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Online social support among caregivers of children and youth: networked integrative review of literature

Apoio social *online* entre cuidadores de crianças e jovens: revisão integrativa em rede da literatura

Apoyo social en línea entre cuidadores de niños y jóvenes: revisión integrativa de la literatura en red

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Abstract: The Internet may be a source of social support that promotes the improvement of parental competency. The objective of this study was to analyze the international panorama regarding research on online social support among caregivers of children and youth. This study comprises a Networked Integrative Review of Literature (NIRL) that approaches the literature as an associative network of variables and analyzes it based on the Theory of Graphs. Data search was conducted in two databases and the studies were filtered based on two relevance tests. This NIRL comprises 36 articles, whose results were converted into 53 variables that were categorized according to their relationship. Considering the recurrence of relationships among the variables, it is concluded that "Participation in online groups" promotes "Social support", "Connection to other people in the same situation" and the emergence of a "Sense of Community". Other findings are discussed based on the network measures.

Keywords: caregivers, network analysis, integrative review, online social support, self-help groups

Resumo: A Internet pode ser uma fonte de apoio social que auxilia no aprimoramento de competências parentais. Objetivou-se analisar o panorama internacional das pesquisas que investigaram apoio social *online* entre cuidadores de crianças e jovens. O estudo consiste em uma Revisão Integrativa em Rede da Literatura (RIRL) que aborda a literatura como uma rede de associação de variáveis e a analisa com base na Teoria dos Grafos. A busca ocorreu em duas bases de dados e os estudos foram filtrados por meio de dois testes de relevância. Foram resgatados 36 artigos, cujos resultados foram convertidos em 53 variáveis, que foram categorizadas conforme suas relações. Considerando-se a recorrência de relações entre as variáveis, conclui-se que "Participação em grupos online" favorece o "Apoio social", a "Conexão com outras pessoas na mesma situação" e o surgimento do "Senso de comunidade". Outros achados são discutidos de acordo com as medidas de redes.

Palavras-chave: análise de redes, apoio social online, cuidadores, grupos de apoio, revisão integrativa

Resumen: La internet puede ser una fuente de apoyo social que ayuda a mejorar las competencias parentales. Se objetivó analizar el panorama internacional de los estudios acerca de apoyo social en línea entre cuidadores de niños y jóvenes. El estudio consiste en una Revisión Integrativa de la Literatura en Red (RILR), que aborda a la literatura como una red asociativa de variables y la analiza basada en la Teoría de los Grafos. La búsqueda se realizó en dos bases de datos y los estudios fueron filtrados a partir de dos pruebas de relevancia. Se recuperaron 36 estudios, cuyos resultados fueron convertidos en 53 variables que fueron categorizadas según sus relaciones. Considerando la recurrencia de relaciones entre las variables, se concluye que "Participación en grupos en línea" favorece "Apoyo social", "Conexión con otras personas en la misma situación" y lo surgimiento de un "Sentido de comunidad". Otros hallazgos son discutidos basados en las medidas de red.

Palabras clave: análisis de redes, apoyo social en línea, cuidadores, grupos de autoayuda, revisión integrativa

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Introduction

Social support (SS) is defined as a process that involves the exchange of interpersonal resources between at least two individuals, with the aim of meeting different types of needs (Lin, Hsu, Cheng, & Chiu, 2015). These resources are needed, mainly, in moments of transition, such as those occurred in adapting to the role of caregiver, including changes and adjustments in physical, psychosocial and material/financial aspects (Epifanio, Genna, De Luca, Roccella, & La Grutta, 2015). Thus, it is understood that caregivers need SS to deal with the transitions inherent to their role.

In this context, Wei et al. (2012) indicate that caregivers have, mainly, the need for emotional and informational support, that is, obtaining knowledge, suggestions, guidance, empathy and encouragement to feel more confident in the tasks related to the care of children and youth. The access to these types of SS can minimize the effects of stress arising from caregiving tasks on the health of caregivers, as it is negatively related to the levels of perceived and physiological stress, with the pathological increase in blood pressure and with symptoms of depression. (Cantwell, Muldoon, & Gallagher, 2014; Gallagher & Whiteley, 2012; Lovell, Moss, & Wetherell, 2012).

However, access to SS can be influenced by the low level of face-to-face social participation of these subjects, since their interactions and, consequently, their sources of SS are commonly restricted to the most intimate circle of social contacts, including family, friends and work colleagues (Thuy & Berry, 2013). This decrease in social participation can be minimized through the Internet, which can facilitate SS, despite the time limitations of the caregiver. It is

noteworthy that online platforms have a much higher speed of information than face-to-face groups, favoring the dissemination of information through multimodal interactions, including photos, videos, shared documents, among others (Lee & Kvasny, 2014).

Despite the growth in the number of studies investigating the feasibility of online social support (OSS), no literature reviews (LR) have been identified with a concomitant focus on the variable and the participants of this study, although there are LR studies regarding the use of internet relationships to obtain information related to health and parental care (Niela-Vilén, Axelin, Salanterä & Melender, 2014; Park, Kim, & Steinhoff, 2016).

In this context, it is highlighted that integrative literature reviews (ILR) are characterized by a broad approach that aims to synthesize the results obtained in research on a single topic (Mendes, Silveira, & Galvão, 2008). This method allows the simultaneous inclusion of quasi-experimental and experimental, theoretical, empirical, quantitative and qualitative studies (Whittemore & Knafl, 2005), providing a broader understanding of the topic.

The presentation of the results of the review, according to Whittemore and Knafl (2005), must be carried out through a comprehensive model, which demonstrates the integration process. Thus, it is proposed to use the logic of network analysis (NA), instrumented by the theory of graphs (TG), whose potential for purposes of literature review was demonstrated in previous studies (Ramos, Fernandez, Pontes, & Silva, 2016). In this study, this model was called Networked Integrative Review of Literature (NIRL) and is based on the perspective that the entire literature produces a "knowledge network" (Diallo, Lynch, Gore, & Padilla, 2016) resulting from the relationships between their knowledge products.

In this study, the knowledge network is based on the relationships among the variables investigated in the articles, considered as knowledge products. In this way, the selected articles can be organized through a specific replicable search system, in order to relate the studied variables and, based on a contingency table, build a networked narrative of the results of the articles, which was developed based on the TG. Thus, this study aimed to analyze the international panorama of research that investigated OSS among caregivers of children and youth (CCY) based on an NIRL model, using the TG as an instrument for integrating the findings of the studies. Specifically, the objective is to describe the characteristics of the studies in this area, to identify and describe the main variables addressed by the studies and their relationship with obtaining OSS for CCY, to verify the applicability of the use of the TG as an instrument for organizing the presentation of the results of an integrative review and characterize the knowledge network composed of the relationships among the study variables.

Materials and Method

The NIRL presents elements of Systematic Literature Review (SLR), in the sense that it has a data collection system with methods for selecting articles and processing data in a way that it enables their replication. Additionally, its analysis is based on the new science of networks (Lewis, 2009), instrumented by the methods of analysis of the TG. In summary, this NIRL was structured in five stages, described below.

In the first stage, the research question was based on the PVO strategy - Population, Variables and Outcomes/Results (Ramos et al., 2016). Thus, the research question includes the following elements: P - caregivers of children and young people; V - variables used to measure "online social support" or as a result of it; O – the results observed in the participants, indicators of the modification or relationship established among the variables.

In order to systematize the collection and refinement of the content, the following eligibility criteria were pre-determined: search terms in the subject, abstract, keywords and/or title; publication between 2007 and 2016; full articles, available online; in English/Portuguese/Spanish

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languages; publication in peer-reviewed journals; empirical research; focused on CCY; and focused on OSS.

In the second stage, the *Descritores em Ciências da Saúde* (DeCs, Health Sciences Descriptors) and Vocabulary of Terms in Psychology portals were used to identify descriptors that were consistent with the "P (population)" and "V (variables)" elements. It is noteworthy that the "online", "virtual" and "internet" qualifier terms were added to the "V" (type of SS) descriptors. In addition, the use of the asterisk (*) aims to encompass results for singular and plural descriptors.

Subsequently, the "ScienceDirect" and the "*Portal de Periódicos da Capes*" (CAPES publications portal) platforms, both leaders in the indexing of international scientific literature, were selected to be used in the article search. Within the scope of the two platforms, Boolean operators were applied to the P and V components of the PVO strategy: (P) AND (V). Thus, as shown below, three search strategies were generated, according to the selected languages:

- (caregiver* OR parent* OR mother* OR father* OR famil*) AND (internet support group* OR online support group* OR virtual support group* OR internet self-help group* OR online self-help group* OR virtual self -help group* OR internet social support OR online social support OR virtual social support OR internet support communit* OR online support communit* OR internet self-help communit* OR online self-help communit* OR virtual self-help communit*)

The same strategies were applied to the Cochrane Library platform, but no literature reviews that included the OSS variable and, concomitantly, CCY, were identified.

In the third stage, aiming at the selection of studies, two relevance tests were elaborated. The Relevance Test 1 (RT1) was performed by the main researcher based on reading the methods and results sections of the eligible articles, in order to verify the adequacy of the articles to the research question. Subsequently, the articles considered eligible were submitted to the Relevance Test 2 (RT2), which included the reading of the articles in full by two independent reviewers. A calculation of agreement regarding the evaluators' opinion was carried out, so that only those approved unanimously were considered.

In the fourth stage, based on an exploratory reading, the articles were characterized in terms of language, location, year of publication, approach, data collection and analysis methods, studied variables, among other relevant aspects.

Finally, in the fifth stage, based on the element "O (outcomes/results)", the NA and the TG were used to integrate data from the collected literature. Thus, a detailed reading of the results of the selected articles was carried out, analyzing the variables presented and their respective relationships, which were arranged in a contingency table, respectively, as paired vertices and corresponding edges. These data were treated using the NodeXL software (Yep & Shulman, 2014), where a network of relationships was built between the identified variables, as well as they were organized in conglomerates based on the CNM algorithm (Clauset, Newman and Moore, 2004), aiming at characterizing the relationship fields in the network. According to Clauset et al. (2004), the CNM algorithm breaks the graph into communities or conglomerates so that modularity is maximized, which refers to a specific network structure that optimizes division, as there are many edges within communities and only a few between them.

Results and Discussion

The search procedures resulted in the selection of 1471 articles, of which, after removing duplicates, 571 remained. After being submitted to RT1 and RT2, were reduced to 36 articles eligible for the NIRL.

General Characterization

All articles were published in English. As for the other characteristics of the studies, these are shown in Table 1.

Table 1
Characteristics of the selected studies

Characteristics	Categories	Total	Percentage (%)
Place[1]	North America	21	58.3
	Europe	10	27.8
	Oceania	7	19.4
	Asia	1	2.8
Year of publication	2007-2010	4	11.1
	2011-2013	15	41.7
	2014-2016	17	47.2
Approach	Qualitative	27	75.0
	Quantitative	5	13.9
	Quanti-qualitative	4	11.1
Data collection[2]	Exclusive	26	72.2
	Mixed	10	27.8
Data analysis[3]	Exclusive	30	83.3
	Mixed	6	16.7
Gender	Female	16	44.4
	Male	3	8.3
	Unspecified[4]	17	47.2
Online environment[5]	Specific	28	77.8
	Generic	8	22.2
Study focus	Parenting of typical people	15	41.7
	Parenting of people with disabilities	21	58.3
Study emphasis	Description of experiences	30	83.3
	Intervention	5	13.9
	Mixed	1	2.8

Note: [1] there was an overlap in the percentage resulting from multinational studies; [2] exclusive or combined use of data extraction and face-to-face or online questionnaires; [3] exclusive or combined use of descriptive statistics and content or discourse analysis; [4] parents or relatives in general (mostly women); [5] presentation of specific forums, groups, chats, mailing lists and blogs or generic descriptions of the online social support experience.

Integration of Results

In this NIRL, 53 different variables (vertices) were identified, which established eight types of relationships (edges): "positive and negative correlations"; "Higher (>) and lower (<) scores"; "Direct and inverse relationships"; "Favors"; and "reduces". In this network of variables, 269 edges were counted between the vertices, of which 199 were identified in more than one article.

Based on the CNM algorithm, the variables were organized into clusters (Figures 1-5). This algorithm breaks the graph into clusters to maximize modularity, in other words, it optimizes the division as there are many edges within the groups and only a few between them (Clauset et al, 2004).

There are five main groups (G1 - G5), which integrate a network composed of only one component, so that all variables are somehow interconnected, that is, there are no disconnected subgroups. Among the groups, G1 (Figure 1) has the largest number of variables involved (16),

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however it has the lowest density (0.075), while G5 (Figure 5) has the least variables (7) and the highest density (0.190). The density of a graph, varying between 0 and 1, is related to the number of connections, so that denser networks contain more connections between the vertices (Hanneman & Riddle, 2005). This factor has an implication in the integrated functioning of the network, so that the expansion or increase in certain areas tends to reach the others. Thus, despite being a network of only one component, groups with a higher density, such as the G5, have a greater interchange regarding the relationships among variables.

The relationships among variable components of different groups are shown in Figures 1-5, generically, in the form of gray lines. The thickness of the edges reflects the frequency of occurrence of the relation and the size of the vertices indicates the respective intermediation centrality (IC), that is, the degree to which a variable establishes bridges between other subsets of variables.

Most groups maintain intense relationships with each other, except for G3 (no direct relationship with G4, as shown in Figure 3) and G4 (low frequency of relationships with G2 and with G5, as shown in Figure 4). The integration of the network of variables in a component supposedly implies the possibility of transitions between concepts and variables, so that there are no evident theoretical barriers or that can be overcome. This assumption can be verified in the absence of incongruity of the findings in the selected articles regarding associations between variables, so that in most cases, the relationship between them tends to be similar, complementing each other and, when not complementing, being in the same direction.
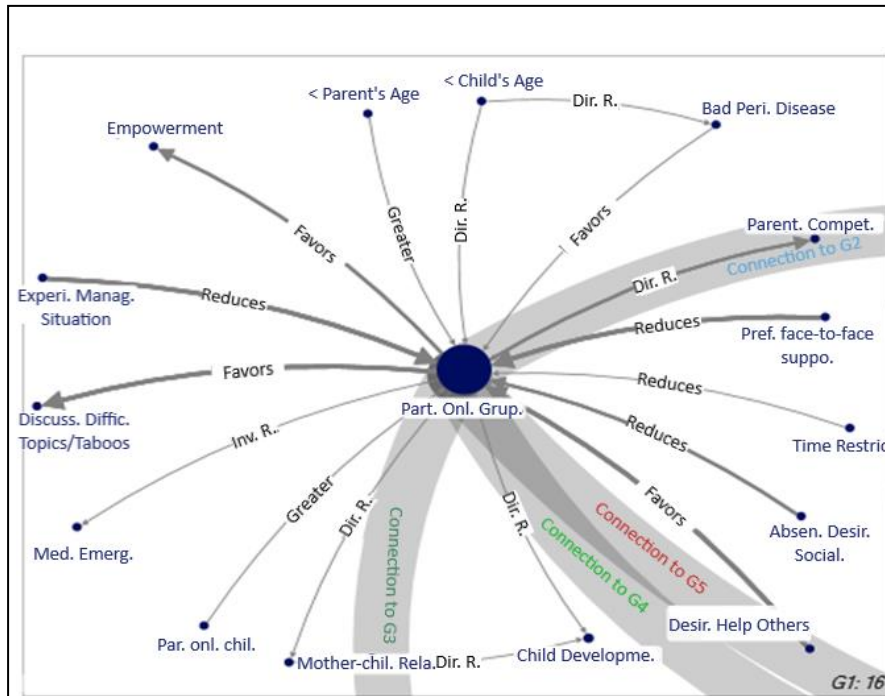
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Figure 1.

Subgroup 1 of the network of relationships among variables

Note: Line thickness = number of links between variables/groups. Direction of arrows = direction of relationship. Relationships among variables = favors, reduces, greater, Dir. R. (Direct relationship), Inv. R. (Inverse relationship). List of variables (abbreviated to optimize space) = 1-parents of an only child, 2-mother-child relationship, 3-child development, 4-desire to help others, 5-absence of the desire for socialization, 6-time restriction, 7-preference for face-to-face support, 8-parental competency, 9-bad periods of the disease, 10-increase in child's age, 11-increase in parent's age, 12-empowerment, 13-experience in managing the situation, 14-discussion of difficult topics/taboos, 15-medical emergencies, 16-participation in online groups.
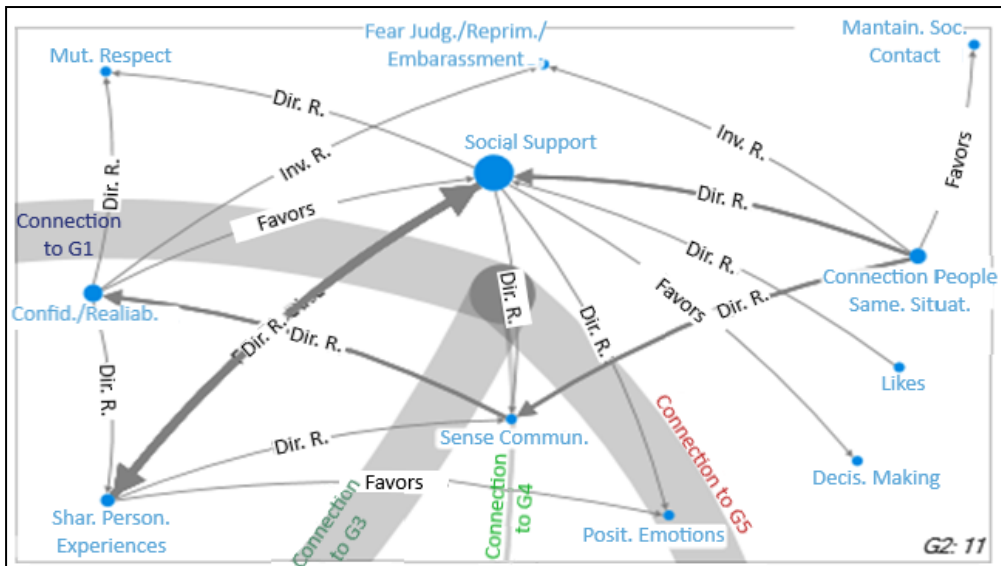
Figure 2.

Subgroup 2 of the network of relationships among variables

Note: Line thickness = number of links between variables/groups. Direction of arrows = direction of relationship. Relationships among variables = favors, Dir. R. (Direct relationship), Inv. R. (Inverse relationship). List of variables (abbreviated to optimize space) = 1- sharing personal experiences, 2-positive emotions, 3-decision making, 4-sense of community, 5-number of likes, 6-confidentiality/reliability, 7-connection with other people in the same situation, 8-social support, 9-mutual respect, 10-fear of judgment/reprimand/embarrassment, 11-maintaining social contact.
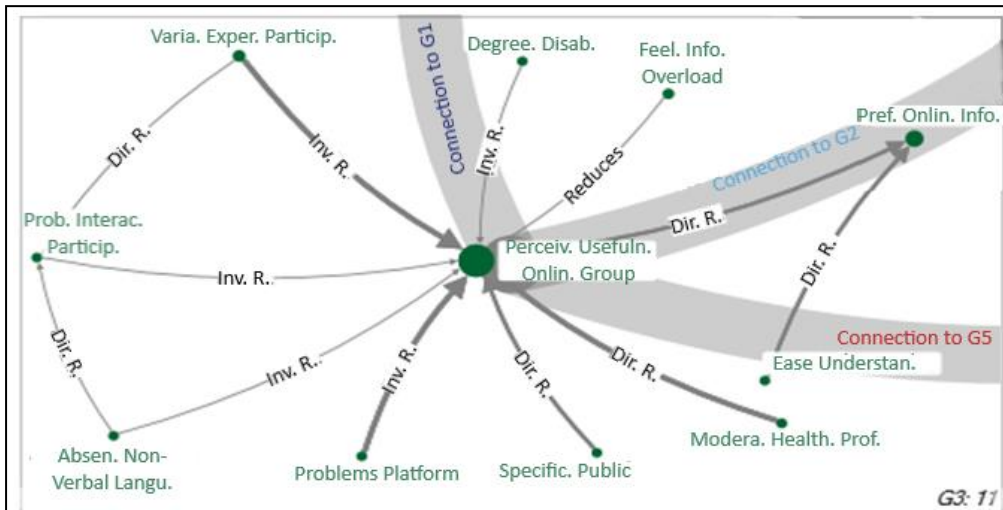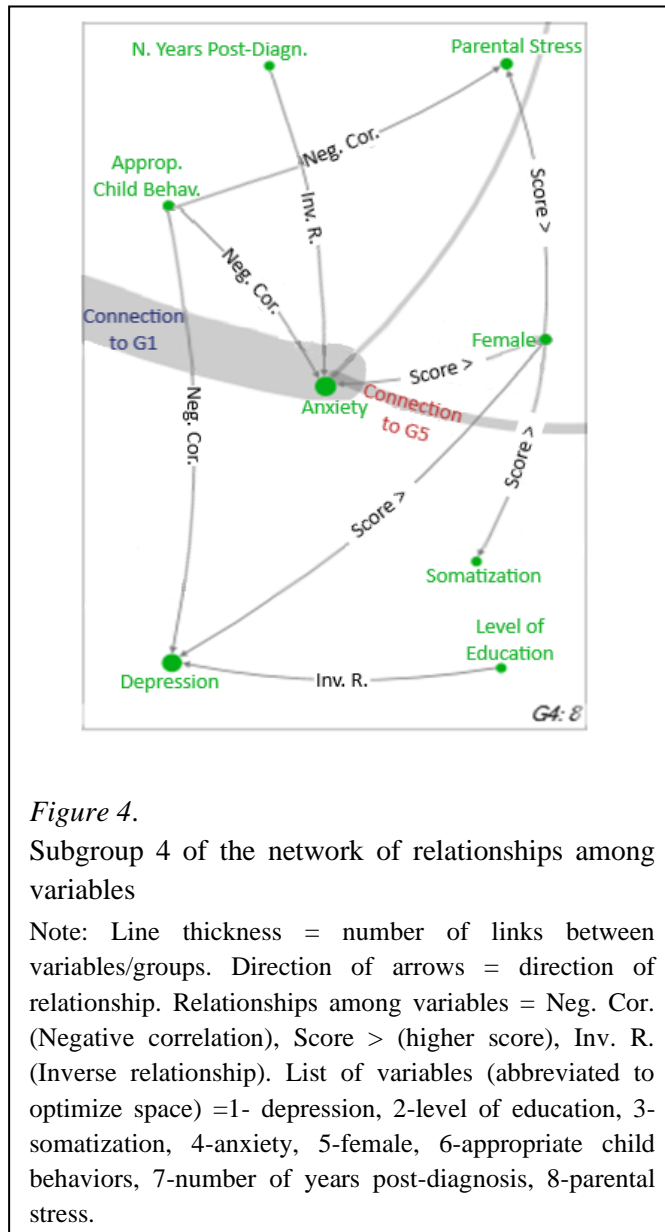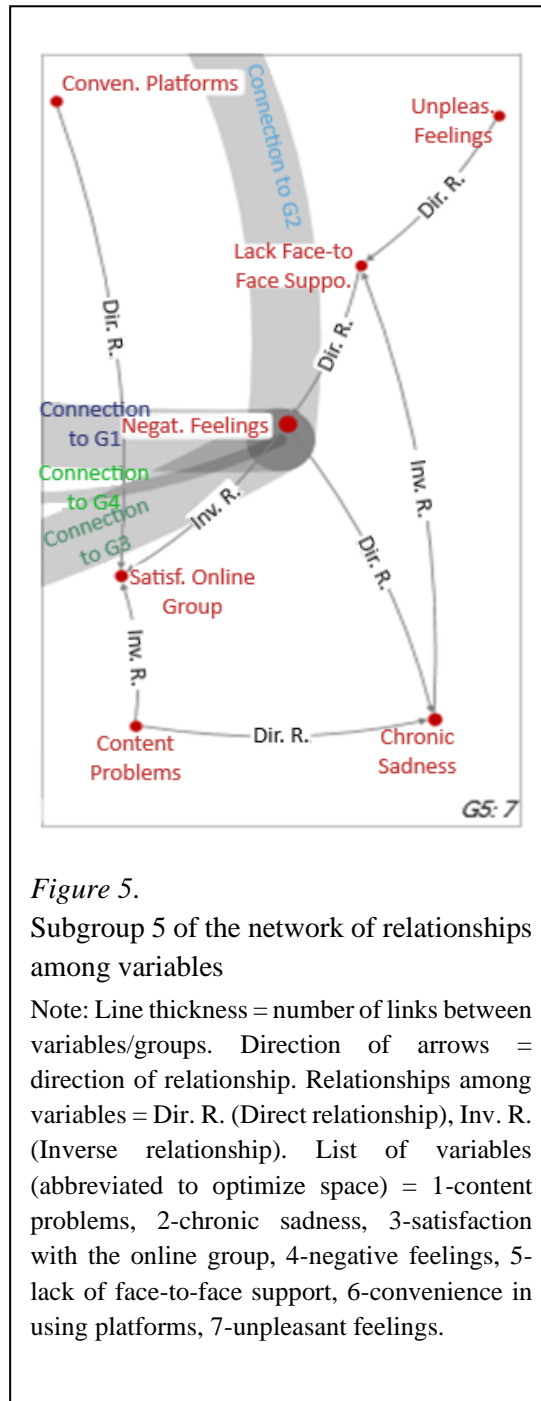
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Figure 3.

Subgroup 3 of the network of relationships among variables

Note: Line thickness = number of links between variables/groups. Direction of arrows = direction of relationship. Relationships among variables = reduces, Dir. R. (Direct relationship), Inv. R. (Inverse relationship). List of variables (abbreviated to optimize space) = 1- absence of non-verbal language, 2-problems with the platform, 3-specificity of the targeted public, 4-moderation by healthcare professionals, 5-ease of understanding, 6-perceived usefulness of the online group, 7-problems in the interaction among participants, 8-variation in the experience of the participants, 9-degree of disability of the child, 10-feeling of information overload, 11-preference for online information.

Figure 4.

Subgroup 4 of the network of relationships among variables

Note: Line thickness = number of links between variables/groups. Direction of arrows = direction of relationship. Relationships among variables = Neg. Cor. (Negative correlation), Score > (higher score), Inv. R. (Inverse relationship). List of variables (abbreviated to optimize space) =1- depression, 2-level of education, 3-somatization, 4-anxiety, 5-female, 6-appropriate child behaviors, 7-number of years post-diagnosis, 8-parental stress.

Figure 5.

Subgroup 5 of the network of relationships among variables

Note: Line thickness = number of links between variables/groups. Direction of arrows = direction of relationship. Relationships among variables = Dir. R. (Direct relationship), Inv. R. (Inverse relationship). List of variables (abbreviated to optimize space) = 1-content problems, 2-chronic sadness, 3-satisfaction with the online group, 4-negative feelings, 5-lack of face-to-face support, 6-convenience in using platforms, 7-unpleasant feelings.

Relationships among the variables

Based on the relationships verified in Figures 1-5, an integrated narrative presentation of the results was elaborated, in order to demonstrate the networked functioning of the variables. For didactic purposes, priority will be given to the most prominent relationships in terms of intermediation and recurrence of association

From a general perspective, parents of children and youth have reported receiving and enabling "Social support" through their "Participation in online groups" (Asiodu, Waters, Dailey, Lee, & Lyndon, 2015; Binford Hopf, Le Grange , Moessner, & Bauer, 2013; Bragadóttir, 2008; Cacioppo, Conway, Mehta, Krantz, & Noon, 2016; Clifford & Minnes, 2013; Coulson & Greenwood, 2012; Craig & Johnson, 2011; Evans, Donelle, & Hume- Loveland, 2012; Gabbert,

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Metze, Bührer, & Garten, 2013; Glenn, 2015; Hudson, Campbell-Grossman, & Hertzog, 2012; Johnson, 2015; Martin et al., 2014; Martin et al., 2016; Mustafa, Short, & Fan, 2015; Nolan, Hendricks, & Towell, 2015; Oprescu, Campo, Lowe, Andsager, & Morcuende, 2013; Perrone, Carmody, Philipson, & Greeley, 2015; Reinke & Solheim, 2015; Roffeei, Abdullah, & Basar, 2015).

In this context, online participation mainly makes it possible to obtain/promote information and clarify doubts about aspects related to parenting, both in cases of typical children and in situations in which the child has some type of health condition. This information helps in providing adequate care for the child/youth and in "managing the situation" (Brady & Guerin, 2010; Glenn, 2015; Hall & Irvine, 2009; Johnson, 2015; Kirk & Milnes, 2016; Oprescu et al., 2013 ; Parry, Glover, & Mulcahy, 2013; Reinke & Solheim, 2015; Salzmann-Erikson & Eriksson, 2013; Sullivan, 2008; Valtchanov, Parry, Glover, & Mulcahy, 2014). In addition, these subjects report the existence of emotional support and self-esteem relationships, resulting in a decrease in "Negative feelings" through the "Connection with people in the same situation" (Appleton, Fowler, & Brown, 2014; Brady & Guerin, 2010; Gabbert et al., 2013; Morris & Bertram, 2013; Oprescu et al., 2013; Pedersen & Lupton, in press; Valtchanov et al., 2014).

Accordingly, the analysis of experiences of "Participation in online groups" on platforms focusing on specific themes (motherhood, postpartum depression, autism, asthma, etc.) indicated that "Connecting with people in the same situation" in the online environment can promote the exchange of useful information on the aspects related to the parenting role among other types of online "social support" between parents of typical children and/or children with different health conditions (Brady & Guerin, 2010; Clarke & Van Ameron, 2015; Eriksson & Salzmann-Erikson, 2013; Hall & Irvine, 2009; Kirk & Milnes, 2016; Nolan et al., 2015; Parry et al., 2013; Reinke & Solheim, 2015; Sullivan, 2008; Valtchanov et al., 2014), which becomes essential in situations where there is a "lack of face-to-face support" (Clarke & Van Ameron, 2015; Kirk & Milnes, 2016; Stewart, Letourneau, Masuda, Anderson, & McGhan, 2011).

It is noteworthy that the integrated results of this study indicate that "Participation in online groups" and, consequently, obtaining "Social support" establish a reciprocal relationship with feelings of "Empowerment", "Parental competency", "Mutual respect", "Maintaining social contact", "Connecting with people in the same situation", "Decision making", "Sense of community", feelings of "Confidentiality/reliability", "Sharing personal experiences", among other variables that can be obtained through "Participation in online groups" and which, conversely, motivate parents to participate in online groups (Appleton et al., 2014; Brady & Guerin, 2010; Clarke & Van Ameron, 2015; Eriksson & Salzmann-Erikson, 2013 ; Fletcher & StGeorge, 2011; Gabbert et al., 2013; Glenn, 2015; Hall & Irvine, 2009; Johnson, 2015; Kirk & Milnes, 2016; Mustafa et al., 2015; Nolan et al., 2015; Oprescu et al., 2013; Parry et al ., 2013; Pedersen & Lupton, in press; Porter & Ispa, 2013; Reinke & Solheim, 2015; Roffeei et al., 2015; Salzmann-Erikson & Eriksson, 2013; Sullivan, 2008; Valtchanov et al., 2014).

Likewise, the integrated data analysis showed that the "Perceived usefulness of the online group" by users is a key factor for the "Participation in online groups" (Cacioppo et al., 2016; Clifford & Minnes, 2013; Jacobs, Boyd, Brennan, Sinha, & Giuliani, 2016; Martin et al., 2016; Morris & Bertram, 2013; Stewart et al., 2011), which can be influenced by aspects related to the interaction experience in online environments, including "Content problems"," Interaction problems among participants ","Variability in the participants' experiences", among other variables (Asiodu et al., 2015; Cacioppo et al., 2016; Clifford & Minnes, 2013; Coulson & Greenwood, 2012; Gabbert et al., 2013; Glenn, 2015; Reinke & Solheim, 2015; Stewart et al., 2011).

The selected articles also indicated that "Negative feelings" can alternately motivate or decrease "Participation in online groups". Thus, caregivers can try online interactions to supply the "Lack of face-to-face support", to minimize feelings of loneliness, among other factors (Clarke

& Van Ameron, 2015; Kirk & Milnes, 2016; Stewart et al., 2011). However, in another perspective, experiences on the platform that lead to "Negative feelings" associated with a low "Perceived usefulness of the online group" can decrease "Participation in online groups" (Cacioppo et al., 2016; Martin et al., 2014).

In the sample of this NIRL, more than half (58.3%) of the studies addressed the experience of parents whose children had some type of disability or health condition, which shows the feasibility of online "Social Support" relationships for this public. In addition, the "Variability in the participants' experiences" was pointed out as a negative aspect of using online platforms, that is, caregivers preferred to be in groups with a greater "Specificity of the targeted public", including parents whose experiences were most similar to theirs. This aspect can be understood as one of the characteristics of homophily, that is, the tendency of individuals to preferentially interact with people with similar profiles (Laniado, Volkovich, Kappler, & Kaltenbrunner, 2016).

In another sense, the selected articles highlighted negative aspects/barriers arising from the "Participation in online groups", such as "Problems with the platform", "Interaction problems among participants" and "Content problems", for example, users posting disruptive content (issues related to death, sadness and suffering), delay/lack of answers to each other's questions, difficulties to express themselves through electronic devices - considered impersonal and absent from body language - and sharing complex and/or incorrect pieces of information. Finally, it is highlighted that many participants demanded the participation of healthcare professionals in the platforms, in order to ensure the reliability of health-related content.

Another important aspect refers to the differential relationship between the type of support and the triggering event related to it. According to Perrone et al. (2015) support for self-esteem was related to positive events, such as reaching a development milestone, overcoming a difficulty, among others. In contrast, emotional support was related to negative events, such as the loss of a child, the worsening of clinical conditions, newly received medical diagnosis, among others.

It is noteworthy that the results of this NIRL ratify the data of the study by Niela-Vilén et al. (2014) regarding the fact that mothers represent the main participants in OSS platforms. In addition, the data corroborate the perspective that the feeling of being part of a group formed by people with similar experiences is a key factor in the participation of caregivers in online platforms, which confirms the occurrence of a phenomenon of homophily.

Conclusions

In this NIRL, the literature refers to an essentially international data set. Through the networked analysis it was possible to extract the pattern of the "knowledge network" regarding OSS among CCY. In this sense, the literature in the area has an integrated profile, characterized by the absence of theoretical barriers that condition conceptual boundaries, which was reinforced by the lack of incongruous data. On the other hand, the research subfields present differentiated knowledge network topologies, for example, Group 1 presented a more centralized network profile and with less density, in relation to the other groups.

In this "knowledge network", some vertices showed a greater power of centralization, such as "Participation in online groups", "Social support", "Perceived usefulness of the online group", "Anxiety", "Depression" and "Negative feelings" , which are variables that mediate relationships between other variables. Considering the recurrence of findings as above five articles and the degree of centrality, it is possible to synthesize the following integration in the literature: 1) "Participation in online groups" favors "Social support", "Connection with people in the same situation" and the emergence of the "Sense of community"; 2) the presence of "Social support" has a direct two-way relationship with "Sharing personal experiences", has an inverse relationship with "Negative feelings" and a direct relationship with "Preference for online information" and

with "Perceived usefulness of the online group"; 3) The "Lack of face-to-face support" is one of the factors that favors "Participation in online groups".

It is noteworthy that the use of a network-based methodology to carry out data integration is one of the main scientific contributions of this NIRL, since this data approach favors the generation of an integrated or systemically related theoretical framework. In this sense, it is understood that this NIRL is an innovative and promising perspective for integrating the literature dispersed in data of quantitative and qualitative natures. Through the TG and the NA elements, it is possible to obtain the structural measures of the total network of the selected articles, the relationships between variables and the roles of each variable in the literature. Data on the conglomerates of relationships between variables may indicate fields of research and gaps in the literature. Considering the density of these groups, the centrality of variables and the recurrence of relationships between variables, the "knowledge network" present in the literature is revealed in a way that it cannot be seen in traditional integrative reviews.

Therefore, the presented strategy allows the identification of existing "knowledge networks" in certain theoretical fields and to verify gaps in the literature, in order to guide research questions. However, as an innovative strategy, the NIRL should be put to the test in other topics and areas of knowledge, aiming at the identification of patterns in the findings that can be compared based on the TG and the NA. In this context, among the possibilities that were not contemplated by this NIRL, the analysis of "structural voids" is suggested, in other words, the identification of relationship voids between concepts, variables and themes.

It is noteworthy that no study in the sample of this NIRL directly addressed aspects related to Social Network Analysis (SNA) and OSS, although all studies were investigating social interactions. As it is a more comprehensive social networking phenomenon, the instrumental potential of SNA cannot be overlooked in studies dealing with SS, so there is a gap that must be filled, regarding the investigation of this variable from the SNA perspective.

Finally, in this NIRL, it was found that a significant proportion of the described platforms and interactions refer to SS in situations of disability and/or health conditions. Thus, considering that the OSS reduces the degree of separation between those involved, a greater investment in research is suggested in order to better know the participants, their types of demands and the kind of support that circulate in such networks, which can contribute to a better development of related public policies.

As for the general limitations of this NIRL, considering the lack of consensus in the literature on the definition of SS, it is possible that studies on this topic may be absent due to their being indexed under different search terms than those used in this review, although a wide range of terms related to this variable have been used. Likewise, the use of literature stemming only from journals databases which, although increasing the quality of the selected articles, can be a limiting factor. Finally, the predominance of European and North American studies in the English language can also be considered a limiting factor, requiring the use of studies from other countries and languages in future research.

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