Matrix support in Mental Health in primary care: the effects on the understanding and case management of community health workers

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Matrix support is a pedagogical-care device primarily used to increase the problem-solving capacity of primary care, and highly employed in mental health care. The present study assessed the effects of matrix support in mental health in a family health unit in the city of Salvador, Bahia, Brazil. The study employed participant observation and interviews with 12 community health agents, which were analyzed using thematic content analysis. Four dimensions of effects were identified: a) changes in the attitudes of the professionals; b) expanding access to services; c) developing new care practices; d) increasing problem-solving capacity. The support matrix produced changes in the understanding and practices of professionals, as well as in organizational changes of family health units and in their relationship with the service network, indicating that matrix support is an effective intervention to qualify mental health care.

Keywords: Matrix support. Mental health. Primary health care. Assessment in health. Outcome Assessment.

Introduction

Matrix Support (MS) is a technical-pedagogical tool that seeks to establish a relationship between general practitioners and specialists based on co-responsibility of care\(^{1,2}\). In Brazil, this technology has been widely used in the field of mental health by teams of Psychosocial Care Centres (CAPS)\(^{3,5}\), Family Health Support Teams\(^{6,7}\), and Medical and Multiprofessional Health residencies\(^{8,9}\) in support of primary care teams.

A systematic review identified 86 articles on MS in mental health in primary care, highlighting the perspectives of specialists and non-specialists in mental health on the support and different ways of organizing MS practice\(^{10}\). Another review, on MS in mental health, pointed out a recurring recognition by
professionals of the importance of MS in increasing the team’s care capacity for people in psychological distress\textsuperscript{11}. A third review, specifically on MS in mental health in the Family Health Strategy (ESF), identified frequent positive assessments by the professionals involved, but highlighted the paucity of formal evaluations that indicate whether MS goals have been achieved\textsuperscript{12}.

Despite the scope of the use of MS in mental health, there is a shortage of evaluations that highlight the effects of this tool in praxis - understood here as an articulated practice of reflection and action oriented towards a certain purpose - of the health professionals involved. Considering this change as a result sought by MS, we developed an investigation about its effects on mental health in a family health unit in the city of Salvador, prioritizing, in this article, the point of view of Community Health Workers (CHWs).

CHWs have an interesting potential for the development of innovative actions, consistent with their "hybrid and polyphonic" profile: being at the same time natives of the community and endo-cultured professionals primarily trained on the biomedical model\textsuperscript{13}. In the field of mental health, the particularity of these workers has also been pointed out to activate the resources of the community for territorial care\textsuperscript{14-17}. This set of studies points to the articulation between specialized mental health practices and practices developed in primary care in a more dialogic and horizontal perspective, that is, not only the specialized knowledge informing general practices, but the general and popular knowledge used in the territory as rich sources of information for specialized knowledge, seeking to rebalance the value of different experiences of reality.

Dialogicity as a principle was present in the design of the matrix-based strategies model and later uses, evidenced by terms such as: linkage and dialogue between areas\textsuperscript{18}, interlocution between services\textsuperscript{19}, knowledge exchange, inventions and experimentations\textsuperscript{20}, among others. In spite of this, several MS studies on the practices and effects of mental health MS did not prioritize a more detailed description of these effects or peripherally addressed the interference of the supported (the “matrixed”) in this in-service training process. For this purpose, Nunes et al.\textsuperscript{21} work with the concept of "articulation transvectors" and suggest the examination of primary care performance in the field of mental health from specific dimensions: bio-socio-cultural resources, socio-sanitary reality analysers and epistemological feedback between practices.

In this study, the mental health interventions of CHW were taken as the object of analysis, prioritizing effects of matrix actions on the practices performed. Our attempt to suspend the unidirectionality of the matrix supporters/supported vector intends to highlight the idiosyncratic aspects of the CHWs’ experience in their field of action in order to re-signify and reorient actions.

**Methodology**

The research was conducted in 2013 and 2014 in Salvador city, in the Liberdade Sanitary District, in a health centre housing two family health teams and looking after a population of 22,000. The MS in mental health began in the unit in 2010, as a pioneering experience in the municipality, first performed by a multi-professional residency program and progressively incorporated by the reference CAPS teams.
In this investigation, we were guided by both the meanings produced by CHWs on their actions and the actions resulting from produced meanings, i.e. practices materialized or updated through concrete experiences.22 To this end, we use the ‘system of signs, meanings and practices’ theory formulated by Corin et al.23, outlining a methodology that moves between the production of semiotic, interpretive, and pragmatic elements in building a culturally sensitive and community-based approach to mental health. Therefore, we designed the research in function of three interconnected goals and moments:

a) Initially, we highlight the signs of visibility attributed by health professionals in the identification of aspects that indicate mental health problems;
b) Then, we relate these signs to the meanings - or interpretations - produced by these actors that show aspects of their socio-cultural context in the definition of these problems and the ways of managing or confronting them;
c) Finally, we anchor these signs and meanings in concrete cases, evidencing the practices that underlie this system, shifting from representations to their concrete manifestation. These practices were detailed in the professionals’ reports about the concrete cases they studied, as well as through the observation of these practices and the reconstruction of some observed cases.

We used participant observation of the unit routine, MS activities, and semi-structured interviews with all CHWs of the unit (n = 12). The interviews were recorded, transcribed and analysed by thematic content analysis.24 In this procedure, the content of the interviews was compared seeking similarities, recurrences and contrasts in what the CHWs reported on their mental health care interventions (practices), the elements they considered discriminating to identify situations of psychic suffering, risks, vulnerabilities and intervention possibilities (signs), as well as the constructions developed to give meaning to this reality (meanings). From these reports we have identified the emergence, as ‘experience-distant’, of ethical concepts from the fields of both mental and collective health, such as hospitality, bonding, co-management and resolutivity, which have been signified and reworked, through CHWs’ emic knowledge, as ‘experience-near’.

The research complied with Resolution 466/12 of the National Health Council and was approved by the Research Ethics Committee (report number: 0040.0.069.069-11). The names of professionals and users are fictitious.

Results and discussion

Effects of MS on the attitude of health professionals: from fear and invisibility to responsibility in healthcare

CHWs report changes caused by MS, comparing reactions and postures of the family health team before and after the implementation of this methodology. Two attitudes initially identified were the fear of madness and a lack of recognition of mental health demands as within the scope of the team’s responsibility. However, MS activities enabled a “change in outlook” in relation to such cases, either by developing a greater understanding of what mental disorder / psychic suffering is, or by the discovery or invention of intervention possibilities:
“I think people are still very afraid of the mentally ill. I improved myself a little bit. I got better with my mentally ill patients after I had this training.” (Aline)

“There was no more fear of getting to the wound. Because, before, there was what? We brought the problem, then the staff said ‘no, you can’t get into it.’ Always with that fear of moving forward. But if I’m from the health area, I’ve got to go there and talk.” (Lídia)

Fear, anguish and anxiety are common reactions of primary care professionals in dealing with mental health issues. There is a fear of unpredictable behaviours, including violent behaviour, at the same time as professionals perceive themselves as having few resources to help, generating a sense of unpreparedness and fear. However, the contact of professionals with such demands, in situations where they can exercise and recognize their potential for care, facilitates the demystification of madness.

Another aspect involves previously ignored demands for mental health care, which produces an "invisibility" of mental health cases:

“In mental health? Look, now, with this work [MS], the agent [CHW] triggers, because before we did not have that outlook. We just looked at what? Hypertension, diabetes, these other diseases. Mental health, we did not. We knew it existed, but did not have that outlook. [...] Now, when you identify a situation like this, the worry is greater to try to resolve soon. Then you have another outlook. It's not that outlook of carelessness.” (Letícia)

Invisibility is not produced by the difficulty of perceiving demand or clarity in diagnosis (although such problems may exist). Before MS, the team's usual stance was to ignore mental health cases, even when some health need was identified. From the team’s perspective, there was no responsibility for intervention, which is an essential step to translate need into demand. With MS, mental health progressively becomes a "legitimate demand" of primary care, with CHWs actively seeking to identify new cases.

The change in the professionals’ attitude evidences a greater understanding of what happens to people affected by psychic suffering / mental disorder, allowing greater approximation to the cases, reducing the professionals’ feeling of fear and facilitating the adoption of the team’s healthcare responsibility about the cases:

“That has changed as well, because today I look better at people, I’ve more understanding of these people. That they can’t be like me. [...] It changed in this, in the way of looking.” (Lídia)

We perceive that CHWs get nearer to the experience of psychic suffering / mental disorder, since the statements do not indicate a change in technical knowledge, such as diagnostics or other biological or psychodynamic explanations considered ‘light-hard technologies’. Such relational change is a process that, although it can be facilitated by the appropriation of structured knowledge (contained in initiatives of "on-the-job training" on any subject), differs from mere learning, since it is based on the capacity of empathy and understanding towards those in mental suffering. We observe, thus, the creation of some "logics" of possible intervention:
“First, we have to work on her [the mother], and then on the child [patient]. The whole problem is her and she talks to me”. (Valéria)

“I say: ‘Look, Mr. Caretaker, I need to talk to you, sir, because the person is like this and so and so’. Not forcing him, but to show that he is dealing with the life of a person who needs a different outlook from him”. (Lídia)

Unlike a routine procedure or a standardized prescription for each mental disorder, the narratives suggest the development of CHW "strategies" to deal with cases. The examples highlight the relational and inventive character of care, as a necessary approach for all involved (including users, relatives, neighbours) that fosters the development of ‘light technologies’ by the workers.

Effects of MS on access to health services: information, acceptability and hospitality

The MS contributed to some positive changes in relation to the access into the CAPS and the family health unit. MS made the CAPS better known to the CHWs, either because of a previous lack of knowledge that the service existed, or because it produced familiarity through knowing who the service professionals are. Another aspect concerns the creation of communication tools that facilitated the referral of cases between CAPS and ESF.

Several CHWs stated that they did not know that the local CAPS II (general psycho-social care) and CAPSi (specialized in child and adolescent care) existed, although both services were located in the same area as the health centre, the Liberdade Sanitary District. This district is characterized by a strong tradition of asylum psychiatry, being for many years a hub of psychiatric hospitals in Salvador. This single region concentrated the Santa Monica Hospital (closed in 2003), the Bahia Sanatorium and the Ana Nery Health House (both closed in 2006), along with the Mário Leal Specialized Hospital (still in operation). The closure of three large psychiatric institutions over a period of three years led to a sharp reduction of 1,100 psychiatric beds, with no immediate transfer of care to local substitution services, since the CAPSi was inaugurated in that territory in 2004 and the CAPS II only in 2007.

The visibility of CAPS services can be considered a precondition for improving access to them, since information is one of the fundamental dimensions of access. Knowing other mental health services, besides the hospital, and other models of care, other than outpatient and inpatient practices, has deep effects on demand and access to the substitutive services.

Another dimension of access is acceptability, which refers to the congruence between users’ expectations about care and the care effectively offered. The way in which the CAPS are perceived is determinant for the search and adhesion to the services, and MS also influenced this aspect of access:

“[...] after I had the first meeting with the CAPS staff, I went through all the houses, made a list of people who use medicine. And then I brought it to the staff, the staff made a survey of where they were cared for, and they gave me feedback. [...] There are people who no longer want to go to the psychiatric hospital, they just want to go to the CAPS.” (Marília)
CHWs themselves change their attitude when they recognize CAPS as a resource for mental health demands. Therefore, another effect of MS was the increase of formal and informal referrals to the specialized service offered by Family Health Strategy:

“Now, with this work of CAPS, of the matrix [support], the agent [CHW] triggers. There is one more look at these situations, because before we identified this, of course, but didn’t have this concern, of even sending to some sector. [...] But with regard to us, health agents, we didn’t have this relationship, because there wasn’t this support yet.” (Letícia)

A study identified that mental health MS in the municipality of Sobral increased the capacity of attending simpler cases by primary care itself, making the referred cases progressively of greater severity or complexity31. We did not observe the same results, because it was not possible to identify whether the increase in acceptability indicated an increase in the proportion of referrals of severe cases. However, it is important to highlight that, in a field where the legitimacy dispute between hospital services and substitutive services has deep historical roots, increasing availability for CAPS is an important milestone, even when a refinement of the referral criteria has not happened.

We also observed effects on access to the primary care center. The CHWs reported the development of the service’s capacity to assist people with certain behaviours, such as aggression and social phobia, which in other situations would remain distant:

“One came there, who was having a crisis [psychotic episode], he had a stone to attack his mother. Then he came here like this, agitated. The staff, terrified. But then a doctor, along with Adriana [MS professional], who works on the case, began to talk to him, he calmed down. The doctor went, answered, talked to him, took him to a room. That is to say, we see that all this was the result of this training.” (Sabrina)

Such changes in access to the primary care centre could not occur without concomitant changes in the care offered by these professionals. It should be noted, however, that there are still access barriers for people with mental health problems, due to socio-organizational particularities of the service. There are still situations in which responsibility for intervention is, according to the CHWs, mistakenly attributed only to specialized services:

“I, on the street, well, I already know how to handle it. I know the problem. [...] So, since I receive everything, I listen very well, but when I arrive here, I’m barred. [...] There is a blockage, about which I can’t do anything. [People say:] 'The case of Márcia is for the [psychiatric hospital] Mário Leal. The case of Márcia is CAPS’.” (Marília)

“I had a patient who needed an appointment, she had a [psychiatric] disorder. So she needed an appointment. Imagine the difficulty! [...] Ah, but the doctor made so much trouble that the patient left, and didn’t go.” (Lídia)
These statements are related to the legitimacy of the receiving mental health demands in primary care settings. In some situations, CHWs become advocates of this legitimacy over and against the rest of the centre’s professionals, showing more sensitivity to these cases. The impact of MS on CHWs’ attitude was well attested in our research, but the participation of this single professional category is insufficient to ensure the incorporation of mental health demands in the daily life of the service; it requires the mobilization of all staff members.

**Effects of MS on care practices: approximation, learning and bonding**

The changes in access do not imply only the presence of people with mental health problems in the service. Such a change enters in dialectic relationship with variations in the way health professionals deal with the demands, what we are calling "care effects". Care is a complex process of human interaction, about which we focus on aspects that point to changes. According to the interviewees, a greater approximation to people with mental health problems, and of these with their families and health teams, had taken place, since a "change of outlook" was underway and professionals felt capable of dealing with demands. We also observed manifestations of an ethical and subjective aspect of care, labelled "kindness to users" or "humanity" by the CHWs, categories that make up the workers’ ‘experience-near’. Some narratives point to the establishment of unique links between users and some professionals, producing relationships based on trust. We also noticed proactivity in relation to mental health demands, as well as greater flexibility in the possibilities of intervention.

Transforming care involves changing the perception about people in psychic distress / mental disorder, how to approach them and learn to deal with them:

“[…] what helped me get closer and get to know the mentally ill was to find out how you approach him without causing any harm to you. Because before I thought I was approaching, that they would attack me or have a tantrum in front of others. I was a bit withdrawn, but I learned from the CAPS to deal better with these patients”. (Aline)

Again, the attribution of dangerousness to people in psychic suffering, associated with the possibility of harm to those who approach them, is noteworthy. When the interviewee stresses the general fear that such people "have tantrums", we recognize an anticipation of unpredictability and uncontrollability. Demystification occurs through the possibility of establishing other material and symbolic exchanges, not based on aggression, unpredictability or lack of control, without reproducing excluding and normative practices.

CHWs emphasize the importance of interventions that strengthen bonding, even though they are uncertain about how to conduct themselves technically in the management of cases. The hybrid character of CHW work, which includes both technical skills and knowledge derived from lay culture, is favourable for new possibilities of care in a territory dominated by biomedical knowledge and practice. Mutual engagement in the establishment of bonds has effects on workers and users:
“That person with whom we’ve committed, in a way, that bond of mine, will continue. For example, if someone from CAPS stopped coming, or if the nurse left, [...] the bond would never be maintained. But my bond, however much I don’t want to, will always exist. Because I already [am] that person’s reference”. (Jorge)

The special social insertion of CHWs in the daily life of the community is its main potential for psychiatric reform, an opportunity of transforming social capital into bonds, in order to establish singular therapeutic projects. In a personalized relationship with the users, it is possible to increase flexibility in the routines of procedures, adapting interventions to unique needs. We identified the presence of the hospitality-bonding-accountability tripod in the exercise of mental health care by CHWs. This accountability requires an active attitude towards the user, necessary to change the model of care: to overcome a responsive model, based on the resolution of demands, to a proactive model, which seeks to intervene in health needs, i.e. even when not yet formulated directly as a demand to the service.

**Effects of MS on case resolution: normativity and co-management**

In mental health, there is a historical difficulty in conducting outcome assessment, observed in attempts to use only reduction of symptoms and patterns of service use as outcome measures, and in the use of process or structure indicators as equivalent to results. The adequate evaluation of results needs to incorporate clinical and social variables, as well as elements from the user's perspective, aggregating several points of view as valid judgments of effectiveness (users, family, professionals). It is, therefore, a complex and comprehensive task whose contribution in the literature is still controversial.

Therefore, we do not intend to impose our own conceptions of case resolution to MS. In interpreting the interviewees' speeches, we intend to understand what they consider resolutive, and thus characterize what they have recognized as success and failure in relation to mental health interventions, emphasizing the production of these values through the combination of near and distant experiences.

For CHWs, resolution may be related to increasing frequency of (or initial) access to the family health unit or CAPS, as well as establishing some continuity of clinical interventions (consultations, prescriptions, injections). Interviewees also associate interventions to improvements to the quality of life of the people involved, recognizing the production of "solutions" for some cases: “There was a case from [CHW] Aline, that had a solution too, it was the case of Marcélia [...] We called her brother, and from now on you lot will tell us how she is. Then there was a solution. The case of Abigail too, where I saw beginning, middle and end, in that case I saw a solution”. (Marília)

We emphasize the use of the expression "beginning, middle and end", indicating that the intervention would represent a temporally determined process, at the end of which we could recognize success or failure as a discrete variable: was the goal / objective reached or not? This conception is reinforced by another extract from the same interview, where it is stated, about another case, that there was no resolution: “What didn’t have solution was the case of Márcia. I want to see Márcia getting her tubes tied [tubal ligation]”! (Marília)
It is interesting to note that the goal (tubal ligation) did not occur (for a number of factors, including the user’s ambivalence regarding both the procedure and the desire to be a mother again). However, for the CHW interviewee, without this procedure there was no resolution to the case. This point is illustrative of a challenge, common to the care for various chronic conditions, not only severe mental disorder: in the absence of the possibility of "cure," there is a risk of trying to replace it with whatever "healthy" behavior. In the case in question, avoiding future pregnancies would be considered by the CHW to be healthy, even if this project does not contemplate the users’ wishes and health ideals. Therefore, even if "cure" is not used as a normative reference, "healthy behaviour" fills this space, maintaining the normativity of health interventions.

The notion of health requires the inclusion of a personal frame of reference because it implies values and desires, not just technical determinations; it implies "projects of happiness" that, although they can use the information of structured knowledge systems, are essentially life choices and demand a co-management of care between users and health professionals.

Some statements consider as resolutive the increased frequency of access to health services and to specific interventions, thereby equating outcomes with measures of service use. However, other statements question the increase of consultations and medication use as indicators of resolution. We present excerpts from both situations:

“And today, Marcélia comes here to the unit, comes to the clinic, comes to do preventive treatment, takes vaccine. So the work [...] was successful”. (Marília)

“Some referrals have been made. In the case of Fernanda, there was contact with the tutor, forwarding to the CRAS [social assistance service], the CRAS made the visit, but gave no answer, just made the visit. And in the case of other patients too, they did the home visit, the doctor saw and treated the patient in my area. [...] Then the doctor came here, took care of her, made the referral and didn’t solve much”. (Aline)

The last citation points to the expectation of an effect on users’ health, that is not always obtained, even with specialized support and intersectoral action. In this case, the contact with different professionals was not enough to cause the expected change; the CHW, emphasizes the maintenance of the health status, of inadequate family relationships and of prejudice on the part of the community. However, narratives about other cases recognize possible changes in these aspects:

“Even here, it was difficult for her to come for consultations. After matrix support kicked in, along with the basic unit, all of that has changed. She nowadays attends the appointments; she is a regular visitor here in the unit. She does follow up at the CAPS and she is being directed to another location to do workshop activity. To help her. She is now well dressed, with the house painted, everything has been modified. So it was a breakthrough”. (Sabrina)

In these accounts, we observe that results refer not only to the user’s behaviour, but also to the relationship with the community, family, and health service. Realizing these changes as a product of CHWs’ and the MS team’s action reinforces the perception that their interventions achieve satisfactory
results. The possibility of joint actions with professionals in the area of mental health (home visits and psycho-social care) was seen as producing responses to the users’ demands - and simultaneously to the CHWs’ longings: they want to see concrete changes in the life situation of the users under their care.

**Conclusion**

The set of effects analyzed here was segmented between themes of professionals’ attitude, care, access and case resolution, in order to emphasize particular aspects identified in the interviews and during observation of the activities. We consider that this set of effects is synchronous and reveals changes in praxis whose dimensions and unfolding can be better observed with said segmentation. Hence, we conclude that MS has been a potent strategy in the qualification of mental health care, with consequences in the direct assistance to the users, organizational transformations inside the health unit and changes in the way the teams relate to the rest of the health network.

Such changes in praxis have occurred from the possibility of dialogue with specialized professionals or services, always considering the demands that emerge from the workers’ daily practice in the primary care centre. In so doing, a creative relationship is established, in which the technical and relational skills of those involved produce a new synthesis, more adequate to the reality of primary care, its users and health teams.

The results of MS must be understood as a dynamic totality: an articulated set of interrelated effects and reciprocal influences. Consequently, although we segmented its elements as a didactic resource, its understanding requires an integrated consideration of these various effects. The reduction of stigma allowed a greater approximation between team and persons with mental health problems, establishing the team’s healthcare responsibility for a series of demands. This approach has produced awareness and learning experience, creating new ways of dealing with and intervening with cases, facilitating their access to health services and producing new responses to their health needs. The recognition by workers and users of these small and big successes contributes to the dissolution of problematic and paralyzing notions such as the idea of the inevitable chronicity and degeneracy of people with mental disorder / psychic suffering, or the belief that mental health problems are far and apart from the general field of health. This brings us back to the theme of madness stigma and its reduction, in a circular process that reveals the artificiality of assigning a single point of this process as the "beginning" of observed changes.

Several cases identified by the CHWs lived in the territory, but had never been identified, much less had consulted or been referred to the CAPS. In carrying out such actions, supported by matrix support, CHWs start from an initial semiological perspective, to produce visibility; they enter the semantic perspective, when they interpret both the behaviours and the conditions that produce illness or improvement in the cases; and they reach the pragmatic perspective when they act, seeking to interfere in the history of these people. In this triad is developed the integrated analysis of signs, meanings and practices.

In this experience of matrix support, CHWs have participated considerably more frequently in MS activities than other professionals. This reveals a fragility of the organization of care for mental health
cases: without the awareness and action of the whole team, interventions become more limited. However, despite the different degrees of participation among professionals, we perceive that the changes brought about by the supported CHW work also pressure "outwards": family health teams are challenged to approach mental health cases from the reverberation caused by their actions. Similarly, the rest of the health care network (including CAPS) is being reorganized, as the issues raised by the ESF address aspects of the quality of life of these sometimes-neglected people, and require action from other instances besides the family health unit.

We thus consider that the demands revealed from primary care are not limited to the identification of new cases, or to accountability for simpler cases: the ESF, strengthened by MS, produces an unequivocal contribution in the construction of integrative care for people with mental health problems.

Collaborators
The authors Carlos Eduardo Menezes Amaral, Mônica de Oliveira Nunes Torrente, Carolina Pinheiro Moreira and Maurice de Torrenté have contributed substantially to all stages of the article's development, including designing research, analyzing and interpreting data, writing and approving the final version of the article.

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Translated by Maurice de Torrenté