



Awareness of Family Planning Services among Pregnant Women in Arumeru District, Tanzania: Implications for Public Health Interventions

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Author's contribution

The sole author designed, analyzed, interpreted and prepared the manuscript.

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ABSTRACT

The demand for health literacy in family planning continues to be a global issue, particularly in developing regions. It is also estimated that over 225 million women in developing countries face challenges accessing and utilizing family planning services. Sub-Saharan Africa has the lowest family planning prevalence, at 24%, with high unmet needs, despite global efforts to improve access and knowledge. This study aimed at assessing the family planning services among pregnant women in Arumeru District, Tanzania. Using a sample size of 269 respondents, data was collected through questionnaires and interviews with healthcare officers between February and March 2024.

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Data were then analyzed using descriptive statistics techniques for quantitative data whereas qualitative data were analyzed using content analysis approach. Results reveal that 92.9% of respondents were aware of family planning services, with varying levels of understanding. Education and occupation played significant roles in awareness, with younger, educated individuals showing higher knowledge. Improving awareness about maternal and child health can lead to better healthcare practices, timely interventions, and increased utilization of services, ultimately reducing mortality rates and contributing to broader public health goals of improved health equity and universal health coverage. However, cultural, religious, and literacy barriers continue to hinder full understanding. The study concludes that respondents in the study area have high level of awareness regarding family planning, particularly among younger individuals and those with higher education levels. The study recommends targeted awareness programs, especially for underserved populations, and emphasizes the importance of involving men in family planning education to improve reproductive health outcomes.

Keywords: Family planning; family planning awareness pregnant women and health literacy.

1. INTRODUCTION

According to Kriel et al. [1], demand for health literacy in family planning use remain as a world problem. It was estimated that more than 225 million women in the developing countries were not capable to access and use family planning services [1, 2, 3]. Kriel et al. [1] further postulate that worldwide there had been an incremental in family planning prevalence and decline in fulfillment needs since 1970. It is further argued that the Sub-Saharan African countries progress to have the lowest family planning prevalence at 24% and highest level of fulfillment need at 25% [4, 1, 5]. Around the world, the incremental of fertility rate especially in third world countries is worrisome since all many efforts have been taken and put in place at national level, community level and household level in reducing fertility rate but it seems not to have much impact [6,7].

According to Kassim and Ndumbaro [8], there is low usage of family planning services in most sub-Saharan countries. This is catalyzed with different factors, among those factors is inadequacy health literacy in improving family planning among pregnant women and women of childbearing age [9, 10, 5]. There is evidence that, people with inadequate health literacy in family planning use tend to be less knowledgeable of their health conditions [8].

The Government of the United Republic of Tanzania realize the significance of family planning to the well-being of its people [11]. Also, the authors explain that, the government through its public funded health center and assistance with a number of non-profit organizations such as Family Planning Association of Tanzania and

Marie Stopes Clinics have shown greater effort to promote family planning and reproductive health.

Nawabi et al. [12] noted that, in recent years, researchers have more focused on the assessment of health literacy levels for generalizing the total population and particular groups such as elders' people, immigrants and people with a low socio-economic status, or has only taken particular focus on pregnancy weight and reproductive health. It is further contended that despite the growing of realizing of the importance of health literacy, little is known about the awareness of family planning among the pregnant women. This Understanding the awareness of family planning among pregnant women is crucial for promoting maternal and child health, improving birth outcomes, and supporting informed reproductive choices. It helps healthcare providers and policymakers identify gaps in knowledge, misconceptions, and barriers to accessing family planning services. By assessing awareness, interventions can be designed to educate women on contraceptive options, birth spacing, and postnatal family planning, which can reduce unplanned pregnancies, maternal and infant mortality, and enhance the overall well-being of families. Furthermore, it empowers women to make informed decisions about their reproductive health, leading to better health outcomes for both mothers and children.

2. METHODOLOGY

2.1 Description of the Study Area

The study was conducted in Arumeru district in Arusha region found in the Northern highlands of Tanzania. The district is in the North Eastern part

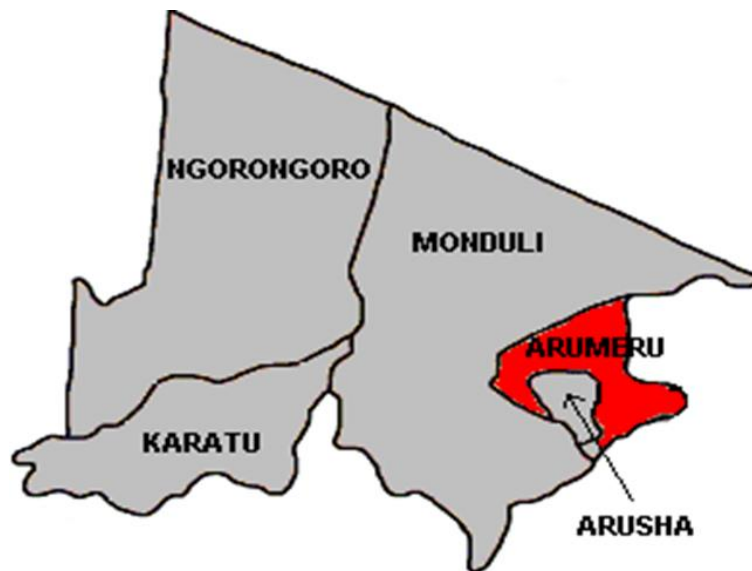


Fig. 1. Arumeru District and the bordering districts

of Arusha region bordering Kilimanjaro Region to the East and Manyara Region to the Southern part. The distance from Kilimanjaro International Airport (KIA) to Arumeru district headquarters is about 25 kilometers. Arumeru district is among the six districts forming Arusha region. Arumeru District has an area of about 2,966 square kilometers which is about 3.6 of the areas of Arusha region of which the total of Arusha region is 82,424 square km. The district has two parliamentary constituencies which are Arumeru East and Arumeru West. The author explain, Arumeru District has thirty-seven (37) wards which are Bangata, Akheri, Bwawani, Ilkiding'a, Kikatiti, Kikwe, Kimnyaki, King'ori, Kiranyi, Kisongo, Leguruki, Makiba, Majiyachai, Maroroni, Mateves, Mbuguni, Mlangarini, Moivo, Moshono, Murieti, Musa, Mwandeti, Nduruma, Ngarenanyuki, Oldonyosambu, Nkoanrua, Nkoaranga, Nkoarisambu, Oljoro, Olkokola, Olturoto, Olturumeti, Poli, Sing'isi, Sokoni one, Songoro and Usa-river. Economic activities that conducted at the study area are agriculture, livestock keeping, tourism, forestry, beekeeping, fishery, industry, and mining. In this study the researcher chosen to conduct research in Akheri ward because of convenience and easy to get there due to our location regarding to resources we have; time constraints and characteristic of the population being studied.

2.2 Target Population

The target population for this study included pregnant women as key respondents and

Reproductive and Child Health officer (RCH officer) from Arumeru district hospital as key informant. These pregnant women were those registered at the hospital.

2.3 Sample Size

According to Reproductive and Child Health report of (2023), reported that, the registered pregnant women at Arumeru district in 2023 year was 827 people. Therefore, using Yamane [13] formula a sample size of this study was determined as follows:

Mathematically, from the Yamane [13] formulae

$$n = \frac{N}{1 + N(e)^2}$$

Whereas:

- n = samples size,
- N = total population,
- e = sampling error
- Then: N = 827 Total population
- e = 0.05%,
- n = ?

From the formula:

$$n = \frac{827}{1 + 827(0.05)^2}$$

$$n = \frac{827}{1 + 827 \times 0.05 \times 0.05}$$

$$n = \frac{827}{1 + 827 \times 0.0025}$$

$$n = \frac{827}{1 + \frac{2.0675}{827}}$$
$$n = \frac{827}{3.0675}$$

n = 269
n = 269

The sample size of this study was 269.

2.4 Sampling Procedure

The study employed both probability and non-probability techniques where by probability technique specifically simple random sampling was used to select pregnant women to form the sample size. Likewise, non-probability sampling particularly purposive sampling was used to pick a key informant i.e. Reproductive and Child Health officer (RCH officer) in the hospital.

2.5 Data Collection Methods

2.5.1 Interview

The study employed an interview technique as data collection method to collect data from the key informant. The questions in tool aimed at collecting data related to the awareness of pregnant women on family planning services, its benefits and challenges.

2.5.2 Questionnaire

The study used questionnaires to collect data from pregnant women since it provided relatively, cheap, quick and efficient way of obtaining large amounts of information from large sample of respondents. This questionnaire was administered personally so as to increase the interaction with the respondents and therefore the response rate. The questionnaire comprised of closed ended questions to gather quantitative data. The close-ended questionnaire gave respondents room to provide their own reactions by choosing suitable answers provided in the list.

2.6 Data Analysis

The data collected from primary sources was carefully edited to identify and correct errors, ensuring accuracy for subsequent entry. Following this, the data was coded, summarized, and analyzed. Quantitative data was processed using descriptive statistics, with the aid of computer programs such as the Statistical Package for Social Sciences (SPSS). Data

gathered from key informants was analyzed through content analysis. The results were then presented through a combination of tables, figures, charts, and explanatory narratives to enhance clarity and understanding. Additionally, multinomial regression analysis model was used to indicate the association existing between level of awareness of respondents on family planning services and their corresponding demographic characteristics.

3. RESULTS AND DISCUSSIONS

3.1 Demographic Characteristics of Respondents

The findings in Table 1 indicates that age of respondents is categorized into two categories. Largest group ranges at the ages of 24-29 (27.5%), followed by ages 30-35 (21.9%) and 18-25 (21.6%) whereas smallest group ranges at the ages of more than 47 (9.3%) and 42-47 (10%). This implies that younger respondents (under 35) make up the majority of the population surveyed, comprising over 70%. This demographic is typically of reproductive age, making family planning awareness particularly critical. Younger people may be more open to modern family planning services but may also lack comprehensive knowledge compared to older groups [14]. Efforts should prioritize targeted education for this group while considering the needs of the older cohort, who may have different awareness levels or preferences due to generational attitudes. Similarly, the findings in Table 1 indicate that education level of respondents is also categorized into two groups. Large group with university-level education (33.5%), followed by secondary education (22.3%) whereas smallest group with non-formal education (11.9%) and primary education (14.5%). This imply that higher education levels are prevalent in this sample, with over 50% of respondents having secondary, tertiary, or university-level education. This implies that many respondents may have higher cognitive abilities and access to information, suggesting that awareness campaigns can be more advanced and incorporate technical details of family planning services. However, the presence of respondents with only primary or non-formal education (about 26.4%) indicates a need for simpler, more accessible forms of communication tailored to less educated groups.

Table 1. Demographic characteristics of respondents

Variable (n = 269)		Frequency	Per cent
Age of respondents	18-25	58	21.6
	24-29	74	27.5
	30-35	59	21.9
	36-41	26	9.7
	42-47	27	10
	More than 47	25	9.3
	Total	269	100
Education Level	Primary education	39	14.5
	Secondary education	60	22.3
	Tertiary	48	17.8
	University level	90	33.5
	Non formal education	32	11.9
	Total	269	100
Marital status	Single	108	40.1
	Marriage	114	42.4
	Divorced	33	12.3
	Widow	14	5.2
	Total	269	100
Occupation	Farmer	67	24.9
	Business	95	35.3
	Employed	62	23
	Others	45	16.7
	Total	269	100

Further, the findings in Table 1 show that large group of marital status of respondents lies on single individuals (40.1%), followed by married individuals (42.4%) while smallest group is composed of widows (5.2%) and divorced individuals (12.3%). This implies that almost equal representation of single and married respondents suggests that family planning awareness needs to be addressed across a spectrum of lifestyles. Single individuals may require education on contraceptive use to prevent unplanned pregnancies, while married individuals might focus more on family planning for spacing or limiting children. Divorced and widowed individuals may also have unique needs, such as planning for future relationships or health after a partner's death, and shouldn't be overlooked in awareness programs. In terms of occupation, the findings indicate that large group depends on business (35.3%) and farming (24.9%) activities whereas the smallest group depend on other activities (16.7%) other than business and farming to earn their income. This suggests that with a large portion of respondents engaged in business and farming, family planning education should be delivered through avenues that reach these professions effectively. Farmers, who may be in rural settings, could benefit from community outreach or agricultural extension services, while businesspeople might

be better reached through workplace health initiatives or urban clinics. The diverse occupational categories imply that a one-size-fits-all approach to family planning education would be inadequate [15,16]. Customizing awareness strategies based on occupation-related lifestyles will ensure wider reach and relevance [17].

3.2 Level of Awareness of Family Planning use Among the Respondents

3.2.1 Awareness of family planning

Fig. 2 shows that, 92.9% of respondent were aware of family planning services while 19% of respondent were not aware of family planning services.

The results of the findings from this study show that, 92.9 % of the respondents in this study were aware about family planning service. While 7.1 were not aware of family planning services. The finding shows that majority of respondent admit that they have knowledge of family planning services this means that the knowledge of family planning services is well known by a lot of community members. Furthermore, the result

shown that, 7.1% of respondent were not aware of family planning and lot of them are elders. This means that only small group of them do not have awareness of family planning services on improving family use to pregnancies women. The findings implies that the method used to promote family planning education were succeed to brought awareness and encourage adaptation of contraceptive knowledge.

The awareness on family planning in this study is higher than the study conducted by Alex-Ojei and Sunmola [18] at Zamfara state in Nigeria 2018 in which 73% of respondents agreed that they are aware of family planning while 27% of respondents rejected that they are not aware concerning the issue of family planning. Also, these findings are supported by Itasanmi et al. [19] in his study conducted in Nigeria which indicated that the majority (90.6%) of the

Nigerian adult population have adequate health literacy while 9.4% have inadequate health literacy. Through this studies it indicates that the knowledge of family planning increasing day to day and many people have the awareness of it.

3.2.2 Extent of awareness on family planning services

Fig. 3 shows that, 46.8% of respondent were having high awareness on family planning services, 24.2% of respondent were having very high awareness on family planning services, 12.6% of respondent were having low awareness on family planning services, 10% of respondent were having very low awareness on family planning services while 6.3% of respondent were not sure of their awareness on family planning services.

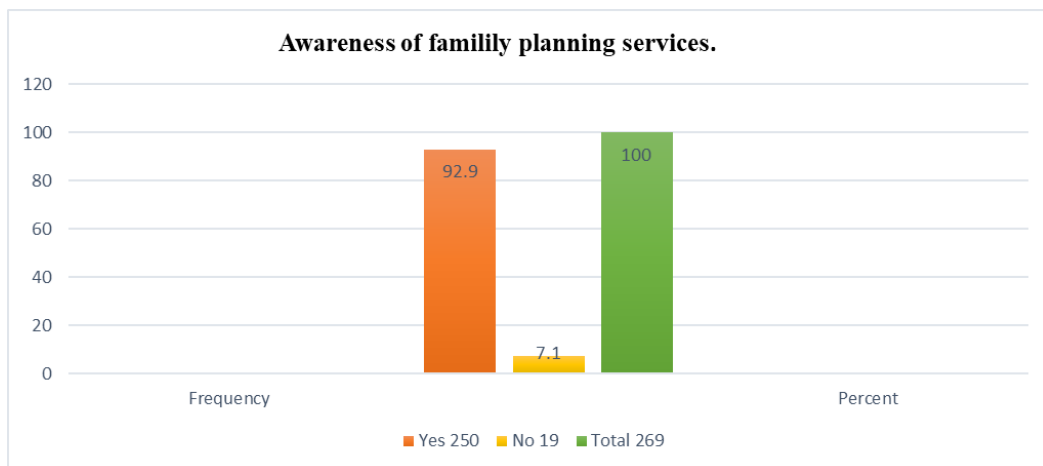


Fig. 2. Awareness of family planning services

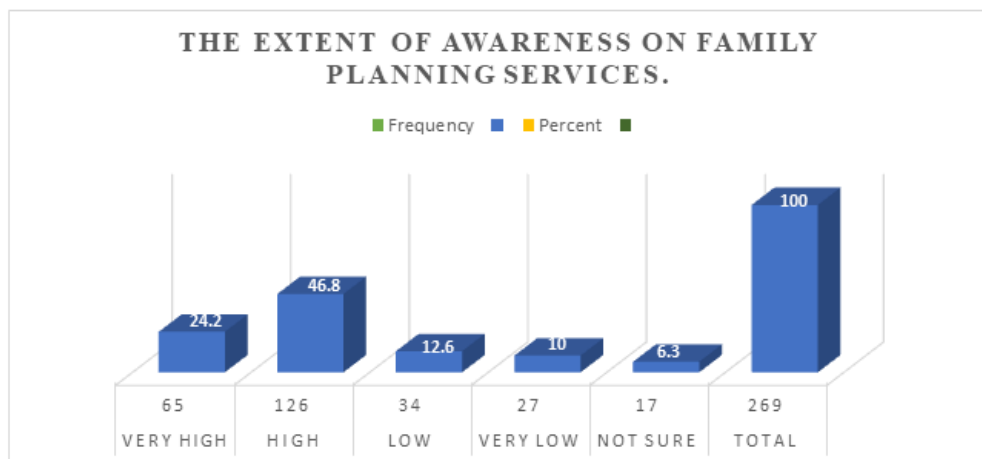


Fig. 3. The extent of awareness of family planning services among the respondents

The findings of this study reveal varying levels of awareness regarding family planning services among the respondents. The largest group, comprising 126 individuals (46.8%), demonstrated a high level of awareness, followed by 65 respondents (24.2%) who exhibited very high awareness. On the lower end, 34 respondents (12.6%) reported low awareness, and 27 (10%) had very low awareness. A smaller group of 17 individuals (6.3%) were uncertain about their level of awareness. Overall, the results indicate that the majority of the community possesses either high or very high awareness of family planning services, which likely contributes to the increasing adoption and usage of these services.

These findings suggest that the high and very high levels of awareness regarding family planning services among the majority of respondents may have significant implications for public health and population control efforts. With 71% of the participants demonstrating strong awareness, there is potential for higher family planning uptake, which can lead to better reproductive health outcomes, reduced unintended pregnancies, and more informed family size decisions. However, the presence of respondents with low or very low awareness (22.6%) and those uncertain of their awareness level (6.3%) highlights the need for targeted interventions to bridge the knowledge gaps and ensure equitable access to family planning information and services across all demographic groups

A study by Mgaya and Mgonja [20] revealed that 94% of the surveyed population reported being well-informed about family planning services, with positive attitudes and a high level of awareness regarding contraceptives. Despite this high level of knowledge, the findings underscore the need for continued educational efforts to emphasize the importance of utilizing family planning services. Additionally, the study highlights the crucial role of involving men in family planning education and promotion to ensure comprehensive community engagement and support for reproductive health initiatives.

Results from interviews with the Reproductive and Child Health (RCH) Officer at Meru Hospital provided further insights into the community's level of awareness regarding family planning

services. The officer elaborated on the findings, stating:

“... in term of the level of awareness in the issue of family planning, it seems that many people currently have a great understanding of the issue of family planning despite the fact that there are some things that hold back the issue of family planning such as religious beliefs, side effect and cultural impact...”

3.2.3 Relationship between level of awareness of respondents on family planning services and their corresponding demographic characteristics

The findings in Table 2. presents a multinomial logistic regression models where the dependent variable is the level of awareness of family planning services. The model includes several independent demographic characteristics: age, marital status, education level, and occupation of the respondents. The table displays the estimates (B), standard errors, Wald statistics, degrees of freedom (df), significance levels (Sig.), and odds ratios (Exp(B)) for each category of awareness (very high, high, low, very low). The findings indicate that the independent variable very high level of awareness is associated with the coefficient for age (-0.337) is not significant ($p = 0.862$), indicating no significant association between age and very high awareness of family planning services, the coefficient of marital status (-0.871) is also non-significant ($p = 0.577$). This suggests marital status is not a significant predictor of very high awareness, education level has a non-significant impact ($p = 0.714$) on very high awareness and occupation, with a coefficient of -2.789, approaches significance ($p = 0.060$). This result suggests a potential but weak inverse relationship between occupation and very high awareness

Likewise, the findings in Table 2 indicate that high level awareness is associated with a positive coefficient of age (2.302) which suggests that older respondents are more likely to have high awareness, but the result is not statistically significant ($p = 0.189$) while marital status and occupation show non-significant results, indicating no strong association with high awareness.

Table 2. Multinomial regression results of level of awareness of respondents on family planning services with corresponding demographic characteristics

To what extent do you have awareness on family planning services		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
Very high	Logit 1	-19.603	1.662	139.108	1	.000**			
	[Age of respondent]	-.337	1.935	.030	1	.862	.714	.016	31.645
	[Marital status]	-.871	1.560	.312	1	.577	.419	.020	8.909
	[Education level]	-.614	1.677	.134	1	.714	.541	.020	14.473
	[Occupation]	-2.789	1.484	3.530	1	.060	.062	.003	1.128
High	Logit 2	-1.384	1.311	1.115	1	.291			
	[Age of respondent]	2.302	1.754	1.722	1	.189	9.994	.321	311.308
	[Marital status]	.977	1.382	.499	1	.480	2.655	.177	39.894
	[Education level]	.785	1.470	.285	1	.594	2.191	.123	39.080
	[Occupation]	-.699	1.068	.429	1	.512	.497	.061	4.029
Low	Logit 3	-1.835	1.455	1.591	1	.207			
	[Age of respondent]	.840	1.912	.193	1	.661	2.315	.055	98.220
	[Marital status]	-.223	1.547	.021	1	.886	.800	.039	16.609
	[Education level]	-.092	1.608	.003	1	.954	.912	.039	21.322
	[Occupation]	-1.358	1.177	1.333	1	.248	.257	.026	2.580
Very low	Logit 4	.381	1.322	.083	1	.773			
	[Age of respondent]	-1.146	2.182	.276	1	.599	.318	.004	22.865
	[Marital status]	-2.290	1.741	1.730	1	.188	.101	.003	3.071
	[Education level]	-.370	1.529	.058	1	.809	.691	.034	13.843
	[Occupation]	-2.794	1.265	4.876	1	.027**	.061	.005	.731

Also, the findings in Table 2 show that low awareness is associated with predictors such as age with coefficient (0.840) suggests a weak, non-significant relationship between age and low awareness with marital status, education, occupation shows no significant associations with low awareness, as indicated by their high p-values. Similarly, the findings in Table 2. Indicate that very low awareness variable is associated with a negative coefficient of age (-1.146) for age suggests that older respondents may be less likely to have very low awareness, but the result is not statistically significant ($p = 0.599$), the coefficient of marital status (-2.290) is relatively large, it is not statistically significant ($p = 0.188$), indicating no strong relationship with very low awareness and occupation which is the only significant predictor in this category ($p = 0.027$). The odds ratio (0.061) suggests that respondents with certain occupations are much less likely to have very low awareness of family planning services.

These multinomial regression model results imply shows that only occupation is a significant predictor of very low awareness of family planning services, while age, marital status, and education do not exhibit significant associations across the different awareness levels. Further investigation into the specific nature of occupations and how they influence awareness could be valuable for improving family planning service outreach efforts.

4. CONCLUSION

The findings from this study highlight the generally high level of awareness regarding family planning services among the respondents, particularly among younger individuals and those with higher education levels. The data shows that 71% of respondents have high or very high awareness, underscoring the positive reception and understanding of family planning services in the community. However, notable segments of the population, particularly older individuals and those with lower educational backgrounds, demonstrate lower awareness or uncertainty regarding family planning. This suggests that while awareness is widespread, certain groups remain underserved in terms of access to information and education about family planning services.

It is recommended that targeted awareness campaigns be developed by the government, focusing on less-educated individuals and older

populations, who may have different needs and face unique barriers, such as cultural or religious beliefs. Additionally, the role of men in promoting family planning should be emphasized to ensure more comprehensive family engagement. Tailored communication strategies should also be used to reach people based on their occupation and lifestyle, whether through community outreach in rural areas, workplace initiatives for businesspeople, or accessible platforms for those with limited education. These measures will help bridge the knowledge gaps and ensure that family planning services are understood and utilized by all demographic groups.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declares that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during writing or editing of this manuscript.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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