

REVIEW ARTICLE

Factors related to feeding practices of mothers to prevent stunting based on social-cognitive theory construct: A scoping review

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Abstract

The current child feeding practice is still suboptimal. There are several factors that affect child feeding practices. This review aimed to synthesize the available evidence on factors related to child feeding practices based on social-cognitive theory construct. The study was conducted based on the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) checklist and used five databases, including Scopus, ScienceDirect, Web of Science, PubMed and ProQuest. There were no restrictions in the year of publication. Based on the search strategy, 1179 articles were extracted resulting in 23 articles that were suitable for inclusion in the study. Factors related to child feeding practices included knowledge, self-efficacy and social support. Social support from health workers plays an important role in increasing maternal self-efficacy in feeding practices. Education interventions for mothers and husbands or other family members need to be carried out to increase knowledge, self-efficacy and social support in feeding practices. (*Afr J Reprod Health* 2024; 28 [10s]: 282-292)

Keywords: Child feeding; self-efficacy; knowledge; social cognitive theory; social support

Résumé

La pratique actuelle d'alimentation des enfants est encore sous-optimale. Plusieurs facteurs affectent les pratiques d'alimentation des enfants. Cette revue visait à synthétiser les preuves disponibles sur les facteurs liés aux pratiques d'alimentation des enfants sur la base de la théorie socio-cognitive. L'étude a été menée sur la base de la liste de contrôle PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) et a utilisé cinq bases de données, dont Scopus, ScienceDirect, Web of Science, PubMed et ProQuest. Il n'y avait aucune restriction l'année de publication. Sur la base de la stratégie de recherche, 1179 articles ont été extraits, ce qui a donné lieu à 23 articles qui pouvaient être inclus dans l'étude. Les facteurs liés aux pratiques d'alimentation des enfants comprenaient les connaissances, l'auto-efficacité et le soutien social. Le soutien social des agents de santé joue un rôle important dans l'augmentation de l'auto-efficacité maternelle dans les pratiques alimentaires. Des interventions éducatives pour les mères et les maris ou d'autres membres de la famille doivent être menées pour accroître les connaissances, l'auto-efficacité et le soutien social dans les pratiques alimentaires. (*Afr J Reprod Health* 2024; 28 [10s]: 282-292).

Mots-clés: Alimentation de l'enfant; auto-efficacité; connaissance; théorie cognitive sociale; soutien social

Introduction

Malnutrition such as stunting, wasting and underweight in under-five children are currently still a public health problem that has not been overcome. The prevalence of stunting in under-five children worldwide in 2022 was 22.3%¹ and classified as a high category according to the threshold (20-30%)². The prevalence of wasting in toddlers in the world in 2022 was 6.8%³ and classified as medium². Stunting

in under-five children is a major public health challenge in many countries. Based on the recommendations of the Sustainable Development Goals (SDG's), malnutrition in under-five children is targeted to end by 2030⁴. Stunting in under-five children has a significant impact on the future growth and development of children. Previous studies reported that stunting and wasting in under-five children increase the risk of mortality 8.7 times higher than children who are not malnourished⁵.

Stunting in under-five children can increase various risks of diseases in later in life such as hypertension⁶ and obesity⁷.

The causes of malnutrition are multifactorial so that reducing prevalence of malnutrition in under-five children requires a multi-faceted approach. The prevention of malnutrition requires adequate maternal nutrition, optimal breastfeeding, diversity, nutritious and safe food and healthy environment for under-five children⁸. One cause of malnutrition in under-five children is inappropriate feeding practices such as low food quality (limited food diversity, low intake of animal sources, and low nutrient content), inappropriate feeding frequency, age-inappropriate food consistency, non-responsive feeding, contaminated food and water, unsafe food storage and preparation, and low hygiene practices⁹.

The maternal or caregiver feeding practice is influenced by several factors. One of these factors is the mother's knowledge. Mothers with good nutritional knowledge are 2.5 times more likely to provide diverse diet than mothers with low nutritional knowledge¹⁰. There are other factors that relate to maternal feeding practices. One behavioural theory that can be used to study maternal feeding practice is Social cognitive theory (SCT) that was developed by Albert Bandura in 1986¹¹. It is a theory of behaviour change that focuses on several factors. Based on SCT, individual behaviour is not only influenced by personal factors, but also environmental factors such as role models, social support, and normative beliefs that influence each other¹¹.

Previous scoping review studies have been conducted to analyse factors related to complementary feeding. The identified factors include maternal factors (knowledge, attitudes, self-efficacy, parity, antenatal care, and place of childbirth), socio-environmental factors (age, education, income, employment, family size, support, and ethnicity) and information factors (media exposure, information sources and interventions)¹². Previous scoping review only focused on complementary feeding but was not based on specific behavioural theories. Therefore, this study was designed to analyse the factors that

influence under-five children feeding practice based on the construct of the social cognitive theory.

Methods

Search strategies

The review was based on the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) checklist. The study used five databases, including Scopus, Science Direct, Web of Science, PubMed and ProQuest. There are no restrictions to year. The search strategy used SCT construct keywords, including "self-efficacy" OR "collective efficacy" OR "outcome expectations" OR "observational learning" OR "normative beliefs" OR "social support" OR "barriers and opportunities" OR "behavioural skills" OR "reinforcement and punishment". The search was conducted in July-August 2023. The full search strategy is presented in Table 1.

Selection of Studies/ Inclusion and Exclusion Criteria

The included studies included quantitative studies published in peer-reviewed journals from the selected databases and not a qualitative study. The study designs included were cross sectional, case control, cohorts, and experimental. Studies published in English and conducted in all geographical settings were included. The exclusion criteria were review articles, commentaries, method papers, studies conducted in non-humans, and those where the full papers were not available.

Data extraction and quality assessment

All identified articles were collected in one sheet and then duplicated checks were carried out while duplicate articles were deleted. The next step was the screening of the articles based on titles and abstracts to select articles that meet the inclusion criteria. Articles that were screened based on titles and abstracts were read in full and then selected based on inclusion and exclusion criteria. The data extraction process was conducted by researchers by reading the full text of selected articles in detail.

Table 1: Search strategy in selected databases

Database	Search strategy	Filters
Scopus	("social cognitive theory" OR "social cognitive learning" OR "social cognitive model" OR "self-efficacy" OR "collective efficacy" OR "outcome expectations" OR "observational learning" OR "normative beliefs" OR "social support" OR "barriers and opportunities" OR "behavioural skills" OR "reinforcement and punishment") AND ("feeding practice" OR "feeding behaviour" OR "complementary feeding" OR "child feeding" OR "infant feeding" OR "breastfeeding") AND ("Mother" OR "maternal" OR "caregiver")	Original article Language: English
ScienceDirect	("social cognitive theory" OR "self-efficacy" OR "outcome expectations" OR "observational learning" OR "social support" OR "barriers and opportunities") AND ("feeding practice") AND ("Mother" OR "caregiver")	Original article Language: English
Web of Science	("social cognitive theory" OR "social cognitive learning" OR "social cognitive model" OR "self-efficacy" OR "collective efficacy" OR "outcome expectations" OR "observational learning" OR "normative beliefs" OR "social support" OR "barriers and opportunities" OR "behavioural skills" OR "reinforcement and punishment") AND ("feeding practice" OR "feeding behaviour" OR "complementary feeding" OR "child feeding" OR "infant feeding" OR "breastfeeding") AND ("Mother" OR "maternal" OR "caregiver")	Original article Language: English
PubMed	("social-cognitive theory" OR "social cognitive model" OR "social cognitive learning" OR self-efficacy OR "collective efficacy" OR "outcome expectations" OR "observational learning" OR "normative beliefs" OR "social support" OR "barriers and opportunities" OR "behavioural skills" OR "reinforcement and punishment") AND ("feeding practice" OR "feeding behaviour" OR "complementary feeding" OR "child feeding" OR "infant feeding" OR "breastfeeding") AND ("Mother" OR "maternal" OR "caregiver")	"clinical study, "clinical trial" "randomized controlled trial"
ProQuest	("social cognitive theory" OR "social cognitive learning" OR "social cognitive model" OR "self-efficacy" OR "collective efficacy" OR "outcome expectations" OR "observational learning" OR "normative beliefs" OR "social support" OR "barriers and opportunities" OR "behavioural skills" OR "reinforcement and punishment") AND ("feeding practice" OR "feeding behaviour" OR "complementary feeding" OR "child feeding" OR "infant feeding" OR "breastfeeding") AND ("Mother" OR "maternal" OR "caregiver")	"Scholarly Journal" Limit to Peer Review English

The data extracted included study design, country, sample size, subject characteristics (child age), dependent and independent variables and outcomes. The process of identification, screening and eligibility checks was conducted by NTT and re-checked by TM and DI. Table 1

Study selection and study characteristics

Based on the search strategy from five databases were found 1179. There were 66 duplicated articles

so they were deleted. Then screening was conducted based on titles and abstracts and resulted in 86 articles that met the inclusion and exclusion criteria. Of the 86 articles that were found, a thorough reading of the full articles was conducted. A total of 62 articles were excluded because the population was not relevant, the research design and outcomes were not appropriate and full text was not available so that 23 articles were included in this review. The PRISMA flowchart for review and article selection is presented in Figure 1.

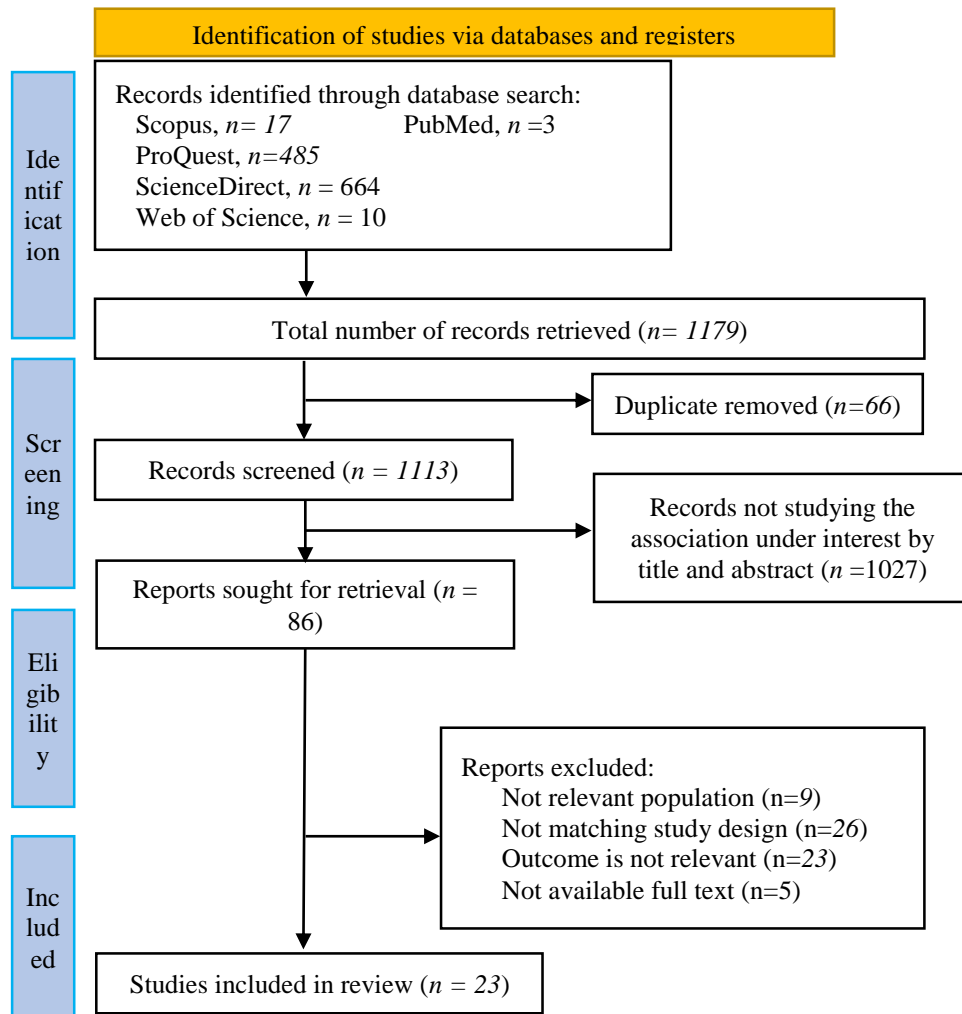


Figure 1: The PRISMA flowchart for review and article selection

Results

Based on the country of the study, most of the study included in this review were conducted in the African ($n = 9$; 37.5%) and Asian ($n = 8$; 33.3%) continents. Others were conducted in the Americas, Australia, and Europe. The results of the study design showed that 14 articles were cross-sectional study designs, one was a case control, three were cohort studies, while six were experimental studies. The feeding practices focused on breastfeeding (62.5%) and the others on minimum meal frequency (MMF), minimum dietary diversity (MDD), minimum acceptable diet (MAD), and animal source

feeding. The 23 studies included a total of 27,993 mothers consisting of 3859 mothers with children aged 6-24 months and 24,134 mothers with children aged 0-36 months.

Factors related to maternal feeding practices based on social-cognitive theory construct self-efficacy

A total of 11 studies included in this review investigated self-efficacy related to feeding practices in under-five children. Studies in Bangladesh reported that mothers had high self-efficacy in providing animal source feeding for their children.

Table 2: Summary of research to factor related to maternal feeding practice based on social-cognitive theory construct

No	Author	Country	Design	Sample size	Age children	Infant and Young Child Feeding (IYCF) Indicator	Factor related IYCF Indicator
1	Kalam <i>et al.</i> (2023) ¹³	Bangladesh	Case control	90	8-23 months	Animal source feeding	Self-efficacy related to animal source feeding
2	Wemakor <i>et al.</i> (2022) ¹⁴	Ghana	Cross sectional study	395	6-23 months	MDD, MFF, MAD	Social support status was not related to any indicator of child feeding
3	Ickes <i>et al.</i> (2018) ¹⁵	Uganda	Cross sectional study	163	months	Duration breastfeeding, MDD, MFF, MAD	Mothers with higher social support scores were more likely to feed children according to the MMF, MDD, iron rich foods, dan MAD indicators
4	Sarrassat <i>et al.</i> (2019) ¹⁶	Burkina Faso	Cross sectional study	2229	6-24 months	Introduction of soft, semi-solid or solid foods, MDD, MFF, MAD, minimum milk feeding frequency	Social support and knowledge of the correct daily number of meals were associated with receiving the recommended minimum meal frequency
5	Adhikari <i>et al.</i> (2021) ¹⁰	Nepal	Cross sectional study	360	0 – 24 moths	timely initiation of breastfeeding, Exclusive breastfeeding (EBF), timely initiation of complementary feeding, MDD, MMF, MAD	- Maternal knowledge was significantly associated with on timely initiation of breastfeeding and MAD - Social supports such as mothers who received nutritional counselling associated with on timely initiation of complementary feeding
6	Anaba <i>et al.</i> (2022) ¹⁷	Nigeria	Cross sectional study	3039	0-24 moths	Early initiation breastfeeding, EBF	Knowing the timing for introducing complementary foods and self-efficacy to practice EBF were significantly associated with EBF practices
7	Zewdie <i>et al.</i> (2022) ¹⁸	Ethiopia	Cross sectional study	485	6–12 months	EBF	Having social support significantly associated to EBF practice among unemployed mothers.
8	Saniel <i>et al.</i> (2021) ¹⁹	Filipina	before-and-after' non-experimental	2343	4 onths	Initiation breastfeeding, EBF	Peer counsellor visits were associated with early initiation or EBF at 6 months. Members of breastfeeding support groups had 1.49 times higher odds of early initiation of breastfeeding

9	Starkweather et al. (2020) ²⁰	Indonesia	Cross sectional study	1734	years	MMF, MDD, MAD	and 1.65 times higher odds of EBF (95% CI 1.20, 2.24) compared to those who were not members of breastfeeding support groups. Knowledge was related to MMF, MDD, and MAD High levels of knowledge were 5.5 times more likely to achieve MMF, 9.2 times more likely to experience MDD, and 5.4 times more likely to attain MAD.
10	Nguyen et al. (2017) ²¹	Vietnam	Cross sectional study	11722	moths	EBF	Exposure to television spots was associated with higher EBF
11	Stansert et al. (2020) ²²	South Africa	longitudinal prospective cohort study,	470	0-24 months	EBF	Mothers who received home visits by community health workers were more likely to exclusively breastfeed at 3 months compared to mothers not receiving home visit
12	Lyons et al. (2022) ²³	America	Cross sectional study	883	4 onths	early breastfeeding, planned breastfeeding duration, confidence in meeting breastfeeding goals.	perceived social support was related with planned breastfeeding duration but not with early breastfeeding (p=0.873) or confidence in meeting breastfeeding goals
13	Jones et al. (2012) ²⁴	Bolivian Andes	Longitudinal	69	0-36 months	MDD, MMF	Support for child feeding from spouses and mothers-in-law related to MDD, MMF
14	Aidam et al. (2020) ²⁵	Sierra Leone	Quasi experiment	291	4 onths	MDD, MMF, MAD	Support from grandmothers related to exclusive breastfeeding during the first week of life, MDD, MMF, and MAD
15	Flax et al. (2022) ²⁶	Nigeria	Cross sectional study	497	6-23 months	MDD, MAD, MMF, fish consumption	mothers' exposure to community meetings, religious services, home visits, and television spots, related to fish and egg consumption mothers' exposure to home visits related to MMF
16	Tseng et al. (2020) ²⁷	Taiwan	single-blind, randomised controlled trial with a parallel-group	93	0-6 months	EBF	Self-efficacy education related to rates for exclusive and predominant breastfeeding postpartum
17	Chan et al. (2016) ²⁸	Hongkong	Randomized controlled trial	71	months	EBF	Increasing of self-efficacy can increase the exclusive breast-feeding rate was 11.4%

18	Loke <i>et al.</i> (2013) ²⁹	China	Cross sectional	199	0-6 weeks	EBF	The significant contributing factors for exclusive breastfeeding were women with a high level of breastfeeding self-efficacy
19	Noel-Weiss <i>et al.</i> (2006) ³⁰	Kanada	Randomized Controlled Trial	110	0-8 weeks	EBF in 8 week postpartum	Social support like workshop can increase self-efficacy scores and an exclusive breastfeeding
20	Kools <i>et al.</i> (2006) ³¹	Belanda	Cohort study	248	0-3 months	EBF in 3 months postpartum	Social support for formula fluid feeding related to breastfeeding in 3 months postpartum dan self-efficacy for breastfeeding
21	Leahy-Warren <i>et al.</i> (2014) ³²	Ireland	Cross sectional	1715	0-3 years	EBF	- Mother who having more than two public health nurse visits related to breast feeding. - Among mothers who breast fed, being high breast-feeding self-efficacy associated with breast feeding for as long as planned.
22	de Jager (2015) ³³	Australia	Cross sectional	174	0-24 month	Breastfeeding	Breastfeeding self-efficacy was a predictor of both exclusive breastfeeding intention and duration.
23	Desai <i>et al.</i> (2014) ³⁴	Zimbabwe	Cross sectional	296	< 6 months	Breastfeeding	Psychosocial support and viewing breast milk as sufficient were reported as primary facilitators of EBF practice

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Several factors were identified that can increase self-efficacy in providing animal protein for children. These include the availability of animal protein foods at home, support of husbands and household members, and the availability of money¹³. Other studies concluded that self-efficacy was the dominant factor that influenced breastfeeding practices^{17, 27-35}.

Knowledge

A study conducted by Adhikari *et al.*¹⁰ concluded that maternal knowledge has an important role in feeding practices. Maternal knowledge related to breastfeeding initiation^{10,17}, Minimum Dietary Diversity (MDD), Minimum Meal Frequency (MMF)²⁰ and Minimum Acceptable Diet (MAD)^{17,20}.

Social support

A total of 10 studies included in this review concluded that social support was associated with feeding practices. However, one study conducted in Ghana reported that social support was not related to feeding indicators (MAD, MMF, and MDD)¹⁴. Another study reported that social support was related to MAD, MMF, and MDD¹⁵⁻¹⁶ and to also breastfeeding^{18-19,21-23,25-6}. Social support can be in the forms of home visits from health workers²², peer counselors¹⁹, and information exposure^{16,21}. Table 2.

Discussion

Appropriate feeding of children is important in supporting their growth and development. However, the fact is that only few children receive adequate and safe amounts of food. Studies in Ethiopia and India show that child feeding is still inappropriate, namely low minimum acceptable diets and inappropriate for age, texture and frequency are often provided³⁵⁻³⁶. Several factors influence feeding practices in under-five children. The results of this study show that factors related to feeding practice based on SCT constructs are knowledge, social support and self-efficacy. SCT involves three factors, including personal cognitive, environmental, and behavioural factors. Personal cognitive factors indicate an individual's ability to determine behaviour and analyse certain

experiences. Knowledge and self-efficacy are part of personal cognitive factors. Social support is part of the environmental factors that can support or prevent certain behaviours¹¹.

Knowledge is one of the internal factors of the mother that affects child feeding. High maternal knowledge about feeding will enable appropriate decision-making about feeding practices as well as mothers to overcome barriers to feeding practices¹². Previous studies report that mothers with high knowledge are 2.34 times more likely to practice appropriate breastfeeding practices than mothers with low knowledge³⁷. Mothers with low knowledge will give solid food to their children too early and stop breastfeeding before the recommended time³⁸. The mother's knowledge is related to self-efficacy. Mothers who have information about feeding principles will have confidence in feeding practices. Maternal self-efficacy can be improved through increasing maternal knowledge about feeding recommendations³⁹.

Self-efficacy is a belief about a person's ability to perform behaviours that bring about desired results. It is the biggest motivator of action and mediator of behaviour change⁴⁰. Self-efficacy in complementary feeding can be seen through mother's confidence in giving appropriate complementary feeding in terms of time, portion, frequency, and variety, as well as considering hygiene aspects. Mothers with high self-efficacy will create comfortable environments for children when eating and can respond to hunger and satiety clues⁴¹. Mothers with high self-efficacy will pay more attention to the type of food consumed by children⁴². High maternal self-efficacy, in this case, vegetable and fruit feeding, will influence how often mothers offer new foods to their children before they decide to accept or reject them⁴³. The results of previous studies indicate that mothers with high self-efficacy will encourage children to eat a balanced diet and restrict unhealthy foods, such as sweet drinks⁴⁴.

This review shows that social support related to feeding practices for children include support to food security, a healthy environment and access to adequate health services that can support children's growth. However, this result is inconsistent. A study in Ghana reported that social

support is not related to maternal feeding practices. Maternal autonomy played a more important role than social support. But the divergence cannot be easily explained¹⁴. Social support can be in the form of family, community and health worker support. Family (husband or other member of family) play important roles in providing mental and emotional support for mothers so that mothers can make good feeding decisions³⁹. Husband support is an important component of social support¹². It can increase the odds of breastfeeding three times higher⁴⁵. Social support can also be in the form of information that is easily accessible. A previous study reported that mothers who listen to information about feeding practice recommendations on radio have the opportunity to provide quality food (MDD, MMF, and MAD)⁴⁶ and correlated with timely initiation of complementary feeding⁴⁷. A study in Nigeria concluded that breastfeeding mothers need positive support and do not want to be compared to other mothers in the process of breastfeeding⁴⁸. Social support can also come from health workers. Mothers that visited by health workers were 1.57 times more likely to maintain MAD in feeding practices as compared to mothers who did not receive health worker visits⁴⁹.

The strength of this study is the use of several databases and a systematic article search method (PRISMA flowchart) with several keywords. The study also involved various research designs. However, this study also has some limitations. The first limitation is the non-use of quality assessment of the articles. In addition, this study only considered articles published in English, while ignoring those published in other languages. The other limitation is the fact that only original research was included and not those in the grey literature.

Conclusion

The results of this review show that factors related to feeding practice based on SCT constructs were knowledge, social support and self-efficacy. Mother's knowledge should be routinely improved through providing comprehensive education or counselling about the principles of children feeding practice. Education also needs to be given to

husbands or other family members in order to provide social support in feeding practices. Social support in the form of providing motivation through home visits also needs to be done to increase maternal self-efficacy and overcome barriers in feeding practices.

Authors contribution

Nining Tyas Triatmaja (NTT): conceptualized, designed the study, collected, analysed data, writing original draft preparation

Trias Mahmudiono (TM): reviewed empirical studies, supervision

Diah Indriani (DI): reviewed empirical studies, supervision

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