

# Perception and Expectation of Dental Clinic Services in Jakarta, Indonesia

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## Abstract

There was the demand to improve the quality of the dental clinic serves as the objection of the health care service especially in the dentistry sector is to meet patient satisfaction. The purpose of the study is to review the literature on the service area to determine the important factor of the service quality. Data were collected using a questionnaire to measure the five dimensions of the service quality include tangibility, reliability, responsiveness, assurance, and empathy. A five-point Likert scale used to evaluate all dimensions. The data were analyzed to get the mean, standard deviation, and confirmatory factor. All of the dimensions have the Cronbach  $\alpha$  score of more than 0.6 which means its reliability level is reliable. The result of the study show the Responsiveness, Assurance and Empathy have the highest effect on the dental service quality.

## Keywords

Patient Satisfaction, Quality Services, Dental Quality and Dental Service

## 1. Introduction

Based on The Global Burden of Disease Study 2016, dental and oral health problems, dental caries are diseases that served by almost the world's population (3.58 billion people). The 2030 caries-free target for Indonesia is the Decay Missing Missing Filled-Teeth (DMF-T) index for children aged 12 years reaching 1. Based on the survey in 2018, the average DMF-T index for permanent teeth in Indonesia is 7.1, this figure still does not meet the target of The National Action Plan (NAP) for Dental and Oral Health Services for the year 2020 with the DMF-T index is 4.1.

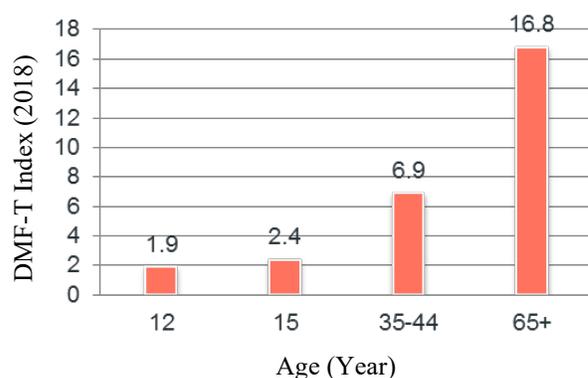


Figure 1. Average Permanent Tooth DMF-T Index Based on WHO Age Group in Indonesia in 2018  
Source: Riskesdas, 2018

One of the strategies proposed by the Ministry of Health is to improve the quality of dental and oral health services, so that improving health services is important. Improvements in health services keep continue to get a satisfying experience from patients. Patient dissatisfaction with service providers can influence patients to stop treating or choose another health care provider to continue treatment (Federman et al., 2001). Dental clinics are required to be able to provide quality services in accordance with patient expectations. One of the important components to ensure quality

in the field of dentistry is in providing services (Ahmed & Amagoh, 2014). One of negative effect on patients in providing health services is the length of waiting time spent by patients this effect can also determine whether the patient will continue the treatment or not (Inglehart, M.R et al 2016). Long queues are a symptom of hospital inefficiency and an indication of the inability system's to meet patient demands within a reasonable timeframe (Alhatmi, 2010). There is a high demand to evaluate the quality of dental clinics to improve health services in the field of dentistry (Mabrouk, M. S et al. 2019).

Several studies have been conducted with the aim of reducing patient waiting times. As Ahmed & Amagoh, (2014) used process analysis to identify how to reduce patient processing time, Mital, (2010) used queue analysis to investigate the quality of service in Indian hospitals. Dachyar & Nashira, (2019) conducted a study on the Business Process Reengineering (BPR) approach to reduce patient waiting time in cardiology outpatient cases. Where many previous studies have recommended reducing patient waiting time, in a study conducted by Akbar et al., (2019) which states that overall patient waiting time does not affect patient satisfaction.

In the service industry, Parasuraman et al., (1985) stated that service quality is more difficult to evaluate by consumers than the quality of goods because it involves consumer expectations which may vary for each consumer with the actual service performance. In terms of the effect of service satisfaction on the health industry, patients will continue the treatment or medication (Alhasem et al., 2011). Every day there will be patients who will use dental health services, so that identifying, measuring, and improving the factors that affect the quality of dental services can improve the performance of service providers and increase patient satisfaction (Bahadori et al., 2015)

Previous research has been conducted to determine the factors that can be used to determine and evaluate service quality. Parasuraman et al., (1985) define 10 categories which are labeled "determinants of service quality". and then these ten dimensions are broken down into five generic dimensions Tangibility, Reliability, Responsiveness, Assurance and Emphaty. Other studies also make more specific research in the health industry. Alhasem et al., (2011), for example, is divided into six service dimensions consisting of (interpersonal, technical, accessibility, convenience, availability, and overall) which have a number of statements. which measures patient satisfaction which is the end result in evaluating the quality of medical care.



Figure 2. Dimensions in dental health service satisfaction

In service industry Parasuraman et al., (1985) mentioned service quality is more difficult for the consumer to evaluate than goods quality since it is involved consumer expectation that may vary for each consumer with the actual service performance. In healthcare industry satisfaction influence patient will continuing patient to use the care or treatment (Alhasem et al., 2011). Several people are referred daily to dental services, so identifying, measuring and improving factors affecting dental service quality can prevent resource wastage and increase patient satisfaction (Bahadori et al., 2015)

## 1.1 Objectives

This research aims to:

1. Knowing the factors that can improve the quality of dental clinic health services in Indonesia based on the social demographic conditions of dental clinic patients.
2. Being a reference for improving the quality of services at dental clinics in Indonesia.
3. In line with the government's strategy for a caries-free Indonesia in 2030 by improving the quality of dental and oral health services.

## 2. Literature Review

### *Quality Service*

Previous studies have been done to indicate the factor that can be used to determine and evaluate the service quality. Parasuraman et al., (1985) define 10 categories which are labeled "Service quality determinants". and then these ten were collapsed into five generic dimensions, , assessed by a total of 22 attributes (Parasuraman et al. 1988). The attributes used in their SERVQUAL instrument are shown in table 1. The other study also makes more specific research in healthcare Industry Alhasem at al., (2011) for example divided in to six dimension of care comprised of (interpersonal, technical, accessibility, convenience, availability, and overall) that has a number of statements that measure patients satisfaction which is an ultimate outcome in evaluating quality of medical care.

Table 1. The SERVQUAL Instrument presented by Zeithaml et al. (1990)

Dimensions	Attributes
Tangibles	1. Up-to-date equipment 2. Visually appealing physical facilities 3. Neat-appearing employees 4. Visually appealing materials associated with the service
Reliability	5. The company keeps its promises to do something by a certain time 6. The company shows a sincere interest in solving the customer's problem 7. The company performs the service right the first time 8. The company provides its services at the ti
Responsiveness	10. Employees of the company tell customers exactly when services will be performed 11. Employees of the company give prompt service to customers 12. Employees of the company are always willing to help customers 13. Employees of the company are never too busy to respond to customer requests
Assurance	14. The behaviour of employees of the company instills confidence in customers 15. Customers of the company feel safe in their transactions 16. Employees of the company are consistently courteous with customers 17. Employees of the company have the knowledge to answer customer's questions
Empathy	18. The company gives customers individual attention 19. The company has operating hours convenient to all its customers 20. Employees of the company give customers personal attention 21. The company has the customer's best interests at heart 22. The employees of the company understand the specific needs of their customers

For dental clinic Bahadori et al., (2015) and Akbar et al., (2019) have studied five dimension of quality service divided to Tangibility, Reliability, responsiveness, Assurance and Empathy, that used as the basis to evaluate the patient satisfactory factor based on patient perspective. The questioner to patient will as table 2.

Table 2. Factors affecting dental services from the patients' expectation

Quality dimension and items		
Tangibility	P1	In a good dental clinic, the equipment should be modern

- P2 The clinic employees should be clean, neat, tidy and appropriate to their professions
- P3 The Waiting room, tables and chairs, bathrooms, toilets and floors should be clean, beautiful, comfortable and desirable
- P4 The card of patients' chart number, pamphlets and brochures should be appropriate and beautiful
- P5 The cleanliness and quality of the materials and supplies used for treatment should be appropriate
- P6 The process of paying the bills should be easy and comfortable
- P7 The car parking space for patients should be enough around the clinic
- Reliability P8 In a good dental clinic, the patients' physical examinations and treatments should be provided at the time that has previously been appointed and patients should not be delayed too much on the day of physical examination and treatment
- P9 The dentist should consider the patients' expectations and needs and meet them completely
- P10 When explaining the treatment procedures to the patients, the dentist should speak clear and understandable so that they fully understand him/her
- P11 In addition to the assistants and secretary, the dentist should also explain the treatment procedures to the patients
- P12 The patients' charts should be completed without any mistakes and maintained accurately and can easily be found when needed
- P13 The dental care costs should not be high
- P14 Everything should be done correctly and without duplication and reworking at the first time
- P15 The treatment provided should be of high quality and long term effectiveness
- P16 The dentist should give patients useful and necessary advice for preventing them from other diseases
- Responsiveness P17 In a good dental clinic, there should not be a long time between patients' physical examinations and their treatment procedures
- P18 The treatment process should be provided quickly and conveniently
- P19 The employees should behave towards patients such that they can trust in the dental clinic and its employees
- P20 A secretary should always be accountable for arranging the time of treatment session by phone or in person
- P21 The dentist should clearly explain the problems and diseases to the patients during the first visit and physical examination
- P22 The employees should constantly be willing to help the patients referred to the clinic and be ready at any time to answer their questions

Assurance	P23	In a good dental clinic, the employees should always behave towards patients with respect and courtesy and ensure their privacy
	P24	The dentist should be familiar with the newest treatment methods, as well as the modern technologies
	P25	The dentist should have sufficient skills and be good at his/her job
	P26	A good dental clinic should have a good reputation among the people so that they offer it to each other
Empathy	P27	In a good dental clinic, the admission process for consultation and initial physical examination should be carried out quickly and easily
	P28	The clinic employees should listen to the patients' comments and opinions
	P29	The clinic employees should understand and pay attention to the patients' needs
	P30	The clinic employees should pay particular attention to each patient's costs of dental services and should be assured that they are affordable for patients

The previous study used means, standard deviations, which was used to determine consistency between patient and the structural model (Bahadori et al., 2015; Akbar et al., 2019). This study will observed the correlation on the satisfaction score with the social-demographic factors. Exploratory factor analysis was used to identify the underlying factors and Cronbach's alpha was used to measure the internal consistency of the scale and subscales.

### 3. Methods

This research aims to determine the factor affecting for the service quality of the healthcare sector especially on the dental clinic in Jakarta area, Indonesia to improve the service quality. Study literature conducted to get the factor for quality of service in dental clinic. Data was collected using questioner designed for the study based on Parasuraman et al., (1985) and developed further so it can be uses on the healthcare service especially for dentistry sector. The Five-point Likert scale will uses ranging from (1= strongly disagree and 5=strongly agree).Descriptive statistics (frequency distribution, mean, and standard deviation) were used to describe the data.

In the end, this study will provide a conclusion fort the important factor of the patient perception for the service quality in dental clinic in Jakarta area. These factor can be used by the dental provide to improve their service to ge the competitive advantage. The last is suggestion will be given as an input for the further research.

### 4. Results and Discussion

Questionnaire have distributed and filled by 100 correspondents, as the Hair, Aderson, Tatham dan Black in Kusnendi (2005) the minimum sample for structure equation is 100 to 200

the most subject was male (60%), 25-35 years old (56%), gradute from bachelor ( 63%), monthly spending of IDR 3,000,000 – 7,500,000 (44%). The study will focused on the subject that have the dental treatment from the clinic in Jakarta are. Table 2 showing the questionnaire results for 30 question items with 5 dimensions for the factors affecting dental clinic service quality from the patients perspective.

The Cronbach  $\alpha$  coefficient for each dimension of the question is higher than 0.6, which means its reliability level is reliable. The highest Cronbach  $\alpha$  coefficient is in the Reliability dimension of 0.853 and the lowest in the reliability is Empathy dimension of 0.806 the result of cronbach test is shown on table 3.

Table 3. Cronbach  $\alpha$  test for expectation

Quality Dimension	Tangibility X1	Reliability X2	Responsiveness X3	Assurance X4	Empathy X5
	X11	X21	X31	X41	X51
	X12	X22	X32	X42	X52
	X13	X23	X33	X43	X53
	X14	X24	X34	X44	X54
	X15	X25	X35		
	X16	X26	X36		
	X17	X27			
		X28			
		X29			
Cronbach's $\alpha$ 0.959	0.852	0.853	0.843	0.848	0.806

The most important factor of each dimension are “The cleanliness and quality of the materials and supplies used for treatment should be appropriate” (4.87) on Tangibility, “When explaining the treatment procedures to the patients, the dentist should speak clear and understandable so that they fully understand him/her” (4.87) on Reliability, “The dentist should have sufficient skills and be good at his/her job” (4.76) on Assurance, “The employees should behave towards patients such that they can trust in the dental clinic and its employees” (4.65) on the Responsiveness, The clinic employees should understand and pay attention to the patients’ needs (4.55) on Empathy. The result of mean for each factor as shown in table 4.

Table 4. Result of Factors affecting dental services from the patients’ perspective

Quality dimension and items	Mean
<b>Tangibility X1</b> X11 In a good dental clinic, the Equipment should be modern	4.62
X12 The clinic employees should be clean, neat, tidy and appropriate to their professions	4.86
X13 The Waiting room, tables and chairs, bathrooms, toilets and floors should be clean, beautiful, comfortable and desirable	4.64
X14 The card of patients' chart number, pamphlets and brochures should be appropriate and beautiful	3.95
X15 The cleanliness and quality of the materials and supplies used for treatment should be appropriate	4.87
X16 The process of paying the bills should be easy and comfortable	4.71
X17 The car parking space for patients should be enough around the clinic	4.47
<b>Reliability X2</b> X21 In a good dental clinic, the patients’ physical examinations and treatments should be provided at the time that has previously been appointed and patients should not be delayed too much on the day of physical examination and treatment	4.61
X22 The dentist should consider the patients’ expectations and needs and meet them completely	4.72
X23 When explaining the treatment procedures to the patients, the dentist should speak clear and understandable so that they fully understand him/her	4.87
X24 In addition to the assistants and secretary, the dentist should also explain the treatment procedures to the patients	4.79

	X25 The patients' charts should be completed without any mistakes and maintained accurately and can easily be found when needed	4.77
	X26 The dental care costs should not be high	4.05
	X27 Everything should be done correctly and without duplication and reworking at the first time	4.47
	X28 The treatment provided should be of high quality and longterm effectiveness	4.65
	X29 The dentist should give patients useful and necessary advice for preventing them from other diseases	4.81
<b>Responsiveness X3</b>	X31 In a good dental clinic, there should not be a long time between patients' physical examinations and their treatment procedures	4.22
	X32 The treatment process should be provided quickly and conveniently	4.32
	X33 The employees should behave towards patients such that they can trust in the dental clinic and its employees	4.65
	X34 A secretary should always be accountable for arranging the time of treatment session by phone or in person	4.53
	X35 The dentist should clearly explain the problems and diseases to the patients during the first visit and physical examination	4.62
	X36 The employees should constantly be willing to help the patients referred to the clinic and be ready at any time to answer their questions	4.5
<b>Assurance X4</b>	X41 In a good dental clinic, the employees should always behave towards patients with respect and courtesy and ensure their privacy	4.65
	X42 The dentist should be familiar with the newest treatment methods, as well as the modern technologies	4.69
	X43 The dentist should have sufficient skills and be good at his/her job	4.76
	X44 A good dental clinic should have a good reputation among the people so that they offer it to each other	4.6
<b>Empathy X5</b>	X51 In a good dental clinic, the admission process for consultation and initial physical examination should be carried out quickly and easily	4.55
	X52 The clinic employees should listen to the patients' comments and opinions	4.54
	X53 The clinic employees should understand and pay attention to the patients' needs	4.55
	X54 The clinic employees should pay particular attention to each patient's costs of dental services and should be assured that they are affordable for patients	4.34

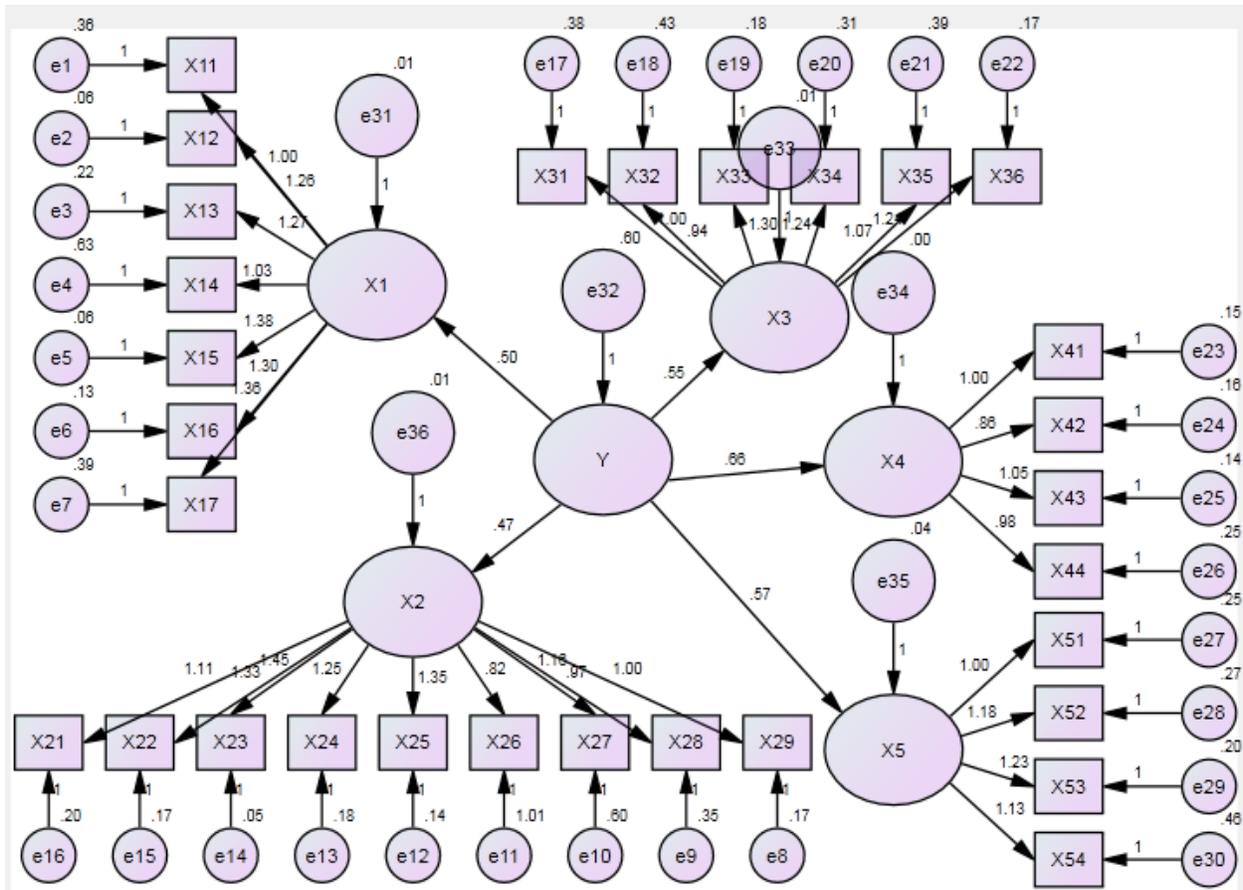


Figure 3. Model Factor

The result of the model as shown in figure 3 indicate X3, X4, and X5 have the highest scores where X3 is Responsiveness, X4 Assurance, X5 Empathy. Responsiveness (0.55), Assurance (0.66) and Empathy (0.57) have the highest effect on the dental service and Reliability (0.47) have the lowest effect on the dental service in Jakarta, Indonesia. This study have different result from the previous study that show Tangibility, Reliability and Assurance have the highest score.

## 5. Conclusion

Considering the result of this study it show that 3 dimension for the most affecting of dental service from the patient perspective in Jakarta area, Indonesia, the three dimensions are Responsiveness, Assurance and Empathy . The each item in the dimension can be evaluated for the clinic strategy to improve their service quality.

This study only limited to the small size of sample, the improvement of the number of sample need to be considered to make sure the model and result is fit and accurate.

## References

- Ahmed, S., & Amagoh, F. (2014). Process analysis and capacity utilization in a dental clinic in Kazakhstan. *Competitiveness Review*.
- Akbar, F. H., Pasinringi, S., & Awang, A. H. (2019). Factors Affecting Dental Center Service Quality in Indonesia. *Pesquisa Brasileira em Odontopediatria e Clínica Integrada*, 19.
- Akbar, F. H., Samad, R., Pasiga, B. D., Pratiwi, R., Anwar, A. I., Djamaluddin, N., & Tri Meilana, A. N. (2019). Influence of Waiting Times in Dental Offices Towards Patient Satisfaction and Evaluations of Patient/Provider

- Relationships in Bantaeng District, South Sulawesi, Indonesia, 2018. *Journal of International Dental & Medical Research*, 12(2).
- Alhashem, A. M., Alquraini, H., & Chowdhury, R. I. (2011). Factors influencing patient satisfaction in primary healthcare clinics in Kuwait. *International journal of health care quality assurance*.
- Bahadori, M., Raadabadi, M., Ravangard, R., & Baldacchino, D. (2015). Factors affecting dental service quality. *International journal of health care quality assurance*.
- Dachyar, M., & Pertiwi, C. H. (2020, June). Improvement in Emergency Medical Services using Internet of Things (IoT). Hospital Emergency Department Case: a BPR Approach. In *23rd Asian Forum of Business Education (AFBE 2019)* (pp. 79-87). Atlantis Press.
- Dewanto, I., Koontongkaew, S., & Widyanti, N. (2020). Characteristics of Dental Services in Rural, Suburban, and Urban Areas Upon the Implementation of Indonesia National Health Insurance. *Frontiers in Public Health*, 8.
- Federman, A. D., Cook, E. F., Phillips, R. S., Puopolo, A. L., Haas, J. S., Brennan, T. A., & Burstin, H. R. (2001). Intention to discontinue care among primary care patients. *Journal of General Internal Medicine*, 16(10), 668-674.
- Fonseca, E. P. D., Frias, A. C., Mialhe, F. L., Pereira, A. C., & Meneghim, M. D. C. (2017). Factors associated with last dental visit or not to visit the dentist by Brazilian adolescents: A population-based study. *PloS one*, 12(8), e0183310.
- Hassanain, M. A., Hamwda, M., & Sami-Anibire, M. O. (2018). Weighted Evaluation Method for Corporate Real Estate Site Selection in Saudi Arabia. *Journal of Urban Planning and Development*, 144(1), 05017012.
- Inglehart, M. R., Lee, A. H., Koltuniak, K. G., Morton, T. A., & Wheaton, J. M. (2016). Do waiting times in dental offices affect patient satisfaction and evaluations of patient-provider relationships? A quasi-experimental study. *American Dental Hygienists' Association*, 90(3), 203-211.
- Mabrouk, M. S., Marzouk, S. Y., & Afify, H. M. (2019). INVESTIGATION OF QUALITY IMPROVEMENT STRATEGIES WITHIN EGYPTIAN DENTAL CLINICS. *Biomedical Engineering: Applications, Basis and Communications*, 31(01), 1950006.
- Mital, K. M. (2010). Queuing analysis for outpatient and inpatient services: a case study. *Management Decision*, 48(3), 419-439.
- Nurchahyo, R., Kristiningrum, E., & Sumaedi, S. (2019). ISO 9001-certified public healthcare center's efficiency and re-certification. *International Journal of Productivity and Performance Management*.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of marketing*, 49(4), 41-50.
- Prithari, G. A., Setiawan, I., & Kuswoyo, C. (2018). Pengaruh service quality terhadap kepuasan pasien ekspatriat klinik gigi Bali International Dental Center di Denpasar-Bali. *Padjadjaran Journal of Dental Researchers and Students*, 2(2), 80-86.
- Rodhiani, A. N., Nurchahyo, R., & Dachyar, M. (2020). Analysis of service quality in m-health. *International Journal of Advanced Science and Technology*, 29(7 Special Issue), 3511-3517.
- Sag, I., Zengul, F. D., & Landry, A. Y. (2018). Patient perceptions of servicescape in healthcare: A systematic review of the literature. *Journal of Healthcare Management*, 63(2), 94-104.
- Tebai, Y., Maharani, D. A., & Rahardjo, A. (2017). Cross-cultural adaptation and psychometric properties of the Indonesian version of Servqual for assessing oral health service quality. *Journal of International Dental and Medical Research*, 10(3), 945-951.

## Biography

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