease to the multidrug-resistant form and/or continuity of the transmission chain³. The individual's primary social network – people who are part of their social circle – strongly influences their actions, decision-making and initiatives, especially in the TB treatment⁴.

A social network is a variety of interpersonal relationships that determine a person's characteristics: habits, costumes, beliefs and values, among others. Once inside this network, a person has the possibility of receiving emotional and financial support, as well as related to services and diverse information. This network can be divided into primary and secondary. The primary network, on which the current study is focused, substantially consists of people who share an affective bond of reciprocity and trust: family members, relatives, friends, colleagues and neighbors, among others. In turn, the secondary network is made up of institutions, whether formal or informal, public or private, health, education, prisons and non-profit organizations, among others⁵.

Elaboration (design) of the network map allows for a graphic visualization of its structural dimension, using geometric figures to illustrate the network elements in different colors, and the representation of the types of possible connections, namely: normal, strong, weak, conflicting, broken, interrupted, discontinuous or ambivalent. Such connections are symbolized by lines of different shapes and widths, following the theoretical-methodological framework proposed⁵.

Studies in the health area are based on this method. For example, a research study addressing the importance of a primary social network in the context of breast cancer diagnosis and surgical treatment in women, based on elaboration of the social map, concluded that socio-family support constituted a propulsive element in diagnosis. In this phase, women need stimulation, courage and help to continue their path in the treatment and rehabilitation process⁶. In another study, depicting the context of Nursing care for breastfeeding women, elaboration of the puerperal map evidenced the predominance of female figures of family members beside them, occupying the first place of reference⁷. Both studies point to using the social network framework as a strategy to produce diverse evidence and, through it, propose actions for people's health care.

However, there are still gaps in the national and international literature regarding the approach to the primary social network of people diagnosed with TB, as well as in the use of technology to map this network, rendering the current research relevant.

In this perspective, the following objective was defined: To understand the primary social network map as a technology for the approach to people with pulmonary tuberculosis.

METHOD

A descriptive-exploratory study of a qualitative nature, based on the Social Network theoretical-methodological framework⁵ and that followed the criteria for reporting qualitative studies set forth in the *Consolidated Criteria for Reporting Qualitative Research* (COREQ).

The research participants were 32 individuals diagnosed with pulmonary TB, selected at two Primary Health units by means of non-probabilistic convenience sampling. The units selected were among those with the highest number of notifications of TB cases in the municipality, according to the epidemiological data presented in the Information System for Notifiable Health Problems (*Sistema de Informação de Agravos de Notificação, SINAN*)⁸. The inclusion criteria for the participants were as follows: 18 years of age and undergoing treatment for pulmonary TB during the data collection period. The subjects excluded were those that were in no due physical and/or psychological conditions to take part in a semi-structured interview. There were withdrawals or refusals to participate in the research.

The instrument for data collection consisted of a questionnaire related to the socioeconomic characterization, and the question “Tell me who the people present in your life are at this phase while you are undergoing TB treatment (relatives, neighbors, friends and colleagues, people from associations and institutions or from the work environment)”, which guided elaboration of the map design corresponding to the primary social network by the researcher in partnership with the participant.

An interview script was also applied, addressing the social networks of people with TB, with the following guiding question: “What type of support do you receive or have received from those people?”

The design was prepared resorting to the graphical representation⁵ shown in Figure 1.





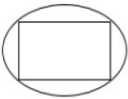








Types of Network	Types of Connection
Primary Network: (Reciprocity) 	Normal: 
Secondary Network: (Rights exchange) 	Strong: 
Informal Secondary Networks: (Solidarity) 	Weak: 
Secondary Networks from external sectors: (NGOs and associations) 	Conflicting: 
Market Secondary Networks: (Employment) 	Interrupted: 
Mixed Secondary Networks: (Private hospitals) 	Broken: 
	Non-continuous: 

Figure 1 - Representation of the types of networks and connections.⁵

The semi-structured interviews were conducted in January and February 2020 by a team of duly trained researchers after the pilot test. The data were collected in the unit itself, when the participants attended the previously scheduled appointments.

At the end, the statements were transcribed and identified with the letter P (for Participant), followed by an Arabic numeral corresponding to the order of the interview, in order to guarantee the participants' anonymity.

The content analysis technique was used for the pre-analysis of the material, when the materials were read with the following purposes: apprehension of the materials' peculiarities; exploration of the

materials, seeking to analyze what was implied and identify the thematic units; and elaboration of an interpretative synthesis, with a view to identifying the empirical categories⁹.

Subsequently, each design prepared during the interviews was digitized, following the graphical representation of the theoretical-methodological framework⁵, making it possible to identify the types of connections established between the participants and the members they mentioned. In addition to that, it allowed characterizing the extension of the participants' network of relationships during the treatment period, as small (up to 9 people), average (from 10 to 30) or large (with more than 30 members)⁵.

The study followed the guidelines and standards set forth in Resolutions N^o. 466 of 2012 and N^o. 510 of 2016 of the National Health Council, and was approved by the Ethics Committee in Research with Human Beings. All the research participants signed the Free and Informed Consent Form.

RESULTS

The study participants were 32 individuals diagnosed with TB and undergoing treatment, mostly male (22 [68.7%]) and aged between 19 and 82 years old, with a mean of 40. Regarding the socioeconomic characteristics, most of the participants declared themselves single (14 [46.8%]), with incomplete Elementary School (12 [40.6%]), working (18 [59.3%]) and with family incomes between zero and half a minimum wage (16 [53.1%]).

Elaboration of the social network map allowed having a clearer view about the relational context in which users undergoing TB treatment were inserted. Figure 2 presents the synthesis of the maps corresponding to all 32 participants, consisting of the main members cited in relation to the primary network and the connections established during the treatment.

The family members mentioned were spouse, child, mother, father and brother/sister, the strong connection being the most reported to represent the relationship between these members and the participants. With regard to relatives and friends, the most cited connection was the strong one; and for neighbors and colleagues, the most mentioned was the normal connection. In relation to the extension of the primary networks, they are characterized as follows: average, most of them (21); small (9); and large, only 2.

Two categories were evidenced based on the qualitative analysis of the answers given by all 32 participants, namely: emotional support, material support, and absence of support.

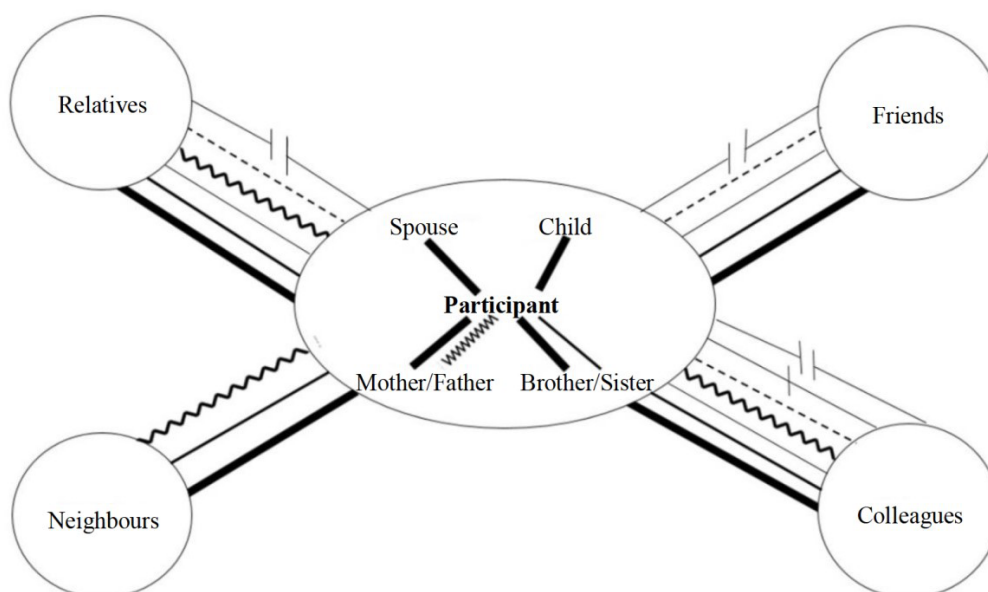


Figure 2 - Synthesis of the maps corresponding to the primary social networks of the 32 individuals with TB. Rio de Janeiro, Brazil, 2020.

Emotional support

Emotional support was characterized by words of encouragement, in addition to demonstrations of affection and concern towards the users.

[...] *wow, they... Kind of, when I was under the weather, they were the base, the support you need. You want to hear something like this: Ah, you're strong; you can handle that; you've already gone through worse things. It's those people (P1).*

[...] *support consisted in hugging me. A more emotional type of support. The same thing. They kept hugging me and giving me strength and saying: we are here with you. Everyone (P9).*

[...] *darn, the support was total. My husband, who got scared, supported me a lot, took great care of me in the first days, which were horrible, but I got his full support. Really calm, it was really calm. More emotional, really emotional (P13).*

[...] *all the types you can imagine. Moral, support that, you know... sometimes you don't just need money, sometimes you need a hug, a word, that's what they do. My brothers, needless to say, my brothers are the best! Nothing to say about my brothers. Psychological, emotional, spiritual, you know? If I need money, anything, my brothers are there, all of them (P16).*

[...] *they gave me a lot of affection, they went to my house to see how I was doing; they told me to get out of bed, because I didn't want to get out of bed... Then I started to go back to normal (P20).*

[...] *I have a friend that I consider like a brother, because he was responsible for me seeking treatment for TB. More than a friend (P30).*

Material support

Material support corresponded to financial support, shelter and help with the costs related to food, hygiene and transportation, among others.

[...] *guaranteeing all kinds of help, financial or any other, in what they could help like that, what they (a couple of friends) could do, for the material things (P2).*

There's my aunt, who helps me a lot with my daughters, even financially, during the period with no income (P10).

[...] *if I need money, I borrow it, food, anything. He really is my friend (P7).*

They helped me by buying... everybody knows we need to eat well. Milk, vegetables, beet... They always do things like: going to a fair and bringing things to me, they make beetroot juice with orange at their house, to give me strength. They're always helping me, they always bring me something, a cookie, something. It's already help for me, you know? (P21).

[...] *not all of them, but there are truly good people there (on the network map). They support me in the following way: every now and then I get a little money, I get a packet of rice, sometimes they give me a packet of beans; this is support (P24).*

[...] *they stayed with me, bought me some things... fruit, things like that (P32).*

Absence of support

The absence of support category presented reports of indifference by the network members or refusal to offer any type of help relevant to the user during the treatment.

[...] *none of those over there. Y. (friend) only smokes. D. (friend) only asks to go to church. J., my sister, comes to my house from time to time, arrives there and doesn't even say good morning to the dog, leaves passing by, doesn't talk to anyone. She only goes because my mother wants him to, forgets that she has a brother. [...] He (friend) has nothing to offer me. He arrives home, he stops, he has nothing to talk about, smokes a cigarette: Wanna smoke? He can only offer that, cigarettes (P3).*

[...] *I didn't get any support from my father, I didn't get any support from my brother. My uncle, I asked him to bring me a thing and he didn't bring it to me* (P19).

[...] *nothing* (support from friends and colleagues) (P25).

[...] *no, nothing* (support from the network) (P28).

DISCUSSION

For being a multicausal disease, TB requires a multisectoral response to face it. In 2014, Brazil recorded cure in 75.1% of the new pulmonary TB cases and 11.3% of treatment abandonment. In 2018, the cure rate decreased to 71.9% and the abandonment rate rose discreetly to 11.6%. In addition to worsening of the epidemiological scenario, these numbers are unsatisfactory since, in order for the TB transmission chain to be interrupted and its incidence rate reduced, the WHO recommends the percentage of cure to be at least 85%, and that of abandonment, less than 5%¹⁰⁻¹¹. Faced with this reality, in addition to the need for pharmacological therapy and government aids, a support network that offers the most varied types of assistance is of utmost importance for adherence to the treatment¹².

A study referring to ineffective social support networks shows that, in the practice, average-sized networks are more effective than small and large ones in terms of number of people¹³. In large networks, the number of members generates impersonality and the supposed impression that someone has already taken care of the person. In small networks, there is overload of the few members and long-term tension, causing other people to withdraw, for fear of getting involved¹⁴. Therefore, from this perspective, the fact that most of the networks identified were average-sized in the current study constituted a positive result.

Emotional support was the most mentioned by the participants, conceptualized as a type of social support related to the feeling of esteem, belonging to a group and the possibility of trusting someone. In addition to that, it is a determining factor for maintaining a person's health and well-being¹⁵. Through emotional support, primary networks show their influential role in seeking health care and coping with the disease¹⁶.

The words of support and encouragement from the primary network permeated the speeches of most participants and created a scenario conducive to recovery of the person undergoing treatment for chronic evolution diseases, as observed in another study¹⁷. Spiritual support also stood out, as religious belief emerges as a way to face the disease, coming from contact with other people, as verified in the participants' statements, as well as believing that "someone" can protect them.

The family has outstanding importance in the participants' lives, as it is their first social experience. In addition, it is the most important category in the network, over time, from birth to death⁵. The strong connection, as the most expressive between the participants and their relatives and family members, corroborates the results of a study carried out with users monitored for TB in a Basic Health Unit. The majority reported the importance of family support in the search for health services, in attendance to the treatment and in emotional support¹⁶. It is obvious that the family plays a very significant role in the health-disease process, as domestic life meets physical and psychological needs of its members, and the cohesion and solidity of family ties reduce the perception of the diagnosis severity and the discomfort arising from the treatment.

The relationships between the participants and their neighbors – mostly characterized by normal and strong connections – show the potential of these members to constitute important support points during treatment. The relationships with the neighbors are established as a physically close presence, and their action is due to presence, and not because of responsibility. In this way, neighbors are often an important resource, effective in different circumstances^{5,17}.

As expected, the connections between friends are always more significant than between colleagues. Friendship relationships are established from the experience of choice and preference, with an exchange of deep affection occurring between friends; and friendship can last, regardless of time and physical proximity. Co-workers, for example, represent another type of closeness, different from friendship¹. However, it is possible that, in adverse situations (such as the period that comprises TB treatment), colleagues who offer some support become friends, further strengthening the user's primary network¹⁸.

As for emotional support, material support is also indispensable in adhering to the TB treatment. During this process, people usually face difficulties related to the lack of material support, especially financial. Less than half of the users interviewed reported receiving material support from their primary network. Therefore, the role of management in the organization of support networks through social assistance, municipal resources and articulation with other sectors is fundamental, which can provide material support, assisting in the cost of treatment, especially for those who do not have a primary network in this sense¹⁶⁻¹⁷.

Help reports directly related to food were quite present in the interviewees' statements. It is understood that good nutritional support is crucial for evolution of the treatment against TB, this type of assistance from the primary network therefore being essential. A research study carried out in Ethiopia with users undergoing DOTS (Directly Observed Treatment Strategy) treatment, identified a very high proportion of malnourished individuals among them, and that people with TB become more susceptible to malnutrition, although there are no predisposing conditions prior to the disease¹⁹. The results of this study support the assertion that material support is of utmost importance in the context of the TB treatment process.

Even if a minority, some participants reported not receiving any type of support from members of their primary network, making up the "absence of support" category. Lack of support for the demands of a person with TB generates difficulties meeting the needs inherent to the indispensable treatment and care to cure the disease. Such a situation can cause rupture of relationships, contributing to fragility of the network. Nurses and other health professionals should always be aware of the ineffectiveness of a social network, which can lead to treatment abandonment, disease worsening and maintenance of the transmission chain, in addition to increased catastrophic costs during the TB treatment period^{12,20-21}.

It is expected that, as an element of the secondary network, the health team enables strategies that, in a way, overcome this deficit in terms of support from the primary network, presenting governmental social programs as a possibility to guarantee material resources not offered to the study participants.

Thus, it is important that professionals encourage and act in an attempt to link users to their primary network components (especially family members), in addition to developing individual and collective activities for greater involvement of the individuals and exchange of experiences.

In this sense, it is up to the professionals working in Primary Health Care to be instrumentalized in the elaboration of social network maps, through specific training and with the objective of introducing it as a technology incorporated into the care provided to the users, configuring it as a useful resource with a view to detecting greater or lesser probability of compliance with the therapeutic regime, qualifying and optimizing care.

As a limitation of this study, we should mention non-categorization of the participants in relation to the time of TB treatment and the type of support received according to the stage of the disease. However, the research expanded understanding of the factors involved in the knowledge of the type of social support network for people with TB and the importance of incorporating the social network approach framework in the professional practice.

CONCLUSION

The study allowed understanding the social network map as a technology with an innovative and original approach regarding the assistance provided to people with pulmonary TB, evidencing the presence and importance of the users' family members and friends in coping with the disease.

Thus, elaboration of the users' social network maps along the lines proposed by the theoretical-methodological framework employed, constituted a simple and easy-to-apply tool, which must be effectively incorporated as a technology in interprofessional care, as well as an object of future scientific research studies focused on caring for people with TB.

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NOTES

ORIGIN OF THE ARTICLE

This study constitutes the first stage of the Multicenter Research Project - Longitudinal Study of the Impacts of Social Protection on the Tuberculosis Operational Indicators, developed at Primary Health Care units from the municipality of Rio de Janeiro, RJ, Brazil, in 2021.

AUTHORSHIP CONTRIBUTION

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APPROVAL OF RESEARCH ETHICS COMMITTEE

Approved by the Research Ethics Committee of *Universidade Federal do Esp rito Santo* under CAAE number 09351919.0.0000.5060 and opinion No.3,280,915 and No.3,741,854. It was also approved by the Research Ethics Committee of the Rio de Janeiro Municipal Health Department under CAAE number 20376119.7.3001.5279 and opinion No.3,793,718.

CONFLICT OF INTERESTS

There is no conflict of interests.

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