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Attributes of primary health care in the assistance for people with leprosy: nurses' perspective

Atributos da atenção primária à saúde no cuidado à pessoa com hanseníase: perspectiva do enfermeiro

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ABSTRACT | OBJETIVO: Evaluate the attributes of Primary Health Care (PHC) in leprosy control actions from the perspective of nurses. **MATERIALS AND METHODS:** A cross-sectional, descriptive and quantitative study was carried out. A previously validated instrument to assess PHC attributes was virtually applied to nurses linked to the Family Health Strategy (FHS) in a city in Northeast Brazil in 2020. This instrument includes 76 items divided into eight components, considering the essential and derived attributes of PHC. **RESULTS:** Considering 72 FHS nurses (82,7%; n=72) the attribute "access" was the only one that did not reach the cutoff point of high orientation of the PHC in the assistance of people with leprosy (≥ 6.6), reaching a score of 6.0 in the view of the participants. The essential attributes "entrance", "continued care" and "coordination" reached scores of 10, 9 and 8.7, respectively. "Family guidance" as a derived attribute reached a score of 10. **CONCLUSION:** From the perspective of FHS nurses in a city in Northeast Brazil, with the exception of access, assistance for people with leprosy is provided based on the attributes of PHC.

KEYWORDS: Leprosy. Primary Health Care. Nurses.

RESUMO | OBJETIVO: Avaliar os atributos da Atenção Primária à Saúde (APS) nas ações de controle da hanseníase sob a perspectiva dos enfermeiros. **MATERIAIS E MÉTODOS:** Foi realizado um estudo transversal, de natureza descritiva e quantitativa. Um instrumento previamente validado para avaliar os atributos da APS foi aplicado virtualmente em enfermeiros vinculados à Estratégia de Saúde da Família (ESF) em um município da região Nordeste do Brasil em 2020. Tal instrumento contempla 76 itens distribuídos em oito componentes, considerando os atributos essenciais e derivados da APS. **RESULTADOS:** Considerando 72 enfermeiros da ESF (82,7%; n=72) o atributo "acesso" foi o único que não alcançou o ponto de corte de alta orientação da APS no cuidado à pessoa com hanseníase (≥ 6.6), alcançando o escore 6.0 sob a perspectiva dos participantes. Os atributos essenciais "porta de entrada", "atendimento continuado" e "coordenação" alcançaram os escores 10, 9 e 8.7, respectivamente. A "orientação familiar" como atributo derivado alcançou o escore 10. **CONCLUSÃO:** Sob a perspectiva dos enfermeiros da ESF de um município do Nordeste brasileiro, com exceção do acesso, o cuidado à pessoa com hanseníase é prestado de forma orientada pelos atributos da APS.

PALAVRAS-CHAVE: Hanseníase. Atenção Primária à Saúde. Enfermeiras e Enfermeiros.

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Introduction

Leprosy is an infectious disease caused by the infection of humans with *Mycobacterium leprae*, also known as the Hansen's bacillus. During the course of the illness, infected individuals predominantly manifest dermatoneurological symptoms, with the skin and peripheral nerves being the most affected structures. Moreover, individuals who fall ill often experience significant reductions in functionality and quality of life, while facing social limitations and stigmas.¹ In the field of Public Health, despite being preventable and curable, leprosy is considered a neglected disease, representing a significant portion of the global disease burden.²

To understand leprosy from a Public Health perspective, it becomes necessary to investigate epidemiological profiles and the spatiotemporal distribution of this disease, as well as evaluate the healthcare provided to infected patients. On the international scenario, Brazil has stood out over the past decade regarding leprosy, whether due to the increasing incidence of the disease (despite significant underreporting) or the implementation of sanitary measures to prevent and treat it in a timely manner, considering the implementation of public policies and the organization of healthcare services, especially the Sistema Único de Saúde – SUS (Unified Health System).^{3,4}

In Brazil, Primary Health Care (PHC), as a level of care, has been actively involved in leprosy prevention and control actions, focusing on comprehensive and continuous care for infected patients, their contacts, and family members.⁵ In this perspective, it is investigated how the attributes of PHC guide the care provided to individuals with leprosy in healthcare systems.⁶ Currently, it is understood that a high orientation of leprosy control actions (LCA) by the attributes of PHC leads to better outcomes in disease-related indicators and parameters. When healthcare services and professionals align with the attributes of PHC (such as access, comprehensiveness, and longitudinality), health actions demonstrate higher quality, resolvability, and impact on the disease.^{5,6}

In parallel, it is known that, despite the multidisciplinary care, nurses stand out in the performance of LCA.

The provision of care offered by nurses includes screening, treatment and social reintegration of ill individuals.⁷ The role and characteristics of each professional in caring for leprosy patients is an important perspective, as it can directly influence the capacity of health services in offering assistance guided by the attributes of PHC.⁸ Nevertheless, to the best of our knowledge, there exists a gap in the state of the art. Therefore, the aim of this study was to evaluate the attributes of Primary Health Care in leprosy control actions from the perspective of nurses. The alternative hypothesis tested is that the essential and derived attributes of PHC satisfactorily guide LCA (high orientation) in the city of Petrolina, Pernambuco, Brazil.

Materials and methods

This was a cross-sectional, descriptive, and quantitative study. The STROBE initiative checklist (Strengthening the Reporting of Observational Studies in Epidemiology) was used to guide and enhance the reporting of this study.⁹

Regarding the ethical issues of the investigation, the study protocol was submitted and reviewed by the Research Ethics Committee of the School of Government - Fiocruz, obtaining approval for execution (CAAE: 27810519.0.0000.8027), under opinion number 3,978,052. The development of all study stages took into consideration the Resolution 466 (December 2012) of the Brazilian National Health Council¹⁰, which provides guidance and regulatory norms for research involving human subjects within the national territory. Participants were invited and voluntarily agreed to participate by signing the Informed Consent Form (ICF).

According to the latest statistics from the Brazilian Institute of Geography and Statistics (IBGE), the city of Petrolina is located in the semi-arid region of the state of Pernambuco, in the Northeast region of Brazil. The population was 293,962 residents in 2010, projected to reach 359,372 in 2021. It has the largest area among the territorial units of Pernambuco, covering approximately 4,562 km² in terms of

territorial extension, with a population density of 64.4 residents per km². It is situated approximately 712 km away from the state capital, Recife. The urbanized area corresponds to approximately 86.4 km², with 72.7% having proper sanitation facilities. The Gross Domestic Product (GDP) was estimated at 19,416.68 reais (R\$) in 2020. In 2010, the Human Development Index was 0.697. In terms of healthcare, there are 78 health establishments linked to the SUS.¹¹

The study population consisted of nurses working in the Family Health Strategy (FHS), linked to PHC in the city of Petrolina, Pernambuco, Brazil. Overall, there were 87 FHS teams registered in 54 primary healthcare units.¹² Therefore, as all professionals were accessible to the invitation to participate in the study, no sample calculation was performed to quantitatively size the sample, and all nurses linked to the FHS teams in the city were invited to participate. Nurses working in the FHS teams, aged 18 years or older, and who agreed to participate in the study by signing the Informed Consent Form (ICF) were eligible.

The instrument used to assess the presence and extent of PHC attributes was developed and validated by Lanza (2014) in their doctoral work.¹³ This instrument was based on the Primary Care Assessment Tool (PCATool), adapted for the context of leprosy. In the version for professionals (doctors and nurses), the instrument can measure eight components, considering both essential and derived attributes. When measuring each component, the instrument guides that some items should be answered only in cases where the professional meets specific requirements (e.g. providing healthcare to users with leprosy or accompanying patients who have been discharged as cured from the disease).¹³

In this study, the essential attributes considered were: entrance (utilization of PHC services as the primary source of care), access (location and functioning of services for the community), continuity of care (longitudinality; utilization of services offered over time as a continuous

source of healthcare), coordination (integration and synchronization between care levels in the provision of healthcare), and comprehensiveness of available and provided services (existence of various healthcare services capable of offering comprehensive healthcare, considering the biopsychosocial aspects of the health-disease process). As a derived attribute, family orientation was considered (recognition of the individual within their family context, taking into account their strengths and weaknesses for health care).^{13,14}

The cutoff point for high orientation of the PHC attributes was greater than or equal to 6.6, except for the comprehensiveness, which was evaluated descriptively based on the frequency of responses provided by the participants. The score for each attribute was based on the expression: [obtained score - 1 (minimum value)] x 10 / [4 (maximum value) - 1 (minimum value)]. The participants chose their responses on a Likert-type scale, considering the options: 1 (definitely not), 2 (probably not), 3 (probably yes), 4 (definitely yes). In addition to the score for each attribute, a general score was calculated for all attributes. This was obtained by summing the average scores of the components belonging to the essential attributes, added to the score of the derived attribute, divided by the number of attributes measured in all.¹³

Considering the context of the COVID-19 pandemic, data collection was adapted to the virtual environment, conducted between August and October 2020 using the Google Forms tool (Google Inc., Mountain View - California, United States of America). Eligible nurses were contacted via messaging apps (WhatsApp) or email, through which the online form with the data collection instrument was also provided for access. The collected data were imported from the instrument in table format and stored by the research team. Descriptive statistics (mean, standard deviation, absolute and relative frequencies) and graphs were generated to represent the data using the Office Excel tool (version 2016, Microsoft Co., Redmond - Washington, United States of America).

Results

After the invitation to participate, 72 nurses from the FHS teams were included in the study (response rate equal to 82.7%). Out of the total, the majority held postgraduate degrees, with 55 (76.4%) in the *Lato sensu* modality and six (8.3%) in the *Stricto sensu* modality. Regarding the length of time working in the FHS teams, 22 nurses (30.6%) had been affiliated for less than one year, 28 (38.9%) between one and five years, and 22 (30.6%) for more than five years. Moreover, regarding annual training for LCA, 30 (41.7%) did not receive any training, 24 (33.3%) received one training, and 18 (25%) received two or more trainings. In parallel, 35 (48.6%) reported having been engaged in LCA for more than five years, 17 (23.6%) between one and five years, 11 (15.3%) for less than one year, and nine (12.5%) had never been involved. In terms of service demand, when users present any health issues related to leprosy (e.g. neuritis, drug-related adverse events, and leprosy reactions), 54 (75%) reported referring them to the specialized outpatient clinic in the city, 15 (20.8%) keep them within the FHS, and three (4.2%) refer them to other healthcare services.

Table 1 presents the scores of essential and derived attributes in LCA obtained by nurses from the FHS teams, both in raw form (measured on a Likert scale) and converted according to the guidelines of the data collection instrument. The overall score was estimated at 8.7 from the nurses' perspective. It was observed that, except for "access," the other attributes of PHC showed a satisfactory extent in LCA (high orientation), surpassing the cutoff point.

Table 1. Scores of essential and derived attributes of Primary Health Care in leprosy control actions by nurses. Petrolina, PE, 2020

Attribute	Type	Score (Likert)	Score
Entrance	Essential	4.0	10
Access	Essential	2.8	6*
Continuity of care	Essential	3.7	8.9
Coordination	Essential	3.6	8.7
Family orientation	Derived	4.0	10

*: score below the cutoff point (equal to or greater than 6.6).

Source: the authors (2023).

Table 2 explains the extent of the "access" attribute in each assessed item. Based on the obtained frequencies, significant weaknesses were observed from the nurses' perspective, especially the scarcity of appointments outside the standard period, the need to leave activities to attend the Basic Health Unit (BHU), and difficulties in obtaining information from users. In addition to these, the need for motorized transportation to reach the BHU and the healthcare network to support leprosy patients assisted by PHC were factors that certainly contributed to the outcome associated with access.

Table 2. Extent of the "access" attribute in leprosy control actions by nurses. Petrolina, PE, 2020

Item	Responses			
	definitely not	probably not	probably yes	definitely yes
Does the Primary Health Care Basic Health Unit remain open after 6pm at least one day during the week?	64 (89.9%)	6 (8.3%)	1 (1.4%)	1 (1.4%)
During the operating hours of the Primary Health Care Basic Health Unit, is there a phone number to request information?	40 (55.6%)	12 (16.7%)	6 (8.3%)	14 (19.4%)
Do users in the coverage area have difficulty commuting to the Primary Health Care Basic Health Unit?	21 (29.2%)	36 (50%)	13 (18.1%)	2 (2.8%)
Do users in the coverage area have to use any form of motorized transportation to reach the Primary Health Care Basic Health Unit?	17 (23.6%)	33 (45.8%)	20 (27.8%)	2 (2.8%)
Do users in the coverage area have to miss work shifts or commitments to be attended to at the Primary Health Care Basic Health Unit?	3 (4.2%)	15 (20.8%)	46 (63.9%)	8 (11.1%)
When a leprosy contact seeks the Basic Health Unit for evaluation, are they able to get an appointment with a doctor or nurse within 24 hours?	0	5 (6.9%)	31 (43.1%)	36 (50%)
When the Primary Health Care Basic Health Unit is closed, is there another service in the health care network (e.g. emergency care) that the patient can seek for health issues related to leprosy?	6 (8.6%)	24 (34.3%)	22 (31.4%)	18 (25.7%)
Does the leprosy patient receive care at the Primary Health Care Basic Health Unit within 24 hours when they present with neuritis, drug-related adverse events, or leprosy reactions?	0	2 (2.8%)	24 (33.3%)	46 (63.9%)
Does the patient schedule an appointment at the Primary Health Care Basic Health Unit for routine consultation for supervised dosing?	11 (16.4%)	8 (11.9%)	5 (7.5%)	43 (64.2%)
Does the user have to wait for more than 30 minutes upon arrival at the Primary Health Care Basic Health Unit for supervised dosing before consulting with a healthcare professional (doctor, nurse, or nursing technician/assistant)?	29 (40.8%)	27 (38%)	15 (21.1%)	0

Source: the authors (2023).

Table 3 presents the extent of the essential attribute "comprehensiveness" from the perspective of nurses in FHS teams. It was observed that the majority of the BHU where the participants work offer PHC actions guided by this essential attribute. However, concerning leprosy, there are weaknesses in the follow-up of cases under treatment and associated leprosy reactions. In suspected cases, skin sensitivity tests with an esthesiometer and eye tests were not common among nurses in the FHS teams, as well as the performance of quarterly simplified neurological examinations in confirmed cases. In the management of leprosy reactions, weaknesses were observed in performing sensitivity tests on the eyes, hands, and feet, determining visual acuity, providing guidance to rest the affected limb, initiating corticosteroid therapy, and periodically monitoring fasting blood glucose, body weight, blood pressure, and ocular problems that may occur with prolonged use of prednisone.

Table 3. Extent of the "comprehensiveness" attribute in leprosy control actions by nurses. Petrolina, PE, 2020 (to be continued)

Essential attribute: "comprehensiveness"	n (%)
Are the following services available at your Primary Health Care unit?	
Vaccines	71 (98.6%)
Health care for children	72 (100%)
Health care for teenagers	70 (97.2%)
Health care for adults	71 (98.6%)
Health care for older adults	71 (98.6%)
Family planning	72 (100%)
Prenatal	72 (100%)
Preventive exams	68 (94.4%)
Service for STDs	68 (94.4%)
Health care for STDs	62 (86.1%)
Actions endemic diseases	68 (94.4%)
Actions for chronic diseases	70 (97.2%)
Actions for mental health problems	68 (94.4%)
Dressings	72 (100%)
Advice for tobacco use	46 (63.9%)
Advice for healthy eating	70 (97.2%)
Oral health assessment and dental treatment	63 (87.5%)
Home care	69 (95.8%)
Is the Basic Health Unit where you work prepared to offer leprosy actions?	
Management of suspected cases of leprosy	70 (97.2%)
Diagnosis of leprosy	62 (86.1%)
Follow-up of the leprosy case	71 (98.6%)
Assessment of household contacts	69 (95.8%)
Non-follow-up of treatment	16 (22.2%)
Monitoring the treatment of type 1 leprosy reactions	28 (38.9%)
Monitoring the treatment of type 1 and 2 leprosy reactions	46 (63.9%)
Follow-up after discharge due to cure (scheduled)	53 (73.6%)
Follow-up after discharge due to cure (spontaneous)	55 (76.4%)

Table 3. Extent of the "comprehensiveness" attribute in leprosy control actions by nurses. Petrolina, PE, 2020 (conclusion)

Essential attribute: "comprehensiveness"	n (%)
Considering a hypothetical situation about your conduct with leprosy patients, what will be your conduct in the care of a suspected case of leprosy?	
Anamnesis (patient's medical history)	69 (95.8%)
General physical exam	70 (97.2%)
Skin sensitivity test with esthesiometer	29 (40.3%)
Skin sensitivity test with cotton	64 (88.9%)
Skin sensitivity test – hot/cold	60 (83.3%)
Skin sensitivity test – pain (pin)	62 (86.1%)
Palpation of peripheral nerves	61 (84.7%)
Assessment of motor ability (strength)	54 (75.0%)
Hand sensitivity test	51 (70.8%)
Foot sensitivity test	49 (68.1%)
Eye sensitivity test	36 (50.0%)
General guidance (about any disease, including leprosy)	70 (97.2%)
Considering a hypothetical situation about your conduct with leprosy patients, what will be your conduct in monitoring the leprosy case?	
Monthly visit to assess health status and supervised dose administration	72 (100%)
Advice on the correct use of MDT drugs and the main adverse effects	70 (97.2%)
Guidance on self-care practices to prevent disabilities	63 (87.5%)
Guidance for immediate return to the health unit in case of the appearance of signs and symptoms of leprosy reactions	67 (93.1%)
Simplified neurological exam every 3 months, when the patient has no complaints of leprosy-related problems	40 (55.6%)
Assessment of household contacts	70 (97.2%)
BCG vaccine for household contacts when indicated	65 (90.3%)
Considering a hypothetical situation about your conduct with leprosy patients, what will be your conduct upon discharge of the leprosy case?	
Assessment of the physical disability degree at discharge	58 (80.6%)
Guidance for periodic health appointments	61 (84.7%)
Guidance for maintaining self-care practices for the prevention of disabilities	57 (79.2%)
Guidance on the signs and symptoms of leprosy reactions	58 (80.6%)
Considering a hypothetical situation about your conduct with leprosy patients, what will be your conduct in case of leprosy reactions?	
Palpation of peripheral nerves	51 (70.8%)
Assessment of motor ability (strength)	46 (63.9%)
Hand, foot and eye sensitivity tests	35 (48.6%)
Determination of the visual acuity	20 (27.8%)
Guidance for resting the affected limb	29 (40.3%)
Start corticosteroid therapy	18 (25.0%)
Forward to referral service	67 (93.1%)
Periodic monitoring of fasting blood glucose	19 (26.4%)
Periodic monitoring of body weight	30 (41.7%)
Periodic monitoring of blood pressure	30 (41.7%)
Attention to eye problems that can occur with long-term use of prednisone	32 (44.4%)

Source: the authors (2023).

Discussion

This study evaluated the extent of PHC attributes in the care of people with leprosy from the perspective of FHS nurses in the city of Petrolina, Pernambuco, Brazil. The alternative hypothesis tested was partially accepted, since the essential attribute "access" was below the cutoff point necessary for high orientation, indicating low guidance of the LCA developed in the PHC from the perspective of the participating FHS nurses. In the other essential and derived attributes evaluated (entrance, continuity of care, coordination and family orientation), there was high orientation (all above the cutoff point). With regard to comprehensiveness, specific weaknesses were observed, considering that most of the evaluated items are performed by the study participants in their health services.

In the last quadrennium prior to this investigation (2015 to 2018), this city was classified as hyperendemic for leprosy, not achieving important goals for disease control, such as increasing the cure rate of new cases, evaluating contacts and increasing adherence to treatment.¹⁵ The relevance of the city investigated in the context of leprosy is also notorious, since it constitutes the only interstate health network in Brazil (Rede Interstate de Saúde do Vale do Médio São Francisco - PEBA), together with the city of Juazeiro (Bahia, Brazil), as described by Gomes et al. (2023). The authors reported that the cities constitute the largest urban agglomeration in the semi-arid region of the Brazilian Northeast, in addition to the high risk for detection of leprosy, reinforcing the need to understand the dynamics related to the disease in both health macro-regions.¹⁶

In PHC, the weaknesses reported in the essential attribute "access" are not exclusive to the investigated city. Vieira et al. (2019) in a previous investigation with doctors and nurses who were part of FHS teams in Lagoa Santa (Minas Gerais, Brazil), pointed out that barriers to accessing PHC services can make it difficult to enter the health care network to receive care related to the leprosy. As the authors discuss, the low orientation of health actions according to the attribute "access" is common in Brazilian studies using PCATool.¹⁷ The performance of health actions in PHC with low guidance for this attribute, including LCA, can be reflected in the outcomes observed in the investigated city: from the perspective of nurses, users often experience difficulties in physically arriving at the BHU, to obtain information about services and to schedule appointments (especially outside the standard period). These implications, in the context of leprosy, may reduce the potential of PHC resolution due to the delay in diagnosis and the increased impact caused by the disease and its treatment in users with suspicion or under treatment.^{17,18}

In Brazil, in addition to the perspective of professionals, the essential attribute "access" has weaknesses in its performance in PHC services, including BHU, from the perspective of users of health services. Among the factors related to user satisfaction, proximity and contact with the health service, meeting spontaneous demand, waiting time and availability of care on non-conventional days or periods.^{19,20} Therefore, there is a similarity between the factors that limit access to PHC from the perspective of users and health professionals in the light of contemporary scientific evidence in Brazil.

Therefore, it is worth reconsidering the impact of LCA highly oriented by PHC attributes to expand access for people suspected or living with leprosy in Brazil and to improve early diagnosis and health care actions⁵, especially in a hyperendemic municipality¹⁵ in the which the extent of access was not satisfactory from the perspective of FHS nurses, such as Petrolina, Pernambuco, Brazil. This outcome becomes even more relevant when considering that not all PHC professionals who work in FHS are trained to deal with leprosy, which can infer the extent of PHC attributes in LCA developed by their teams. It is not uncommon for the access attribute to be below the cutoff point among Brazilian professionals who perform LCA, such as doctors and community health agents.^{6,8}

In addition to access, the positive performance of other essential and derived attributes in LCA among nurses participating in the study is an important perspective in the state of the art related to leprosy. Brazil, although constantly developing health policies and programs aimed at controlling neglected diseases, such as leprosy²¹, still has unfavorable epidemiological parameters related to this disease, sustaining inequities, especially in the North and Northeast regions. In these regions, vulnerable areas for the disease are observed, with a low detection rate and a relevant degree of disability in the diagnosis.^{22,23} Moreover, the state of Pernambuco remains a permanent endemic region for the transmission of the disease.²⁴ Currently, there are concerns about the increase in multibacillary cases and who did not receive adequate evaluation in health services, in addition to the often unsatisfactory follow-up after treatment.^{25,26} Nevertheless, leprosy remains associated with unfavorable socioeconomic status, especially in endemic countries such as Brazil.²⁷ Therefore, it is reasonable to consider that the high orientation of LCA by PHC attributes is a relevant outcome to understand these parameters in the years following the study in the evaluated city.

Future investigations may expand the dynamics that modulate the orientation of LCA in PHC by the essential attribute "access" and other derived attributes, such as "cultural competence". It is important to consider that the present study did not consider all the attributes derived from the PHC, as well as selected the participants by convenience (non-probabilistic sampling), being important limitations when applying these results. In addition, it may be useful to know and compare the extent of PHC attributes from the

perspective of medical professionals and community health agents in the same municipality.

Conclusion

From the perspective of the nurses in the evaluated city, there is a high orientation of leprosy control actions through the attributes of Primary Health Care, except for access, which was measured below expectations (low orientation). Therefore, it is reasonable to discuss and develop strategic actions to maintain high orientation in the other attributes and improve components related to access, aiming for a problem-solving healthcare approach in the care of individuals with leprosy.

Author contributions

Silva FFR contributed to the study design, data acquisition, analysis and interpretation, drafting, and approval of the intellectual content presented in the study. Barbosa-Lima R contributed to the analysis and interpretation of the data, drafting, and approval of the intellectual content presented in the study. Sanchez MN contributed to the study design, data interpretation, review, and approval of the intellectual content presented in the study. Penna GO contributed to the study design, data acquisition, analysis and interpretation, review, and approval of the intellectual content presented in the study. All authors reviewed and approved the final version and are in agreement with its publication, as well as assume responsibility for their contributions.

Conflict of interests

No financial, legal, or political conflicts involving third parties (government, companies, and private foundations, etc.) have been declared for any aspect of the submitted work (including, but not limited to, grants and funding, advisory board participation, study design, manuscript preparation, statistical analysis, etc.).

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