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Tuberculosis Treatment Services Satisfaction and Associated Factors among Patients Attending Public Health Centers in Kolfe Keranio, Addis Ababa, Ethiopia

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ABSTRACT

Giving tuberculosis patients a chance to express their feelings about the care they receive is a crucial tool to plan important intervention to improve the service provision. The aim of this study was to assess patient satisfaction level and associated factors on tuberculosis treatment service in public health centers of Kolfe Keranio, Addis Ababa, Ethiopia. A cross sectional study was conducted on 484 conveniently included participants from March 1-30, 2016 using a structured questionnaire. SPSS version 20 was used for analysis and to determine the presence of association, variables having $p \leq 0.25$ at bivariate analysis were fitted to multivariate analysis. Odds Ratio, P-value and 95% Confidence Interval were used to show the association of variables ($p < 0.05$).

The overall level of patient satisfaction was 73.8%. However, 55.2% of the patients were dissatisfied with the physical environment and 31.4% were displeased with availability of

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diagnostic and medication services. Satisfaction was significantly associated with age, educational status, family monthly income, perceived health condition of the patient, time took to reach to the health facility, perceived sufficient time to spend with the provider and perceived consultation and relational empathy of the provider. Majority of the patients were satisfied with the service they received. Nevertheless, lower satisfaction was observed physical environment of the health centers, provision of diagnostic facility and medical services.

Key words: Tuberculosis, Satisfaction, Ethiopia.

INTRODUCTION

Tuberculosis (TB) is an infectious disease caused by Mycobacterium tuberculosis which affects the lungs pulmonary TB (PTB) but can affect other parts of the body extra pulmonary TB (EPTB) (WHO, 2014).

The African Region had 28% of the worlds' cases in 2014. Ethiopia is among the 22 high TB burden and 27 high Multi drug resistant (MDR) TB burden countries in the world (WHO, 2015). The National Tuberculosis Program (NTP) efforts to control TB in Ethiopia began in the early 1960s and adopted the WHO recommended Directly Observed Treatment, Short Course (DOTS) strategy since 1992 (FMOH, 2008).

Satisfaction is the psychological state that results from confirmation or disconfirmation of expectations with reality (Weingarten et al., 1995). Patient satisfaction is an integral component of service quality which is a public health concern in developing world. It is also an issue addressed as a component of the Ethiopia Health Sector Development Program (HSDP) and an intrinsic part of the program (Billingsley et al., 2011; Eticha et al., 2014; Mainz, 2003). According to Donabedian, patient satisfaction should be investigated since it is an objective of

care, a consequence of that care (outcome) that can contribute to the effects of care (Donabedian, 1987). Satisfaction surveys inform purchasing decision, stimulate proposals to restructure service delivery and can be used to evaluate the effects of policy change (Avis et al., 1995).

Studies in the Meerut district of Uttar Pradesh, Sudan and Bahirdar city reported 67.8%, 56.2% and 53.8% satisfaction level of patients with TB treatment service. Non suitable opening time, rude behavior of the staff, long distance of the health facilities, non-availability of health staff, long waiting time, type of treating cadre and poor cleanliness and comfortableness of waiting area were among the dissatisfaction issues (Gupta, 2015; Kassie et al., 2015; Mohamed et al., 2014).

Patients who are not satisfied with the healthcare they received were likely to face barriers to treatment adherence (Roberts, 2002; Schauffler et al., 1996). Non-adherence to TB treatment can result in an emergence of new strains, prolonged infectiousness, drug resistance and poor treatment outcomes (Tesfahuneygn et al., 2015). Satisfaction with services is especially important for patients undergoing treatment for TB because they must persist with six to eight months long therapeutic regimen (Wadhwa, 2002).

Therefore, the aim of this study was to assess patient satisfaction level and associated factors on tuberculosis treatment service in public health centers of Kolfe Keranio, Addis Ababa, Ethiopia to help the improvement of the service provision.

METHODOLOGY

The study was conducted in Kolfe Keranio, Addis Ababa, the capital city of Ethiopia. The district has 15 woredas with a total population of 546,219 as of 2011.

An institution based cross sectional study that uses quantitative method of data collection was employed from March.1-30, 2016.

For this study, an entire population sampling technique (survey) was employed. This sampling technique was used because the number of the study population in the health care facilities was small which is manageable for data collection and analysis. A total of 484 TB patients were studied from 9 health centers after excluding those study participants who did not fulfill the eligibility criteria.

The inclusion criteria of all TB patients, whose age is 15 years and above, started TB treatment service two weeks before the study period and coming on the data collection period was castoff.

A structured questioner which is developed after reviewing relevant literatures and similar studies was used for the study purpose (Eticha et al., 2014; Nezenega & Tafere, 2013). The questionnaire was designed to obtain information on five parts, which include: - socio-demographic and economic status, clinical characteristics of the patient, patient experience related factors, patient health care provider interaction and satisfaction level of the patients with different aspects of the service.

The satisfaction scale questions consist of 10 items, extensively validated in studies of patient satisfaction and highly relevant to the context of tuberculosis treatment services (Portela et al., 2014). The 10 items were then categorized in to 4 dimensions termed Convenience items, Availability of diagnostic and medication service, Communication and relationship with the health care provider and Physical environment items.

With the Consultation and Relational Empathy (CARE) tool patients were asked 10 questions to rate different aspects of empathy (Birhanu et al., 2010).

The final version of the questionnaire was translated into Amharic by language experts. It was translated back to English to check quality of the translation. The questionnaire was pre-tested, and modification was made based on the problems identified.

Three diploma nurses who speak the local language Amharic were recruited for data collection. One laboratory technologist was also supervising the data collection with the principal investigator. Training was given for data collectors on interview techniques and timely supervision of data collectors was done during data collection.

Data was entered in to EpiData version3.1, exported to SPSS version 20, cleaned and analyzed. Bivariate analysis was used to assess the presence of association between independent variables and patient satisfaction. Variables having p value < 0.25 at bivariate analysis were fitted to multivariate analysis.

The study has obtained ethical clearance from ethical review board of Jimma University, College of Health Sciences with reference number HRPGC/4090/2016. Verbal informed consent was obtained from each study subjects while the study subjects right to refuse was respected.

Operational Definition

The level of patient satisfaction: - The level of patient satisfaction on TB treatment services were scored on a five-point Likert scale (1-Strongly dissatisfied, 2- dissatisfied, 3-neutral, 4-satisfied, and 5-Strongly satisfied) and summed to give an overall satisfaction score

from 20% to 100%. 75% and above satisfaction scores were categorized as "satisfied" and satisfaction scores less than 75% were categorized as "dissatisfied" (Sagaro et al., 2015).

RESULT

Socio Demographic Characteristics

With a response rate of 98.9%, 484 adult TB patients were interviewed of which 257 (53.1%) were female. The mean age of participants was 32.5 (±12.318). Four hundred twenty seven (88.2%) of them live in Addis Ababa. Two hundred eleven (43.6%) were single and 207 (42.8%) were married. Only 61 (12.6%) of the patients were illiterate and 190 (39.3%) were unemployed (Table 1).

Table 1: Socio Demographic Characteristics of the TB Patients.

Variable	**Category**	**Frequency**	**Percentage (%)**
Sex (N= 484)	Male	227	46.9
	Female	257	53.1
Age group (N= 484)	15-24	160	33.1
	25-34	178	36.8
	35-44	56	11.6
	≥45	90	18.6
Residence (N= 484)	Addis Ababa	427	88.2
	Out of Addis Ababa	57	11.8
Marital status (N= 484)	Single	211	43.6
	Married	207	42.8
	Widowed	38	7.9
	Divorced	28	5.8

Ethnicity (N= 484)	Amhara	159	32.9
	Guragie	123	25.4
	Oromo	119	24.6
	Tigre	38	7.9
	Silte	36	7.4
	Others	9	1.9
Educational status (N= 484)	Cannot read and write	61	12.8
	Can read and write	54	11.2
	Grade 1-6	130	26.9
	Grade 7-12	181	37.4
	Diploma and above	58	12.0
Occupational status (N= 484)	Civil Servant	31	6.4
	Student	44	9.1
	Merchant	53	11.0
	Day labourer	58	12.0
	Private employee	104	21.5
	Unemployed	194	40.1
Family monthly Income (N= 484)	< 662.40ETB	121	25.0
	662.50 – 1199.99ETB	95	19.6
	1200.00-2386.99ETB	147	30.4
	≥2387.00ETB	121	25.0
Currently living with	Living alone	69	14.3
	Living with family	366	75.6

(N= 484)	Living with relative	49	10.1
Size of the family (N= 415)	<4persons	227	54.7
	4-7persons	159	38.3
	≥8person	29	7.0

Clinical Characteristics of TB Patients

Four hundred nine (84.5%) of the patients were new cases. From 75 (15.5%) relapse patients more than 53 (70.7%) had completed the previous treatment. Three hundred ten (64.0%) of the patients were on the continuation phase and the other 174 (36.0%) were on the intensive phase. Two hundred sixty seven (55.2%) perceived their current health status as well. From 425 (87.8%) respondents tested for HIV 100 (23.5%) were positive (Table 2).

Table2: Clinical Characteristics of the TB Patients.

Variable	**Category**	**Frequency**	**Percentage (%)**
Patient category (N=484)	New	409	84.5
	Relapse	75	15.5
Completed previous treatment (N=75)	Yes	53	70.7
	No	22	29.3
Treatment phase (N=484)	Intensive	174	36.0
	Continuation	310	64.0
Perceived health condition (N=484)	Very well	133	27.5
	Well	267	55.2
	Poor	84	17.4
Tested for HIV(N=484)	Yes	425	87.8

	No	59	12.2
HIV Sero-status(N=484)	Positive	100	23.5
	Negative	325	76.5
	Unknown	59	12.2

Patients' Experience on TB Treatment Service

One hundred forty eight (30.6%) of the patients spend ≥ 40 minutes to get to the health institution. After reaching the health center, 47.9% of the patients waited from 5 to 7 minutes until contact with the health care provider (Table 3).

Table3: Experience of TB Patients Attending the Health Centers

Variable	**Category**	**Frequency**	**Percentage (%)**
Distance/ Time took to reach the health center	<20minutes	100	20.7
	20-24minutes	121	25.0
	25-39minutes	115	23.8
	≥40minutes	148	30.6
Waiting time	<5minutes	117	24.2
	5-7minutes	232	47.9
	≥8minutes	135	27.9

Patient Health Care Provider Interaction

Two hundred sixty five (54.8%) of the patients were not seen by the same health care provider while following their treatment. Four hundred twenty one (87.0%) of the patients perceived that they got sufficient time to spent with the health care provider. Two hundred thirty one (47.7%) of the respondents perceived CARE of the health care provider was medium (Table 4).

Table 4: Patient Health Care Provider Interaction During Service Provision

Variable	Category	Frequency	Percentage (%)
Seen by the same health care provider	Yes	219	45.2
	No	265	54.8
Perceived sufficient time spent with the health care provider	Yes	421	87.0
	No	63	13.0
Perceived CARE of the provider	High	187	38.6
	Medium	231	47.7
	Low	66	13.6

The Level of Patient Satisfaction with the Dimensions of TB Treatment Services

Three hundred sixty two (74.8%) of the patients were satisfied with the convenience items and 354 (73.1%) were satisfied with communication and relationship with the health care provider items. However, 55.2% of the patients were dissatisfied with the physical environment items. One hundred fifty two (31.4%) of TB patients were dissatisfied with the availability of diagnostic and medication services items (Table 5).

Table5: The Level of Patient Satisfaction with Dimensions of TB Treatment Services

Dimensions of satisfaction	Frequency and (Percentage)	
	Satisfied	**Dissatisfied**
Convenience	362 (74.8)	122 (25.2)
Communication and relationship with the health care provider	354 (73.1)	130 (26.9)

Availability of diagnostic and medication services	332 (68.6)	152 (31.4)
Physical environment	217 (44.8)	267 (55.2)

Overall Patient Satisfaction with TB Treatment Service in Public Health Centers of Kolfe Keranio Sub City

The finding of the study showed that the overall level of TB patients' satisfaction with the Tuberculosis treatment services rendered at nine public health centers was 73.8% (Figure1).

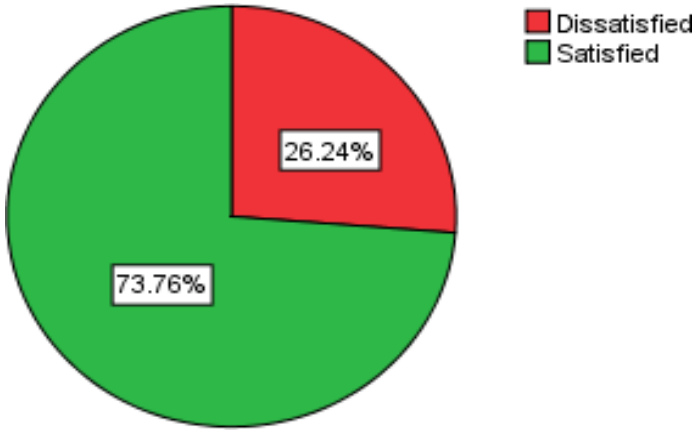

Figure 1: Overall patient satisfaction with TB treatment service.

Factors Associated with TB Patient Satisfaction

Tuberculosis patients who are in the age group 25-34 have shown 2.02 times higher satisfaction level than those who are in the age group 15-24 (95%CI: 1.08-3.78). Those who had completed grade 7-12 and had diploma and above educational level have shown 0.38 and 0.16

times lower satisfaction level than those who cannot read and write (95%CI: 0.14,0.99) and (95%CI: 0.05,0.47) respectively.

Similarly, TB patients who had family monthly income above 2387.00ETB have shown 0.36 times lower satisfaction level than those with family monthly income below 662.40ETB (95%CI: 0.17-0.78).

TB patients who perceive they are in a very well health condition have shown 2.71 times higher satisfaction level than those with perceived poor health condition (95%CI: 1.21-6.10). Patients who spend ≥ 40 minutes to get to the health institution have shown 0.17 times lower satisfaction level than those with travel time ≤ 20 minutes (95%CI: 0.08-0.38).

TB patients who perceive they have sufficient time to spent with the provider have shown 2.17 times higher satisfaction level than those who perceive they have insufficient time to spent with the provider (95%CI: 1.05-4.51).

In addition, those patients with perceived medium and low CARE of the provider have shown 0.19 and 0.16times lower satisfaction level than those who have perceived high CARE of the health care provider (95%CI:0.10-0.35) and (95%CI: 0.07-0.37) respectively (Table 6).

Table6: Bi-variate and Multivariate Analysis Showing Factors Associated with Patient Satisfaction

Variable	**Category**	**Satisfaction**		**COR (95%CI)**	**P value**	**AOR (95%CI)**
		Satisfied N (%)	**Dissatisfied** N (%)			
Sex	Male	176 (77.5)	51 (22.5)	1.44 (0.96, 2.19)	0.08	1.59 (0.95,2.68)
	Female	181 (70.4)	76 (29.6)	1		

Age group	15-24	110 (68.8)	50 (31.2)	1		
	25-34	140 (78.7)	38 (21.3)	1.68 (1.03,2.73)	0.03*	2.02 (1.08,3.78)
	35-44	41 (73.2)	15 (26.8)	1.24 (0.63,2.45)	0.46	1.43 (0.55,3.70)
	≥45	66 (73.3)	24 (26.7)	1.25 (0.70,2.22)	0.93	0.97 (0.45,2.09)
Residence	Addis Ababa	319 (74.7)	108 (25.3)	1.48 (0.82, 2.67)	0.25	1.58 (0.73,3.43)
	Outside Addis Ababa	38 (66.7)	19 (33.3)	1		
Educational status	Cannot read and write	51 (83.6)	10 (16.4)	1		
	Can read and write	46 (85.2)	8 (14.8)	1.13 (0.41,3.10)	0.60	0.73 (0.22,2.40)
	Grade 1-6	106 (81.5)	24 (18.5)	0.87 (0.39,1.95)	0.26	0.56 (0.21,1.52)
	Grade 7-12	124 (68.5)	57 (31.5)	0.43 (0.20,0.90)	0.05*	0.38 (0.14,0.99)
	Diploma and above	30 (51.7)	28 (48.3)	0.21 (0.09,0.49)	0.00**	0.16 (0.05,0.47)
Families annual monthly Income	< 662.4 ETB	100 (82.6)	21 (17.4)	1		
	662.5-1199.9ETB	80 (84.2)	15 (15.8)	1.12 (0.54,2.31)	0.28	1.62 (0.68,3.86)

	1200.0-2386.9ETB	107 (72.8)	40 (27.2)	0.56 (0.31,1.02)	0.07	0.51 (0.25,1.05)
	≥2387.0ETB	70 (57.9)	51 (42.1)	0.29 (0.16,0.52)	0.01**	0.36 (0.17,0.78)
Patient category	New	295 (72.1)	144 (27.9)	1		
	Relapse	62 (82.7)	13 (17.3)	1.84 (0.98,3.48)	0.12	1.88 (0.85,4.19)
Treatment phase	Intensive	121 (69.5)	53 (30.5)			
	Continuation	236 (76.1)	74 (23.9)	1.40 (0.92, 2.15)	0.08	1.67 (0.94,2.97)
Perceived health condition	Very well	109 (82.0)	24 (18.0)	2.80 (1.50,5.25)	0.02*	2.71 (1.21,6.10)
	Well	196 (73.4)	71 (26.6)	1	0.21	1.57 (0.77,3.19)
	Poor	52 (61.9)	32 (38.1)	1		
HIV sero status	Positive	78 (78.0)	22 (22.0)	1		
	Negative	228 (70.2)	97 (29.8)	0.66 (0.39,1.13)	0.15	0.61 (0.31,1.20)
	Unknown	51 (86.4)	8 (13.6)	1.80 (0.74,4.35)	0.38	1.64 (0.54,4.95)
Time took to reach the HC	<20minutes	84 (84.0)	16 (16.0)	1		
	20-	101	20	4.34	0.70	0.85

	24minutes	(83.5)	(16.5)	(2.32,8.11)		(0.37,1.96)
	25-39minutes	91 (79.1)	24 (20.9)	4.18 (2.34,7.45)	0.06	0.45 (0.20,1.04)
	≥ 40minutes	81 (54.7)	67 (45.3)	3.14 (1.80,5.46)	0.00***	0.17 (0.08,0.38)
Seen by the same health care provide	Yes	169 (77.2)	50 (22.8)	1.38 (0.92, 2.09)	0.70	1.11 (0.65,1.90)
	No	188 (70.9)	77(29.1)	1		
Perceived sufficient time spent with the provider	Yes	324 (77)	97 (23.0)	3.04 (1.76,5.23)	0.04*	2.17 (1.05,4.51)
	No	33(52.4)	30(47.6)	1		
Perceived CARE of the provider	High	169 (90.4)	18 (9.6)	1		
	Medium	147 (63.6)	84 (36.4)	0.19 (0.11,0.3)	0.00***	0.19 (0.10,0.35)
	Low	41 (62.1	25 (37.9)	0.18 (0.09,0.35)	0.00***	0.16 (0.07,0.37)

* P-value<0.05, ** P-value <0.01 and *** P-value < 0.001.

1= Reference for category

DISCUSSION

The overall level of TB patient satisfaction with TB treatment service in Kolfe Keranio, Addis Ababa (73.8%) was lower than studies conducted in Brazil (89.2%) and

India (78.6%) (Portela et al., 2014; Srivastav & Mahajan, 2014). Geographical and cultural variation might be the possible reasons for the differences. It was also lower than study conducted in Sidama (90%) (Nezenega & Tafere, 2013) but higher than the finding of Bahirdar town (53.8%) (Kassie et al., 2015). The differences could be due to apparent heterogeneity of the evaluations and computing way of the overall satisfaction.

Three hundred sixty two (74.8%) and 73.1% of TB patients were satisfied with the convenience items then communication and relationship with the provider, respectively. However, 31.4% and 55.2 % of TB patients were dissatisfied with availability of diagnostic and medication services and the physical environment. These findings were consistent with studies conducted in Brazil. Similar to the finding in Uganda it shows lower satisfaction of patients on measures taken to assure privacy and information and clarification during first consultation (Babikako et al., 2011; Portela et al., 2014). Likewise, dissatisfaction was seen in cleanliness of waiting area on 55.8% of TB patients in Bahirdar town (Kassie et al., 2015). The reason for the consistency might be the similarity in TB patients' perception of cleanliness of facilities and perceived concentration of the health care providers while communicating.

TB patients who are in the age group 25-34 have shown 2.02 times higher satisfaction level than those in the age group 15-24. The study also revealed that TB patients who had completed grade 7-12 and had diploma and above educational level have shown 0.38 and 0.16 times lower satisfaction level than those who cannot read and write. This finding agrees with findings of a study conducted in Brazil. But education was not significantly associated with satisfaction in other similar studies in Sudan and Southern Nigeria (Mohamed et al., 2014; Onyeonoro et al., 2015; Portela et al., 2014). The reason could be because they are more aware

of the significant progress made in TB management program in Ethiopia and have higher expectation of the service to be up to standard.

TB patients who had family monthly income above 2387.00ETB have shown 0.36 times lower satisfaction level than those with family monthly income below 662.40ETB. This finding was consistent with a study conducted in Sudan in which patients with no income were more satisfied with TB care they receive (Mohamed et al., 2014). Patients had access to TB treatment service free of charge; this may explain the high satisfaction of patients with low income. Sex and residence were not significant association with satisfaction of TB patients which is similar to a study performed in Sudan (Mohamed et al., 2014). In contrast, in other study performed in central Shewa, residence appeared to be significantly associated with satisfaction (Birhanu et al., 2010). These differences might be attributed to variations in study settings.

TB patients who perceive they are in a very well health condition have shown 2.71 times higher satisfaction level than those with perceived poor health condition which is consistent with a study finding in Sidama (Nezenega & Tafere, 2013). Those patients who felt very well health condition might perceive the treatment they were taking was improving their health condition which might make them more pleased.

Patient category, treatment phase and HIV status were not significant predictors of satisfaction. Consistently patient category and HIV status were not significantly associated with satisfaction of TB patients in other studies (Portela et al., 2014). However, HIV status and treatment phase were significant predictors of satisfaction in another similar study (Nezenega &

Tafere, 2013). The reason could be the increasing awareness of TB patients about the importance of TB treatment and its follow up.

TB patients who spend ≥ 40 minutes to get to the health institution have shown 0.17 times lower satisfaction level than those with travel time ≤ 20 minutes.This finding disagrees with a study in Southern Nigeria where living near health facility was found to be associated with low satisfaction. It is because TB has remained one of the few stigmatized disease conditions in the country (Onyeonoro et al., 2015). However, the lower satisfaction level of TB patients who live far from the health centers could be due to higher transportation cost and cost for food and drinks. Waiting time was not significantly associated with overall satisfaction level which is inconsistent with other studies (Eticha et al., 2014; Nezenega & Tafere, 2013). This might be because of the enrolment of health care providers to work only in the TB room which is suitable to give the service as soon as the patients arrive.

TB patients who perceive they have sufficient time to spend with the provider have shown 2.17 times higher satisfaction level than those who perceive they have insufficient time to spend with the provider. This finding was similar with the findings of studies conducted in south Ethiopia and central Shewa (Birhanu et al., 2010; Eticha et al., 2014). TB patients with perceived medium and low CARE of the provider have shown 0.19 and 0.16 times lower satisfaction level than those who have perceived high CARE of the health care provider which agrees with similar studies (Birhanu et al., 2010; Nezenega & Tafere, 2013). Since TB care involve prolonged contact between provider and patient, decreased perceived CARE will likely result in lower satisfaction.

Being attended by the same health care provider was not significantly associated with TB patient satisfaction unlike the study finding of South Ethiopia (Eticha et al., 2014). This could be given elucidation that currently TB treatment service is being provided by one or two fixed personnel in most of the health facilities.

CONCLUSION

The overall patient satisfaction towards Tuberculosis treatment services (73.8%) was moderate as compared to similar studies. Satisfaction was significantly associated with age, educational status, family monthly income, perceived health condition of the patient, time took to reach to the health facility, perceived sufficient time to spend with the provider and perceived consultation and relational empathy (CARE) of the provider.

Attention should be given to the physical environment and arranging facilities for diagnosis and treatment service. Trainings should be given for the providers on patient handling practice and provider empathy during consultation should be cultivated. Provision of TB drugs at lower level of the health care system hierarchy near to the community may be important in enhancing patient satisfaction. Conducting periodic assessment of TB treatment services, especially from the patients' satisfaction perspective is crucial to improve the service provision.

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