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Analysis of the benefits and challenges faced by health professionals during the implementation of matrix support in Basic Health Units in Olinda, Pernambuco

Análise dos benefícios e dificuldades enfrentadas pelos profissionais de saúde durante a prática do matriciamento nas Unidades Básicas de Saúde de Olinda, Pernambuco

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Abstract

Objective: To analyze the benefits and challenges of implementation of matrix support in Basic Health Units (BHU) in Olinda, Pernambuco, Brazil. **Methods:** An observational cross-sectional study was conducted using primary data collected through a questionnaire applied to health professionals in the BHU of Olinda. **Results:** The sample included 57 health professionals, comprising physicians, nurses, and dentists. A total of 80.7% of participants reported knowing matrix support, whereas 19.3% had no knowledge. In addition, 52.6% of participants declared that matrix support was implemented in their BHU, whereas 47.4% reported its absence. **Conclusion:** Although health professionals presented theoretical knowledge on matrix support, they faced practical challenges due to limited experience in its implementation. Thus, the urgency of investing in further training and strengthening of multidisciplinary teams to improve the implementation of matrix support was evidenced.

Keywords: Primary health care; Patient care team; Public health.

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Resumo

Objetivo: analisar os benefícios e dificuldades do matriciamento nas Unidades Básicas de Saúde (UBSs) em Olinda, Pernambuco, Brasil. **Métodos:** Estudo observacional do tipo transversal em que foi realizada coleta de dados primários por meio de questionário distribuído nas UBSs de Olinda. **Resultados:** A pesquisa obteve uma amostra de 57 profissionais da área da saúde, entre médicos, enfermeiros e dentistas. Dos participantes, 80,7% responderam ter conhecimento sobre o que é matriciamento, enquanto 19,3% afirmaram não saber. No que se refere à realização da prática do matriciamento nas UBSs, observou-se que 52,6% dos participantes responderam que realizam, enquanto 47,4% responderam que não realizam. **Conclusão:** Os profissionais de saúde demonstram conhecimento teórico sobre o matriciamento, porém enfrentam obstáculos práticos devido à falta de experiência na implementação. Isso ressalta a urgência de investimentos em capacitação aprofundada e da organização de equipes multidisciplinares para alcançar avanços efetivos na área.

Palavras-chave: Atenção primária à saúde; Equipe multiprofissional; Saúde pública.

INTRODUCTION

According to the Brazilian Ministry of Health, matrix support promotes health through shared development by two or more teams, creating a pedagogical-therapeutic intervention. This approach expands healthcare by incorporating specialized technical support from a multidisciplinary team, focusing on primary healthcare (PHC)[1]. Currently, the teams responsible for matrix support are known as multiprofessional teams in PHC (eMulti) and consist of health professionals from different areas working complementarily and integrated with other PHC teams[2].

Matrix support integrates and coordinates various contact points involved in individual care, aiming to increase team responsibility and strengthen the relationship between the user and PHC. Also, continuous monitoring is essential to avoid matrix support becoming an itinerant specialty outpatient clinic since the individual remains attached to the territory[3,4]. Furthermore, specialized services, such as psychosocial care centers and expanded centers of family health in PHC (NASF-AB), rely on matrix support as the main strategy to reinforce the relationship with users[5].

Matrix support offers numerous benefits, including the development of eMulti, reducing the number of referrals and increasing commitment to health, case management, and connection between users and healthcare teams[6,7]. Previous reports have listed the benefits of multiprofessional engagement with individuals with diabetes, hypertension, sexually transmitted infections, and other conditions[8-11]. However, the effectiveness of matrix support revealed relevant challenges in implementing a new approach to healthcare practice, which was previously a hierarchical model[12].

In this sense, this study aimed to explore the benefits and challenges associated with the

implementation of matrix support, which is essential to improve the PHC flow and organization and the training of health professionals for integration of all users needs.

METHODS

This observational and cross-sectional study collected data between March 14 and May 14, 2023, by convenience sampling. A closed-ended questionnaire developed by the researchers addressing personal knowledge and practical implementation of matrix support in Basic Health Units (BHU) and a sociodemographic questionnaire were applied. The study sample consisted of health professionals (i.e., physicians, nurses, and dentists) of both sexes working in the BHU of the municipality of Olinda, Pernambuco, Brazil. Health professionals working in BHU who agreed to participate voluntarily in the study were included. Exclusion criteria comprised individuals under 18 years of age, non-health professionals, and those on leave or vacation.

Sample characterization data were analyzed using descriptive statistics with absolute and relative frequencies. Data were plotted in spreadsheets and stored in file folders, which were kept on personal computers of the researchers for five years for safekeeping. Statistical analyses were performed using STATA/SE (version 12.0, Timberlake Analytics, New York, NY, USA) and Excel (Microsoft Office, Redmond, WA, USA) software. Fisher's exact test assessed the significance of the association between two categorical variables.

All participants were informed about the study aim and signed an informed consent form to ensure voluntary consented participation in completing the questionnaire.

RESULTS

Of the 57 health professionals included, 23 (40.4%) were physicians, 27 (47.4%) were nurses, and 7 (12.3%) were dentists. Also, 15 participants (26.3%) were male, and 42 (73.7%) were female. Regarding the age distribution, 15 participants (26.3%) were aged between 25 and 34 years, 20 (35.1%) were between 35 and 44 years, 14 (24.6%) were between 45 and 59 years, and 8 (14.0%) were ≥ 60 years. A total of 14 participants (24.6%) had between one and four years of training experience, 6 (10.5%) had between five and nine years, and 37 (64.9%) had ten or more years. Regarding the time working in the BHU, 13 (22.8%) participants worked for less than one year, 21 (36.8%) worked between one and four years, 7 (12.3%) worked between five and nine years, and 16 (28.1%) worked for ten or more years (Table 1).

Table 1. Sociodemographic profile of the professionals selected from the Basic Health Units (BHU) of Olinda, Pernambuco, Brazil (2023)

Variables	n	%
Sex		
Male	15	26.3
Female	42	73.7
Age		
25 – 34 years	15	26.3
35 – 44 years	20	35.1
45 – 59 years	14	24.6
≥ 60 years	8	14.0
Professional area		
Physician	23	40.4
Nurse	27	47.4
Dentist	7	12.3
Training experience		
1 - 4 years	14	24.6
5 - 9 years	6	10.5
≥ 10 years	37	64.9
Time working in the BHU		
< 1 year	13	22.8
1 - 4 years	21	36.8
5 - 9 years	7	12.3
≥ 10 years	16	28.1

A total of 46 participants (80.7%) were familiar with the concept of matrix support, whereas 11 (19.3%) had no knowledge on the topic. Regarding the experience with matrix support, 5 (8.8%) professionals classified it as very good, 11 (19.3%) as good, 16 (28.1%) as regular, 10 (17.5%) as poor, 5 (8.8%) as terrible, and 10 (17.5%) reported no experience. Thirty participants (52.6%) answered “Yes” to whether the practice of matrix support provided benefits, whereas 27 (47.4%) answered “No”. Also, 9 participants (30.0%) associated these benefits with support, 4 (3.0%) with training, and 17 (56.7%) with assistance. Regarding difficulties with matrix support, 31 (62.0%) reported “Yes,” and 19 (38.0%) reported “No”. Among the reported difficulties, 12 (38.7%) participants mentioned the lack of assistance, 12 (38.7%) mentioned poor communication, and 7 (22.6%) mentioned inadequate training (Table 2).

Table 2. Knowledge of the participants on matrix support in the Basic Health Units of Olinda, Pernambuco, Brazil (2023)

Variables	n	%
Do you know what matrix support is?		
Yes	46	80.7
No	11	19.3
How was the experience?		
Very good	5	8.8
Good	11	19.3
Regular	16	28.1
Poor	10	17.5
Terrible	5	8.8
None	10	17.5
Had your experience with matrix support any benefit?		
Yes	30	52.6
No	27	47.4
If yes, which benefit was identified?		
Support	9	30.0
Training	4	13.3
Assistance	17	56.7
Was there any difficulty with the matrix support?		
Yes	31	62.0
No	19	38.0
If yes, which difficulty was faced?		
Lack of assistance	12	38.7
Poor communication	12	38.7
Inadequate training	7	22.6

Regarding the implementation of matrix support in the BHU (Table 3), 30 (52.6%) participants reported that it was implemented, whereas 27 (47.4%) reported no implementation. Also, 17 participants (29.8%) reported that a designated health professional was responsible for coordinating the matrix support practice, whereas 40 (70.2%) reported no designation. Additionally, 36 (63.1%) participants reported that the BHU conducted no meetings on matrix support, and 24 (42.1%) reported no receptions related to matrix support at the BHU in the past year (Table 3).

Table 3. Information on the practice of matrix support in the Basic Health Units (BHU) of Olinda, Pernambuco, Brazil (2023)

Variables	n	%
Does your BHU have the practice of matrix support?		
Yes	30	52.6
No	27	47.4
Has the BHU at least one person responsible for the matrix support?		
Yes	17	29.8
No	40	70.2
If yes, who is the responsible professional?		
Physician	3	17.6
Nurse	10	58.9
Other professional	4	23.5
Frequency of meetings on matrix support		
Weekly	1	1.8
Twice a week	1	1.8
Monthly	9	15.8
Quarterly	4	7.0
Twice a year	6	10.5
Does not occur	36	63.1
How would you describe the follow-up of patients receiving matrix support?		
Full resolution	5	8.8
Partial resolution	26	45.6
Do not know	26	45.6
How many receptions related to matrix support occurred in the past year?		
None	24	42.1
1 - 9	16	28.1
10 - 29	8	14.0
30 - 49	4	7.0
≥ 50	5	8.8

The analysis of the data shown in Table 4 identified a significant association of “How was the experience?” and “Have you had any benefit from your experience with matrix support?” with “Do you know what matrix support is?” variables.

Table 4. Association between the variables of experience, benefit, and difficulties about matrix support in the Basic Health Units of Olinda, Pernambuco, Brazil (2023).

Variables	Do you know what matrix support is? Yes n (%)	No n (%)	p-value*
How was the experience?			
Very good	5 (100.0)	0 (0.0)	**< 0.001**
Good	11 (100.0)	0 (0.0)	
Regular	16 (100.0)	0 (0.0)	
Poor	8 (80.0)	2 (20.0)	
Terrible	3 (60.0)	2 (40.0)	
None	3 (30.0)	7 (70.0)	
Have you had any benefit from your experience with matrix support?			
Yes	29 (96.7)	1 (3.3)	**0.001**
No	17 (63.0)	10 (37.0)	
If yes, which benefit was identified?			
Support	8 (88.9)	1 (11.1)	0.433
Training	4 (100.0)	0 (0.0)	
Assistance	17 (100,0)	0 (0.0)	
Was there any difficulty with the matrix support?			
Yes	27 (87.1)	4 (12.9)	0.284
No	19 (100.0)	0 (0.0)	
If yes, which difficulty was faced?			
Lack of assistance	12 (100.0)	0 (0.0)	0.245
Poor communication	9 (75.0)	3 (25.0)	
Inadequate training	6 (85.7)	1 (14.3)	

DISCUSSION

Gastão Wagner Campos first introduced the concept of matrix support in 1999 as a collaborative care approach focused on pedagogical and therapeutic dimensions. This concept contrasted the traditional healthcare systems, which were inadequate to address the demands of specialized care and other essential health services within the community. However, matrix support was only formally established by the Brazilian Ministry of Health in 2003, providing technical support for the specialized areas of PHC[13,14].

The present study showed that most of the participants were familiar with the concept of matrix support in the BHU of the municipality of Olinda. However, a relevant portion of the participants demonstrated no minimal understanding of matrix support, showing that it is not yet universally implemented. These data corroborated a previous study showing that healthcare teams presented uncertainties regarding the definition and methodological application of matrix support[15].

Most participants reported some challenges with matrix support, including the lack of

assistance and poor communication as primary challenges, followed by inadequate training of professionals in PHC. A qualitative study focusing on the comprehension and experience of matrix support in the field of mental health explored the barriers to its implementation, highlighting challenges in training professionals to meet the healthcare needs of users. Also, this difficulty in training occurred due to a shortage of professionals available to participate in the matrix support teams[16].

Previous studies on mental health demonstrated that matrix support offered relevant benefits. For instance, a study conducted at the Federal University of Uberlândia in Minas Gerais (Brazil) found that matrix support decreased the referrals of patients from the PHC by providing effective solutions within their territory. In addition, the matrix support integrated the specialists involved, promoting the exchange of interdisciplinary knowledge[17]. Also, 52.6% of the studied BHU implemented matrix support, whereas 47.4% did not[17]. Another study on matrix support in mental health showed that its interventions were not successfully provided to meet the healthcare needs of the users, and only 55% to 73% of the teams provided matrix support in mental health[18].

Despite the prevalence of matrix support in BHU, 63.1% of them did not adhere to a monthly meeting agenda on the topic. Also, a study highlighted that these meetings did not occur according to the demand for users but to the agendas of health professionals willing to participate. Furthermore, the wide-ranging number of professionals attending these meetings was potentially linked to the lack of commitment to matrix support[19].

Regarding the presence of a designated health professional responsible for the matrix support in BHU, the findings indicated that the responsibility was mainly centered on the nursing team, followed by physicians. According to the Brazilian Ministry of Health, reference teams for matrix support are multidisciplinary and transdisciplinary, and each specialty has relevance according to the service aim. Therefore, the importance of each team should be related to the success of outcomes rather than the prestige of a profession. Some studies have evidenced the centralization of care based on certain specialists (e.g., psychiatrists in psychosocial care centers), diverging from the model of shared and comprehensive matrix support that does not consider specialists individualy[17,20].

One of the limitations of this study was the scarce number of previous studies on matrix support. Considering that the available studies on matrix support in mental health may indicate a relevant demand for this specific topic, research has been focusing on this area rather than other specialties or contexts. The technical note no. 3/202022 by the Brazilian Ministry of Health revoked NASF-AB services and introduced a new financing model for PHC, potentially leading to limitations in publications related to matrix support within the NASF-AB framework. Thus, matrix support became fragmented across several municipalities, which may have reduced research and publications in this specific context.

CONCLUSION

This study showed that health professionals have theoretical knowledge on matrix support but face challenges due to a lack of experience with its implementation. In this sense, these findings highlighted the urgent need to invest in further training and organization of multidisciplinary teams to promote effective advances in matrix support. The impacts of matrix support on BHU may improve the resolution and continuity of care and reduce referrals to secondary services, ensuring continued care and improving user satisfaction and adherence to therapeutic practices. Considering the scarce number of available studies, further studies are needed to enhance understanding and establish BHU as pedagogical-therapeutic environments.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

AUTHOR CONTRIBUTIONS

AAPM, FMBF, and JAMG: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing - original draft. **JLVS and SCAP:** Formal analysis, Supervision, Validation, Visualization, Writing - review and editing. All authors read and agreed with the final version of the manuscript.

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