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Actions for children's mental health on Unified Health System (SUS) Primary Health Care: an integrative review of Brazilian literature

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Abstract *This paper aimed to characterize actions directed to children's mental health (CMH) in Primary Health Care (PHC), based on an integrative review of Brazilian literature (2006-2017). The searches were carried out from LILACS, SciELO and VHL Network databases. After applying the inclusion and exclusion criteria, 13 articles were identified for analysis, which were presented in three thematic axes: 1) Characterization of the demands on CMH for PHC; 2) Actions and interventions on CMH carried out in PHC; and 3) Difficulties and propositions for the implementation of actions on CMH in PHC. The literature points, as the main actions, the identification of CMH problems and their referral to care by specialties. Some studies described specific actions of professionals such as physicians, pediatricians, and psychologists. Interventions of a local character or in partnerships with universities were also identified. The analysis of this material indicated that PHC has been considered as an important field of action in CMH, but that nevertheless requires greater investments, especially in professional training and work organization.*

Key words *Mental health, Child, Primary Health Care, Review*

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Introduction

Childhood mental health problems can impair child development and are often associated with psychosocial disorders in adulthood. Thus, interventions in this context become extremely important and should be understood as a preventive factor and a strategy for long-term health promotion[1-5]. In Brazil, a long trajectory of discussions and debates, guided by the principles of the Psychiatric Reform, was necessary for the implementation of current policies and guidelines[6] in the scope of mental health care.

Aligned to this, the publication of the 2006 National Primary Care Policy (PNAB) was a milestone that aimed the revitalization of the Primary Health Care (PHC) in Brazil and reaffirmed it as the main mode of action and health care[7,8]. Currently, PHC constitutes the ordering basis of care and is characterized by a set of actions of individual and collective scopes, aiming health promotion and protection, disease prevention, diagnosis, treatment, rehabilitation and harm reduction, which aims to comprehensive care in consonance with the population's context[9-11]. Within this proposal, the proximity of the health team with the community's living spaces is highlighted as a positive factor in the approach to the child and youth population[8].

In order to expand the Brazilian PHC actions, in 2008, the Support Centers for Family Health (NASF) were created. It is a service composed of a multidisciplinary team from different health fields, to work in partnership with the Family Health Strategy (ESF) services. Specifically, for children and adolescents, the potentialized actions by NASF must include the realization of therapeutic groups, family interventions and support for therapeutic projects built for individuals and their families[9,12].

Particularly regarding mental health care, the National Mental Health Policy, implemented in Brazil between 1990 and 2006, encouraged the creation of services from the Psychiatric Reform perspective, as mentioned before, introducing a model of psychosocial care based on a social perspective about people under psychological distress. Thus, a service network was implemented based on the integrality of actions and intersectoral collaboration principles[13].

In this process, the Psychosocial Care Network (RAPS) was also instituted in 2011, with the purpose of creating, expanding and articulating places of care for people with psychological distress or psychosocial disorders[14]. The promotion of care for vulnerable groups, including children, adolescents, and young people[9], is one of the secondary objectives of this Network. The RAPS are organized from different components, such as: Psychosocial Rehabilitation Strategy, Deinstitutionalization Strategies, Hospital Care, Transitional Residential Care, Urgency and Emergency Care, Strategic Psychosocial Care, and PHC in Health[9].

In this sense, PHC started to occupy an important place in the articulation of the mental health care network in the process of overcoming the previous biomedical model, with an asylum and medicalizing perspective. Thus, PHC, mainly in the form of the ESF and Primary Health Care (PHC) Centers, has an important role in detecting and addressing every health demands, including mental health demands, as it is the main gateway to the health care system. So, studies on Children's Mental Health (CMH) in this context are relevant, since, as mentioned, difficulties in this area interfere on the development of the child's potential in different areas of their lives, and interventions in these cases have preventive potential[1,2,15]. Therefore, it is important to know the state of the art of Brazilian scientific publications on the subject, in order to contribute for a reflection on the current panorama of CMH care. This becomes more relevant when considering that a recent prevalence study estimated that 13.1% of children and adolescents may suffer from some psychiatric disorders in Brazil[16]. Thus, this paper aimed to characterize actions on CMH in the context of PHC, based on a review of Brazilian articles published between 2006, the year of PNAB's publication, and December 2017.

Method

This study consists of an integrative literature review, a method that offers a knowledge synthesis of multiple studies about a specific subject[17-19]. In fact, among the review methods, the integrative one is the widest, as it allows the inclusion of experimental and non-experimental studies, and offers a more complete and better understanding of the studied phenomenon[17,19]. In addition, for the health field, this review type brings important contributions to the Evidence-Based Practice, since the proposal for systematization and ordering contributes to a deeper understanding of the investigated topic, which can have repercussions on health practice[17].

This integrative review was prepared following guidelines[17,19] that encompass six phases: 1)

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Elaborating the guiding questions, moment when the researcher elaborates a hypothesis or research questions, in a clear, specific, and relevant way to the health field; 2) *Searching or sampling the literature*, when, considering the research question, criteria and the articles selection process for analysis are established; 3) *Defining of information/data collection*, phase in which the information to be extracted is defined, synthesizing from an instrument (in the case of the present study, a protocol prepared by the authors, containing key information to be collected in the analyzed articles); 4) *Evaluation/critical analysis of the studies*, when carrying out the critical analysis of the studies, considering their rigor and characteristics, in addition to the classification of evidence (in the present study, such classification was based on the evidence hierarchy described in Souza et al.[19]); 5) *Discussion/interpretation of results*, a stage in which the synthesis and discussion of the main results are carried out, contemplating a comparison with theoretical knowledge; and 6) *Presentation of the review*, which culminates in the preparation of the document that describes all the steps, in the best possible detail, and highlights the main findings.

In this review, the search and selections of articles were made in January 2018, based on the consultation of LILACS (Latin American and Caribbean Literature in Health Sciences), SciELO (Scientific Electronic Library Online) and the VHL Network (Virtual Health Library) databases, based on combinations of descriptors registered in the Health Sciences Descriptors (DeCS). These sources were chosen because they host most of the Brazilian available articles, since it was sought the literature which portrayed the reality of CMH assistance system in Brazil. The VHL Network, which comprises several other databases, filters were also used: publication date (2006-2017), access availability, language (Portuguese) and type of publication (article).

Subsequently, in order to expand the number of results to better characterize the literature in the area, new searchers were carried out on the VHL Network using descriptors not registered in DeCS. For the adoption of this strategy, it was also considered the fact that informal searches, carried out before the selection of articles, had indicated the existence of other publications relevant to the subject, which had not been found by the exclusive use of indexed descriptors. Chart 1 shows the descriptors used in different searches.

The results found in the first search were selected based on the following inclusion criteria: type of material, considering only articles; year of publication (2006-2017); and location of the research (Brazil). Duplicate results and those that did not fit the inclusion criteria were excluded from the analysis. Afterwards, an analysis of the subjects was carried out based on the reading of titles and abstracts. In this stage, the focus of the study on CMH actions within the scope of PHC was applied as an inclusion criterion, disregarding those which only performed their data collection in this context. With the application of this theme criterion, 14 articles were selected for full reading. From this reading, six of these articles were excluded, considering as exclusion criteria not to contemplate mental health exclusively in childhood and not contemplate specifically the context of PHC. This entire selection process is shown in Figure 1.

The selection of results found from the use of descriptors not indexed in DeCS followed the same steps described above, as shown in Figure 2. This new search identified 12 articles for analysis. However, after excluding duplicate results, considering the articles selected from the first search, made with indexed descriptors, only 5 articles remained for analysis. Adding these five articles to the eight selected in the first search, there was a total of 13 articles for the analysis.

Considering the articles selected for analysis in the first search (carried out with indexed descriptors) through the VHL Network, it was verified that they were indexed, considering their repetitions, on the following databases: LILACS, Medline, CidSaúde, Index Psi and BDENF. As for the articles selected in the second search, carried out with descriptors not indexed in DeCS, it was observed that they were indexed on Index Psi, LILACS and BDENF databases.

All searches, selections, and exclusions from the results were carried out by two judges, authors of the article, simultaneously and independently. In situations of disagreement, a third judge (also author) was consulted for decision making.

For the analysis of the 13 articles included in this review, a protocol was created with descriptive indicators based on three thematic axes: 1) Characterization of the demands on CMH for PHC; 2) Actions and interventions on CMH carried out in PHC; and 3) Difficulties and propositions for the implementations of actions on CMH in PHC. These axes emerged from the full reading of the 13 articles.

Chart 1. Used descriptors for the articles research and number of results found.

Descriptors	Number of results found	
	LILACS	SciELO
Atenção primária à saúde AND Saúde da criança AND Saúde mental	02	14
Primary health care AND Child health AND Mental health	02	66
Saúde mental AND Criança AND Atenção primária à saúde	30	14
Mental health AND Child AND Primary health care	26	66
Saúde mental AND Pré-escolar AND Atenção primária à saúde	03	01
Mental health AND Child, preschool AND Primary health care	02	02
Serviços de saúde mental AND Criança AND Atenção primária à saúde	12	05
Mental health service AND Child AND Primary Health Care	08	04
Total	85	172
Descriptors	**VHL Network**	
Atenção primária à saúde AND Saúde da criança AND Saúde mental	65	
Saúde mental AND criança AND atenção primária à saúde	65	
Saúde mental AND pré-escolar AND Atenção primária à saúde	12	
Serviços de saúde mental AND criança AND atenção primária à saúde	37	
Total	179	
Descriptors (non-indexed)	**VHL Network**	
Saúde mental infantil AND Atenção básica	27	
Infância AND Atenção básica AND Saúde mental	12	
Infância AND Atenção primária à saúde AND Saúde mental	18	
Saúde mental infantil AND Atenção primária à saúde	28	
Serviços de saúde mental AND Criança AND Atenção básica	33	
Saúde da criança AND Saúde mental AND Atenção básica	58	
Saúde mental AND Criança AND Atenção básica	58	
Saúde mental AND Pré-escolar AND Atenção básica	13	
Total	247	

Source: Elaborated by the authors.

Results

Chart 2 details the year of publication, objectives, and methodological focus of the analyzed articles. From 2012 onwards, an increase in publications on the thematic can be noticed, since 70% (n=9) of the analyzed articles were published between 2012 and 2017. It was highlighted, as most frequent objectives, the description and assessment of care strategies on PHC, the health professional perceptions about CMH actions, as well as the characterization of the population. As methodological approach, 10 articles (77%) were empirical, two (15,5%) were experience and case reports, and only one (7.5%) presented a theoretical basis. Most empirical studies focused on qualitative methods (n=5, 50%), followed by quantitative (n=3, 30%) and mixed (n=2, 20%).

Chart 3 presents in detail the methodological characteristics of the analyzed articles. Among the empirical studies (n=10), the following were identified as participants: children (n=6, 60%), parents or family (n=6, 60%) and health professionals (n=6, 60%). It is important to consider that 6 (60%) articles accessed more than one of these groups (for example, parents and professionals, or parents and children). Among the studies that included assisted children by health services, it was identified that in three (50%) the data came from medical records and, in five (83%), also from referred information or instruments filled out by family members. Among the children's age, five studies (83%) targeted the period from 5 to 12 years of age. Only two empirical studies and an experience report covered children of a lower age group. In addition, an empirical study involved children from one to nine years old, divided into two age groups.

There was a diversity of strategies for data collection, including interviews (n=6, 60%), standardized instruments for the symptom's identification (n=4, 40%) and the characteriza-

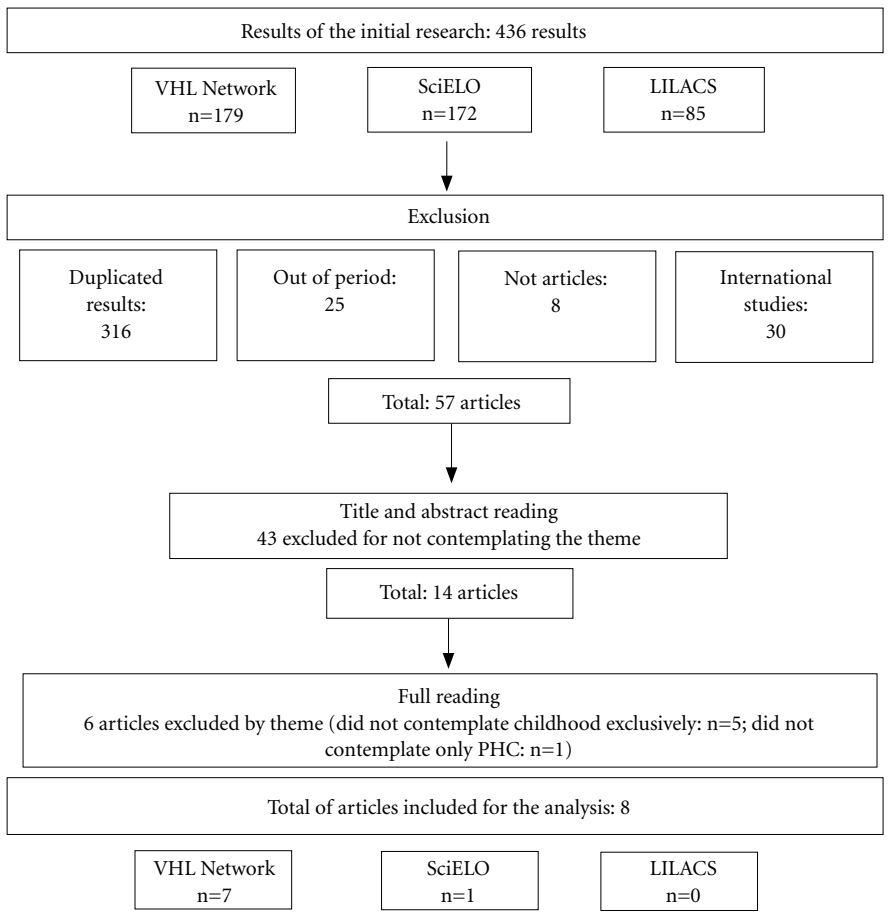

Figure 1. Flowchart of the research process and article selection with indexed descriptors.

Source: Elaborated by the authors.

tion of the family context (n=2, 20%), questionnaires (n=3, 30%), data from medical records (n=3, 30%), field diary (n=1, 10%) and photographs (n=1, 10%). As for data analysis, it was used, as qualitative methods, thematic analysis (n=5, 50%), socio-historical (n=1, 10%), phenomenological hermeneutics (n=1, 10%) and ecomap (n=1, 10%). Among quantitative methods, statistical analyses were identified as descriptive (n=5, 50%), comparatives (n=3, 30%), correlational (n=1, 10%), and the use of univariate and multivariate regression (n=1, 10%).

Chart 3 presents the critical evaluation of the studies that sought to identify the appropriate description of the participants and the adequacy of the methods in relation to the proposed objectives in each study, in addition to the validity of the evidence[19], especially related to the results discussed in this paper. The parameters used to analyze the evidence levels were described in Souza et al.[19], considering: Level 1 (evidence resulting from meta-analysis), Level 2 (evidence resulting from experimental design studies), Level 3 (evidence resulting from quasi-experimental studies), Level 4 (evidence from descriptive studies or qualitative approach), Level 5 (evidence from case or experience reports), and Level 6 (evidence from expert opinion). Among the 13 articles analyzed, there was a predominance of Level 4 evidence, due to the greater number of qualitative studies identified, and adequacy in the methodological descriptions.

The main results of the analyzed studies are presented below, based on the integration of the

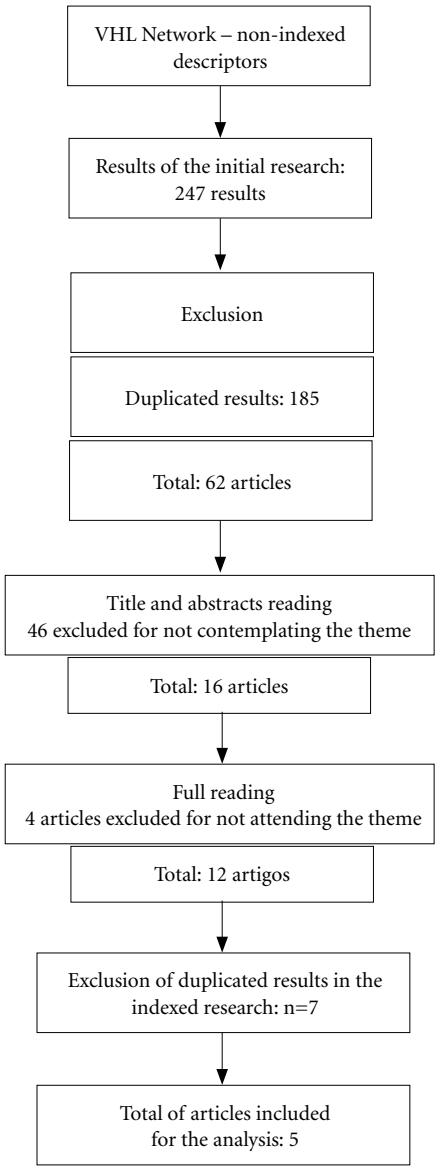

Figure 2. Flowchart of the research process and article selection with non-indexed descriptors.

Source: Elaborated by the authors.

information contained in each of the thematic axes of the descriptive protocol designed to record the information of this paper**.**

Characterization of the demands on CMH for PHC

Eight of the 13 analyzed articles referred to this thematic axis. Some articles characterized these demands based on the prevalence data. In the study by Ferriolli et al.[2], of the 100 children (6 to 12 years old) evaluated from the city of Ribeirão Preto (Southeastern Brazil), 31 were classified as at risk for emotional/behavioral disorders. Anxiety and depression symptoms were the most frequent (39%) and mental health issues were predominantly associated with financial instability and maternal distress. Santos and Celeri[15], on the other hand, from a sample of 40 children (30 to 50 months old) from a city in the interior of São Paulo, identified in more than half of them, a risk for the development of mental health issues.

A survey of 104 medical records carried out by psychologists in seven PHC Centers in the city of São Paulo (Southeastern Brazil), conducted by Braga e Morais[20], pointed out that 76.9% of them had school complaints. It was also found that 51.9% of these complaints were due to referrals made by schools. Other studies have also identified demands on CMH in PHC due to referrals made by schools or related to school complaints[6,20-23]. In relation to this, there is a lack of consensus in the literature on the real demand for the referrals[6,23].

Furthermore, some studies have characterized CMH demands for PHC from the perspective of physicians and pediatricians[21,24,23]. For these, the demand is often already formulated by the family, and usually involves suspicions of physical diseases and is related to the expectation of drug interventions or referrals[23,24]. Demands are also perceived to be associated with other contexts, such as schools, family situation or socioeconomic problems[21].

Actions and interventions on CMH carried out in PHC

Several studies (n=12 articles) focused on describing actions and interventions on CMH were carried out within the scope of PHC. The most frequent actions referred to the identification/diagnosis of CMH issues[15,21,24-26] and referral to specialty services[21,23-25]. Some studies referred to the work of some professionals in specific, while others described interventions carried out by health professionals or staff in partnership with other institutions or through local programs.

Studies that addressed the physician and pediatrician work indicated as main activities those related to the identification and referral, in addition to medication prescription[21,23,24]. Tanaka and Lauridsen-Ribeiro[21] described that the conduct most frequently adopted by pediatricians in face of CMH issues in one PHC Center in São Paulo,

Chart 2. Characterization of the analyzed articles according to year, objective and methodological focus/approach (n=13).

Authors/Year	Objective	Study type/ Methodological focus
Tanaka and Lauridsen-Ribeiro[24] (2006)	Assess how mental health issues are approached by physicians in PHC in the children's medical appointment.	Empirical/Mixed
Braga and Morais[20] (2007)	Discuss whether the recent educational and health politics and if the studies about scholar demand in school clinics in public health services have engendered significant changes in psychologists' practices in primary care public health units (UBS).	Empirical/ Quantitative
Ferriolli et al.[2] (2007)	Assess the association between variables in the family context and the risk for emotional/behavioral problems in children enrolled in a Family Health Program (PSF).	Empirical/ Quantitative
Tanaka and Lauridsen-Ribeiro[21] (2009)	Investigate the mental health programs (PSM) approaches during PHC appointments.	Empirical/Mixed
Cavalcante et al.[25] (2012)	Understand how the matrix support has been used as a tool for health care of children with mental health problems in the Family Health Strategy (ESF)	Empirical/ Qualitative
Carvalho et al.[5] (2013)	Know the concepts of Family Health Strategy (ESF) professionals on Early Intervention (EI) and to what extent they used these concepts in their professional practices.	Empirical/ Qualitative
Sinibaldi[6] (2013)	Problematize how the relationships have been built between the Primary Health Care (PHC) services and childcare in Brazil.	Theoretical
Becker et al.[22] (2014)	Describe the clinical case of a child with aggressive behavior and recurring death-theme speech, and report the experience of the team of authors, who proposed an alternative to medication through the establishment of a Protection Network and the inter-sector implementation of the Children's Circle of Security concept.	Case Report
Arpini et al.[27] (2015)	Present the activities developed in an extension project, which aims to observe the relationship between children, from zero to two years old, and their mothers, in the assistance carried out in the Child Program in a Basic Health Unit (UBS), targeting to detect possible early risks to child development.	Experience Report
Gomes et al.[23] (2015)	Understand the PHC physicians' meanings and significations related to Child Mental Health (CMH).	Empirical/ Qualitative
Tszesnioski et al.[26] (2015)	Describe the healthcare network for children undergoing psychic distress and promote interventions in the territory, pointing out changes that took place by means of these actions.	Empirical/ Qualitative/ Action Research
Silveira et al.[28] (2016)	Identify the procedures carried out by health professionals who work in family primary health care (PHC) centers to recognize cases of psychological violence against children.	Empirical/ Qualitative
Santos and Celeri[15] (2017)	Study the applicability of the Strength and Difficulties Questionnaire (SDQ 2,4-p) as an instrument to identify CMH in preschoolers, in the context of PHC; and to characterize the CMH in the sample analyzed by comparing the data in SDQ (2,4-p) with those in the Child Behavior Check List (CBCL 1½-5 years).	Empirical/ Quantitative

Source: Elaborated by the authors.

was orientation (23.6%) and referral to a mental health service and Speech therapy (15.3%). The authors also highlighted that 29.2% (n=21) of children with a hypothetical diagnostic of mental health disorders had no medical conduct described in their medical records.

Gomes et al.[23], in an investigation in PHC Centers and ESF in Divinópolis (Southeastern Brazil) presented the physician and pediatricians' perception about their interventions. The orientation activity was mentioned by these professionals. Regarding medication administration, they indicated that there was no dialogue with the specialist, either the child was already on medication, or simply had their prescription renewed during the appointment. The interviewees did not agree with the way the referrals were instituted, frequent outcome being drug intervention. However, they did not propose any other intervention. Likewise, they reported preventive activities or developmental monitoring were not performed, as they consider them a responsibility of Nursing professionals.

On the other hand, Becker et al.[22] described an intervention carried out by medical students, based on an internship experience. The case study described an intervention carried out in PHC Center for the reception of a child (5 years old) referred by the school, who expressed a desire to die and assault schoolmates. Due to the ineffectiveness of the proposed intervention and the side effects of the medication, the case was directed to the team of interns. The team reorganized the care plan based on the Safety Circle concept, which establishes emotional support and instructions for parents and health professionals about providing of a safe environment for the child to develop their emotions. In this way, interventions that addressed the family, the PHC Center and the school attended by the child were articulated, a positive strategy and alternative to pathologization and medicalization.

Particularly about the psychologist's work, Braga and Morais[20] described the most frequently adopted conduct by this professional in PHC Center in the city of São Paulo (Southeastern Brazil), in relation to a sample of 104 children's medical records: family orientation (24.7%), followed by group therapy (20.5%) and individual therapy (15.3%). However, they noticed differences among the cases that did not involve school complaints, as in these the most used intervention was individual therapy. In only 1% of the cases that looked for the PHC Center services with school complaints, an interview with the teacher was conducted. For the authors, this demonstrates that health professionals understand these complaints as susceptible to clinical treatment, disregarding the complex network which involves other relationships imbricated in school difficulties.

However, an interdisciplinary work (Psychology and Nursing) was described by Arpini et al.[27]. It consists of an activity carried out by Federal University of Santa Maria (UFSM) together with the Children's Program in the city of Santa Maria (Southern Brazil). The actions included clinical assistance, which encompassed the Nursing work, through monitoring and general orientation on child's care, and Psychology, focused on relational aspect (parents-child relationship). The technical resources used in the Psychology's work were observation guided by IRDI (Clinical Risk Indicators in Child Development); interviews with family members; guidance to family members and referral, when necessary, to other health professionals or health services. According to the authors, this project represents an early detection strategy for development risks, and for health prevention and promotion.

Tszenioski et al.[26] described interventions carried out by Occupational Therapy students, based on an action research project, articulated with one PHC Center in Recife (Northern Brazil). The interventions were presented as possibilities for the performance of these professionals on CMH, whose work is characterized by the discovery of abilities that stimulate the children's potentialities, in order to promote greater independency and autonomy. Stimulation activities were carried out through interventions based on the importance of playing, including the training of psychosocial and cognitive abilities. The research team also assessed the health network and set goals together with the families and health teams from different services. In the authors' evaluation, the proposed interventions contributed for the strengthening of the care network, providing greater articulation between the PHC team and the specialized service, in addition to strengthening bonds among some children and their families and schools.

The presented actions so far refer to interventions developed by some health professionals in PHC Center and ESF or in projects in partnership with universities. However, Carvalho et al.[5] described, based on different specialties, activities from a specific governmental program, of a local nature, called Municipal Program for Early Intervention (PMIB). It is an initiative promoted by the city of Campina Grande (Northern Brazil), which seeks to support children between 0 and 6 years old who are at risk of developing disorders throughout their development, and assist their families, aiming to identify problems or prevent impairments, in addition to promote the integration and inclusion of these children in family and

Chart 3. Methodological characteristics of the analyzed articles (n=13).

Authors/ Year	Sample/participants composition	Data collection (application target) and analysis	Evidence level (according to Souza et al.[19] criteria)
Tanaka and Lauridsen-Ribeiro[24] (2006)	(Properly described) 411 children (5-11 years old), 206 parents e 11 pediatricians from a PHC Center in the city of São Paulo (SP, Brazil)	**Data collect** (Properly described) - Medical record (children) - Skills and Difficulties Questionnaire (SDQ) and Child and Adolescent Behavior Inventory (CBCL) (responsible for children) - Questionnaires to identify concerns about mental health problems (fathers and mothers) - Semi-structured interviews (pediatricians) **Data analysis** (Properly described) - Statistical analysis - Thematic analysis for the interviews	Level 4
Braga and Morais[20] (2007)	(Properly described) 104 children (6-12 years old) who needed, in the second trimester of 2005, mental health services of a PHC Center from the north region of the city of São Paulo (SP, Brazil)	**Data collect** (Poorly detailed) - Medical record (n=104 children) **Data analysis** (Poorly detailed) - Statistical analysis	Level 4
Ferriolli et al.[2] (2007)	(Properly described) 100 children (6-12 years old), and their relatives, mainly biological mothers (82%), registered in ESF (Family Strategy Program) in the city of Ribeirão Preto (SP, Brazil)	**Data collect** (Properly described) - Skills and Difficulties Questionnaire (SDQ) for screening mental health issues in children (caregivers) - Family Environment Resource Inventory (RAF) (caregivers) - Socioeconomic and cultural level scale (caregivers) - Adverse Events Scale (EEA) (caregivers) - Inventory of Stress Symptoms for Adults (ISSL) (caregivers) - Beck Depression Inventory (BDI) (caregivers) **Data analysis** (Properly described) - Statistical analysis	Level 4

it continues

society. According to the authors, inside the PHC context, even though the health professionals from different specialties recognize in their labor an opportune moment for early intervention and detection of risk signs, several of them do not feel qualified for such interventions.

Other articles[21,28] also made specific mention to the psychological violence cases received in PHC, due to their repercussion on CMH, and the necessary intervention to interrupt the cycle of maltreatment. Specifically, Silveira et al.[28] pointed out that the different professionals from PHC in a city in Southern Brazil prioritized the physical signs of violence while underestimating the psychological ones. The authors also identified the absence of a specific action to detect psychological violence against children and the professionals' difficulties to intervene in effectively.

Chart 3. Methodological characteristics of the analyzed articles (n=13).

Authors/ Year	Sample/participants composition	Data collection (application target) and analysis	Evidence level (according to Souza et al.[19] criteria)
Tanaka and Lauridsen-Ribeiro[21] (2009)	(Properly described) 411 children (5-11 years old), 206 parents and 11 pediatricians from a PHC Center in the city of São Paulo (SP, Brazil)	**Data collect** (Poorly detailed) - Children's medical record - Skills and Difficulties Questionnaire (SDQ) and Child and Adolescent Behavior Inventory (CBCL) (responsible for children) - Questionnaire for Family characterization (responsible) - Semi-structured interviews (pediatricians) **Data analysis** (Poorly detailed) - Statistical analysis - Thematic analysis for the interviews	Level 4
Cavalcante et al.[25] (2012)	(Properly described) 6 workers from ESF and CAPS (Psychosocial Care Center) involved in the matrix support activities in mental health and children's relatives seen along these activities, in the city of Fortaleza (CE, Brazil), in the Regional Executive Secretaries (SER) IV e V.	**Data collect** (Properly described) - Semi-structured interviews (professionals involved in the matrix support and children's family members attended) **Data analysis** (Properly described) - Paul Ricoeur's phenomenological hermeneutic analysis (interviews)	Level 4
Carvalho et al.[5] (2013)	(Properly described) 10 professionals who work in three ESF Teams (3 nurses, 2 auxiliary nurses, 1 social assistant, 2 physicians and 1 physiotherapist). All of them worked in the health services for more than 6 months and were involved with the EI program implemented in the city of Campina Grande (PB, Brazil).	**Data collect** (Poorly detailed) - Semi-structured interviews (professionals) **Data analysis** (Properly described) - Content analysis, thematic categorical type	Level 4
Sinibaldi[6] (2013)	(There is no structured method) Theoretical study	(There is no structured method) Analysis and discussion of the literature about the relationship between primary health care and childcare in Brazil.	Not applicable
Becker et al.[22] (2014)	(Properly described) 5-year-old boy, with several complaints from the day care center, which he attends full day time, about his aggressive and violent behavior. He was diagnosed and medicated by the Health Center. Despite actions (conversations, group work, psychological and psychiatric monitoring), the child maintained the behavior.	(Properly described) Case report: Description of interventions carried out in the case by a group of students from UNICAMP, based on the concept of the Security Circle.	Level 5

it continues

Chart 3. Methodological characteristics of the analyzed articles (n=13).

Authors/ Year	Sample/participants composition	Data collection (application target) and analysis	Evidence level (according to Souza et al.[19] criteria)
Arpini et al.[27] (2015)	(Properly described) Experience report on the activities of an academic extension project, carried out by psychology students from UFSM, which intervenes on the mother-child relationship, qualifying it and detecting possible risk signs for child development.	(Properly described) Experience report: Presentation of the activities carried out by the extension course based on its characterization, method of action and main results.	Level 5
Gomes et al.[23] (2015)	(Properly described) 12 physicians of ESF teams and 5 pediatricians who works in PHC Centers without ESF, with graduated time between two and 35 years (M=20.9) and working time in PHC Center between 6 months and 16 years (M=6.4), in the city of Divinópolis (MG, Brazil).	**Data collect** (Poorly detailed) - Semi-structured interviews (professionals) **Data analysis** (Properly described) - Analysis from a socio-historical or historical-cultural perspective.	Level 4
Tszesniosski et al.[26] (2015)	(Properly described) 7 children (from 1 to 5 or from 6 to 9 years old), with psychic suffering history, and their relatives, subscribed in a ESF of the Sanitary Destrict IV from the city of Recife (PE, Brazil).	**Data collect** (Properly described) - Semi-structured questionnaire to characterize participants, clinical data, care network (family/ responsible) - Field journal - Home visits photographs **Data analysis** (Properly described) - Action research: Questionnaire information and home visits supported the analyzed interventions - Thematic analysis (records of interventions – field diaries and photographs) - Construction of an ecomap for the presentation of results	Level 5
Silveira et al.[28] (2016)	(Properly described) 7 professionals from a PHC center in a city of Southern Brazil (1 Community Health Agent, 2 Nurses, 2 physicians, and 2 Nursing technician).	**Data collect** (Properly described) - Semi-structured interviews (professionals) **Data analysis** (Properly described) - Content thematic analysis (interviews)	Level 4
Santos and Celeri[15] (2017)	(Properly described) 48 children (31 to 50 months) subscribed in a PHC Center of a city in the interior of the metropolitan region of São Paulo, those which the responsible person provided information.	**Data collect** (Properly described) - Brazil Economic Classification Criterion (CCEB) (responsible) - Skills and Difficulties Questionnaire (SDQ) (responsible) - Behavior Inventory for Children between 1½ and 5 years old (CBCL 1 ½-5) (responsible) **Data analysis** (Properly described) - Statistical analysis	Level 4

Source: Elaborated by the authors.

As seen so far, several studies identified referral as an important part of CMH actions to be performed by PHC professionals. However, Cavalcante et al.[25] emphasize that, when receiving and making a clinical evaluation for later referral, the PHC professional must know how to recognize which demand the service can assist and who, in fact, should be referred for specialized care. Finally, even though it is not an CMH action related to the supported population, Cavalcante et al.[25] mentioned the matrix support as an important tool to the rear activities of the PHC's professional. It is a strategy that, several times, makes the CMH interventions possible to be carried out in the PHC context.

It should also be underlined that several actions described in the reviewed studies were developed from and articulation with different sectors. Among them, we highlight the interlocution with the families[5,20-23,26,27], health care network and childhood[21,23,25-28], and school institutions[20,22,26].

Difficulties and propositions for the implementation of actions on CMH in PHC

Finally, several articles (n=12) also discussed the difficulties faced for the effective implementation of the presented actions, as well as presented proposals to remedy them. Some difficulties mentioned were related to the health professionals, such as lack of preparation or security to deal with the child population who needs mental health care[2,5,15,20,21,23-25,28]. This limitation was sometimes mentioned based on a personal difficulty, related to the professional's emotional aspects, or from a difficulty in acknowledging of the demands which can be met in PHC or which should be referred to the specialties[24-26]. They also mention greater attention to organic complaints to the detriment of psychological aspects[21,23,24,28], which are sometimes minimized, either in relation to clinical conditions[15] or in relation to psychological violence cases[28].

Specifically, about the pediatrician, difficulties were mentioned in acknowledging CMH issues, so that these professionals perceive that they do not have the same property to deal with mental health issues in comparison to other specialties[21,24]. Some justifications to the incapacity of accommodating the demands on CMH were related to the mental health language, to traits of the professionals themselves and the flaws in training[21,24]. In this direction, some studies[2,15,28] addressed the importance of early detection of CMH issues and have proposed an implementation of protocols sensitive to childhood to qualify this process.

Regarding psychology professionals, it was pointed out that they often have difficulties in seeking other ways to intervene beyond the individual psychotherapy, due to the predominant clinical perspective in their graduation[20]. In this sense, it is recognized that the training and qualification of the professionals is still against the Psychiatric Reform guidelines and mental health, privileging interventions, and the traditional psychopathology and fragilizing, on the other hand, comprehensive care[25,28]. In fact, the fragmented understanding of health and the processes underlying pathologization have been described in some articles as a barrier to care on CMH in PHC[5,6,20,22,23,25].

As seen, several studies pointed out the need for further investments in professionals' training, for the consolidation of CMH practices in PHC[2,5,6,20,21,24-26,28]. In this sense, some authors[20,21,28] highlighted the need for investments both in continuous education and in the revision of undergraduate curricula. Among the suggestions, proposals of training including intervention practices[21], and those which can break the logic of specialties and privilege of biological aspects in relation to the mental health ones[6,28] were identified.

In addition to individual and training aspects, other difficulties for the implementation of CMH actions in PHC are related to the organization and articulation of the services[5,21,25,26,28]. In this direction, difficulties related to referral were listed, such as excessive demand, lack of knowledge of professionals in relation to the functioning of the networks, as well as difficulties in articulation between services[21,28]. Thus, several articles pointed out the need for further investments in work organization, both at the health unit and in the articulation with other instances of the intra and intersectional care system, in an interdisciplinary way, contemplating the matrix support and the implied referral[5,15,20,21,23,24].

Discussion and final considerations

This review aimed to characterize actions on CMH in the context of PHC, through an integrative review of Brazilian literature (2006 to 2017). From the analysis of 13 articles, an increase in the publication on this thematic in recent years was identified, probably due to the time of PNAB's

implementation, which occurred in 2006. The revised articles also indicated the acknowledgement of PHC as an important field of CMH action. The main actions described in this context were characterized by the identification of CMH issues and referral to specialties.

Some studies described specific actions by some professional categories, such as physicians, pediatricians, and psychologists. However, caring for less severe childhood mental health issues, which could be followed up within the PHC scope[21,25], were hardly mentioned. This process may reflect the difficulties of the PHC teams in receiving the necessary support for the children and adolescents' care, since the literature has indicated obstacles in the articulation with specialized teams through matrix support[25,29,30]. On the other hand, it can also be related to training aspects of these professionals, still guided by the logic of specialties, so that they do not perceive issues related to mental health as part of their work at PHC[6]. In this sense, it is worth questioning whether, in fact, these consultations do not occur, and are referred directly to the specialties, or whether they are not recognized by professionals as mental health interventions.

This review also identified private interventions, of a local nature or in partnerships with universities, through internships, university extension programs and intervention research. In these, a more comprehensive understanding of childhood was identified, contemplating actions of an interdisciplinary or intersectoral characters and attention to the relationships between the agents and institutions involved in the intervention. These experiences demonstrate that the interlocution between higher education institutions and PHC has a lot to contribute to the implementation of effective CMH actions. Understanding this exchange allows us to identify, in addition to an academic training process attentive to the specificities of public health, the possibility for services to rethink and expand their mental health actions and interventions. Alongside this, local interventions have also pointed out possible ways for thoughtful care to specific demands and the organization of work in each location[5,22,26,27].

Some revised studies have described interventions that involve different sectors in articulation with the actions developed by PHC. It is highlighted, in this sense, the articulations with the families[5,20-23,26,27], pointed out as important either for the illness as for mental health promotion; with the other services of the health and childhood assistance network[21,23,25-28], both in relation to the services to which referrals are made, and their necessary interlocution in the composition of therapeutic project, as well as those that offer the necessary support so that PHC itself can attend less complex cases; and also articulations with school institutions[20,22,26], as they are responsible for most of the referrals and are acknowledged as capable of producing or minimizing child psychological distress.

Thus, the importance of intersectoral interventions as a strategy for the composition of an effective care network is reiterated. In addition, we highlight the importance of CMH actions and interventions in PHC be based on territoriality, in order to organize the care strategies among health services and other health care and support networks, such as the family and school, taking into account the context and the reality of the territory; and for the integrality of care, in the articulation of different knowledge and services of the network, contemplating, beyond mental health, the bond and social insertion as important factors for health promotion[5,22,26,27]. It is also worth highlighting the amplitude of the effects of interventions in PHC, which, in addition to health promotion and prevention, can reduce the burden on specialty services, qualifying care at all levels.

The results of this review also allow us to realize that some difficulties identified in the articles regarding CMH actions in PHC in Brazil remained throughout the analyzed period. The difficulties in implementing the actions show inconsistencies between the guidelines and how, in fact, the network's interventions are organized. The identification of these contradictions converges with the literature[31,32], which shows that PHC professionals sometimes guide their actions based on a traditional and hierarchical model of assistance. Particularly in this review, the need for investment in expanding the professionals' training was highlighted, contributing both to their technical qualification and in relation to how they understand CMH care.

Other bibliographic review studies which articulated mental health and PHC also pointed out some characteristics of this articulation identified in this paper, such as the difficulties of professionals, obstacles in the functioning of services and flaws in the training in the area[33-35]. In this sense, it is possible to perceive that the implementation of mental health intervention strategies is still a challenge for PHC and for the entire care network. Specifically, about childhood, the

complexity can become even greater, due to the population's specificities. These barriers indicate complex issues, which go beyond the PHC context, however, concern the services structuration and their articulation as a whole. In this sense, it is clear that any effective changes to modify this panorama need to involve actions in different levels and constant reflection, based on continuous training, permanent education, the revision of the undergraduate curricula, in addition to the need to management follow-up and restructuration of services, in view of how they have been operating.

Regarding the methodological aspects, some considerations are highlighted. Several studies have characterized the children's sample – target in mental health care, either from standardized instruments[2,15,21,24] and from medical records, questionnaires, or the professionals' perceptions themselves[20,23,26]. Both strategies allow the identification of the CMH's demands in PHC, which is particularly important, considering that identifying the real need for health care allows more assertive actions, either in terms of interventions, by professionals, or in terms of management, through the implementation or update of the services are concerned with the population's characteristics. On the other hand, regarding the professionals' perception, it becomes interesting to understand how, in fact, the health care strategies are being operationalized, as this data can serve as a subsidy for the implementation of continuous education activities that consider the current panorama of the PHC services and professionals, qualifying the service to the population.

Based on what was stated, it is expected that this review will contribute to expand knowledge about the current state of the art of Brazilian scientific publications that address actions and interventions on CMH in the context of PHC and promote reflections about the professional's performance. This paper has some limitations, mainly related to the restriction of the analyzed material, considering that types of scientific publication other than articles were not included. In addition, the low number of Brazilian publications on the subject denotes the need for greater dissemination of CMH actions carried out within the context of PHC. Still, the identification of only studies with levels of evidence 4 and 5 suggests the need to conduct research from other designs, especially quantitative and experimental to, for example, qualify the evaluation of the interventions[19].

Likewise, it is recommended to expand characterization studies of this demand in PHC, for better planning of professionals' actions and interventions. The difficulties encountered in the search for articles also suggest the need for standardization in the descriptors' indexing about this theme, considering that it is a field of specific study and practice, necessary and important for the health field as a whole.

Collaborations

GC Esswein worked at all stages of this paper. AF Rovaris and GP Rocha worked on the conception, methodology and review. DC Levandowski worked on the design, structuring, critical analysis, and revision of the entire text.

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