Challenges and Coping Strategies Adopted by Midwives in Nursing Patients With Eclampsia in a Low Resource Setting: A Qualitative Descriptive Study

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Abstract

Objective: Eclampsia remains a public health issue, especially in low resource countries around the world, where approximately 63, 000 women die annually with young adolescence (ages 10-14) facing a higher risk of complication. Little is known about the challenges associated with the care of eclamptic clients. We sought to explore the challenges and coping strategies adopted by midwives in nursing patients with eclampsia in a low resource setting.

Methods: This study employed an exploratory descriptive qualitative research design. A total of 8 midwives were purposively selected and individual interviews were conducted. Data were analysed through qualitative thematic analysis.

Findings: From thematic data analysis two overarching themes emerged with six sub-themes. The two overarching themes were inadequate resources and coping strategies. The subtheme under inadequate resources includes a shortage of drugs, inadequate resuscitation equipment, and inadequate and inappropriate beds. The subtheme under coping strategies includes: coping with drug shortages, inadequate resuscitation equipment, and inadequate and inappropriate beds.

Conclusion: Currently, the quest of midwives to promote and provide quality care for women with eclampsia faces some bottlenecks. These bottlenecks led to the adaptation of some coping strategies to provide care for women with eclampsia. One major coping strategy in the absence of drugs (MgSO₄) was a referral to a higher health facility. They also borrowed equipment from neighbouring wards for resuscitation. Midwives improvised by admitting eclamptic women on the floor due to lack of beds. In times that they had beds without side rails patient relatives were asked to sit by the side of the bed to prevent falls in case of seizures.

Introduction

Globally, maternal deaths from pregnancy-related complications are still inaptly high even though great struggles have been made to ameliorate these occurrences [1, 2, 3]. In high-income countries, maternal deaths are rare, but forty times higher in low-and middle-income countries (LMICs) with approximately 95% occurrences of maternal deaths [3, 4]. In 2017 estimates showed a disparity in maternal mortality rates. Sub-Saharan Africa (SSA) and some parts of Asia recorded 150–542 per 100,000 live births compared to 7–15 per 100,000 live births in North America, Australia, and Europe [5]. Low- and middle-income countries are grappling with inadequate health-related resources with a population of health challenges and a weaker health system [6] and it is in this context that most maternal deaths occur [2-4, 6]. Evidence indicates that the top five countries with high maternal mortalities are in the African continent. These higher rates have been reported in South Sudan, Chad, Liberia, Nigeria, and the Central African Republic [2, 4]. Though Ghana is not among the top five countries, the maternal mortality rate is exponentially high with about 308 deaths/100,000 live births in 2017 [1].

Universally, every three minutes pregnant women die of preeclampsia and eclampsia [7] (Meazaw et al., 2020) and these hypertensive disorders remain among the topmost causes of maternal and fetal mortality worldwide [3, 7]. The American College of Obstetrics and Gynaecology defines pre-eclampsia as a disorder of pregnancy-associated with the onset of hypertension after 20 weeks of gestation till term and often accompanied with new onset of hypertension, proteinuria, and with new onset of any of the following: renal insufficiency, thrombocytopenia, pulmonary edema, impaired liver function, and unexplainable headache that is unresponsive to medication [8]. If left untreated, pre-eclampsia can develop into eclampsia with severe complications to the mother and fetus. Eclampsia is demarcated as the new-onset of generalized seizures in the absence of other causative conditions attributed to tonic-clonic seizures such as epilepsy, cerebral arterial ischemia, and infarction, intracranial hemorrhage [8].

Globally, it is estimated that annually preeclampsia and eclampsia affect between 2% and 10% of pregnant women [3]. In developing countries, eclampsia increases the risk of maternal deaths to approximately 15% while in developed countries it contributes to about 0.5-1.8% [7]. The World Health Organization (WHO) estimates' reveal that the prevalence of preeclampsia in developed countries is rare (0.4% of live births) but seven times higher in developing countries (2.8% of live births) [3, 7]. We may attribute these differences in the prevalence and complication rates between developed and developing countries to: gaps in access to care, appropriate and early antenatal care, treatment protocols, antihypertensive therapy, and magnesium sulfate (MgSO_4) prophylaxis for women with severe preeclampsia [9]. Midwives are the mainstay in managing women with eclampsia and supervises the delivery of pregnant women. Thus, this study sought to explore the challenges and coping strategies adopted by midwives in managing eclamptic women in two limited resource district hospitals in Ghana.

Research Methods

Study design

This study employed an exploratory qualitative research design to explore the challenges and coping strategies midwives adopted in nursing patients with eclampsia.

Study setting and population

This study was conducted at maternity units of two district hospitals in the Eastern Region of Ghana. These facilities operate under the Ghana Health Service. The maternity units provide twenty-four-hour maternity services to pregnant women. The participants for this study were registered midwives with several years of experience.

Sampling and data collection procedure

The midwives were recruited through purposive sampling. Purposive sampling in qualitative research is a technique that is widely used for the identification and selection of information-rich cases [10]. The researchers identified participants who were readily available and willing to participate and ready to

communicate their experiences in an articulate, and reflective manner. The participants were informed about the purpose of the study. Participants were recruited into the study after a written and verbal consent was obtained from the hospitals. The participants were approached during their daily duty shift and a time for interviews was scheduled. Data were collected through semi-structured interviews lasting up to 30 to 45 minutes using a semi-structured interview guide. The interview guide was developed by researchers to suit the context of the study setting [11]. The interview guide was pretested at the emergency anti-natal unit of one of the facilities and a minimal amendment was made before commencing the interviews. Individual face-to-face interviews were conducted in a secluded office within the maternity units. Due to the busy nature of the participants', researchers scheduled convenient times with participants who were willing to participate. Follow-up prompts and probing questions were employed for further information following participants' responses. During the interview sessions, participants freely expressed themselves without interferences. The researchers also avoided leading questions and unnecessary interruptions. Data saturation was reached on the eighth participant when no new information was obtainable. All interviews were digitally recorded in English and transcribed verbatim by researchers. Audio files and transcripts were stored in a secured digital storage system. To ensure anonymity and confidentiality participants were given pseudo-names, anatomical locations such as anterior, posterior, etc. Data were collected between January and March 2019.

Data analysis

The researchers employed a thematic approach in analysing the data following several steps [12]. The appropriate form of analysis was primarily inductive analysis because there were no pre-existing themes to guide the study. The data analysis was done concurrently with data collection, which allowed the researchers to reflect upon the viewpoints of the midwives and performed some modification, adjustment, and sequencing of questions in subsequent individual interviews [13]. The transcripts were read and re-read several times by authors to familiarize themselves with the data and to make meaning of the midwives' views. The researchers created an independent coding frame through line-by-line manual coding of transcripts focusing on keywords and phrases. The transcripts were coded to identify and discuss the variations in coding to check for intercoder reliability. We constantly compared codes for differences and conceptual similarity by referring to the original transcripts [11]. During the revision of codes, an iterative process was adopted through backward and forward assessment of data resulting in adjustment and refining of themes. During data sessions, any discrepancies regarding the themes were resolved through discussions. Finally, for data presentation, quotations from participants were selected and presented as examples of their responses.

Ethical consideration

Ethics approval was obtained from the University of Health and Allied Sciences Research Ethics Committee, Ho, Ghana with reference (UHAS-REC A.2 [11] 18-19). We also obtained permission from the hospital management and unit managers before commencing our interviews in the study settings. We also obtained verbal and written informed consent from all the participants before commencing the

interviews. **All methods performed** in this study are in accordance with the relevant guidelines and regulations of the Declaration of Helsinki.

The research team and reflexivity

All the researchers are nurses and midwives with much interest in maternal and child health. This study adopted personal and epistemological reflexivity in qualitative research. With personal reflexivity, the researchers found themselves ruminating on how their experiences in nursing and midwifery practice might shape the discussions. The researchers also pondered on how the findings might have affected them as nurse educators and professionals. On the issue of epistemological reflexivity, the researchers were faced with a methodological dilemma. The researchers adopted individual interviews which provided the participants the opportunity to freely share detailed information regarding their challenges and adopted coping strategies in nursing women with eclampsia.

Findings

The study included eight participants with ages between 30 to 47 years. The participants comprised four senior staff midwives and four staff midwives. All the participants had 4 to 15 years of work experience in the two health facilities.

From the qualitative data analysis, two overarching themes emerged. The two overarching themes were inadequate resources and coping strategies. The subtheme under inadequate resources includes shortage of drugs, inadequate resuscitation equipment, and inadequate and inappropriate beds. The subtheme under coping strategies includes: coping with drug shortages, inadequate resuscitation equipment, and inadequate and inappropriate beds.

The challenges reported in the current study had to do with lack of resources to manage eclampsia which was a prominent challenge midwives were confronted with in caring for pregnant women with pre-eclampsia/eclampsia. Midwives enunciated at length the frustration they go through when they do not have the required and appropriate resources to provide care for women with eclampsia. Midwives stated that without the resources they were not able to provide the full iterative circle of the nursing process.

Shortage of drugs: Challenges

The recommended drug in use for the management of eclampsia is magnesium sulfate ($MgSO_4$) and hydralazine which is in line with the Ghana Health Service (GHS) guideline. The participants in this study reported that in most cases there is shortage of the drugs needed to manage eclampsia.

"For eclampsia, we manage it with the parenteral magnesium sulfate ($MgSO_4$) which is recommended by the GHS (Anterior)."

"The drug has been in shortage for some time now...it difficult to manage a patient with eclampsia without $MgSO_4$ " (Inferior).

Also, almost all the midwives bemoaned that drug shortage is a major problem in managing eclampsia. They complained that at times some patients react to $MgSO_4$ and they do not have the required drugs to counteract the adverse effect of the drug. Some midwives stated that at times, they are left wandering and looking for the appropriate alternative to manage the situation. They specifically mentioned that calcium gluconate was the preferred antidote but they did not have it in the system (facility):

"Some patients do react to parenteral $MgSO_4$ and you need an antidote to counteract the adverse reaction but to no avail (Inferior)

Currently, calcium gluconate is not in the system which is the preferred antidote in managing adverse reactions (Anterior)

When there is an adverse reaction you run around looking for alternatives meanwhile you know the right thing to do to help the patient" (Lateral).

They also testified that some of the drugs especially $MgSO_4$ come in inappropriate dosage forms.

"For eclampsia, we usually use hydralazine and $MgSO_4$ for the management but these days, they are not able to provide us with the correct dosage. Instead of the ampoules coming in 5g they give us 2g" (Posterior).

"We have $MgSO_4$ coming in 2g and you are supposed to give 5g and the 2g ampoule is a 10mls vial" (Lateral).

The result of the study confirms that the midwives spend a lot of time calculating the right dosage which could be avoided in emergency cases. They further explained that in emergency cases if the drug is not in the recommended dosage form they struggle to mix the drug which leads to stress.

"The drugs don't come in the protocol dosages making the administration very difficult..." (Inferior).

"So, if you are giving 5g then you are giving 25mls so just imagine you drawing all these things is a waste of time but if it had come in the 5g vial, it's just ones, you pick it, you draw and just start your medication" (Anterior).

Coping with shortages of drugs

The midwives stated that when they have a complete lack of drugs to manage critical cases especially eclampsia, their best option was a quick referral to another facility. They mentioned that they could not treat the patient without the required drugs even though they always wish to care for the patient till full recovery. They also lamented that the referral deters some women and their families from coming back to the facility for medical care but they always have no option than to refer and save the woman's life.

"If we don't have drugs, we refer to the higher level for management..." (Lateral).

“...at times we want to care for the patient but due to the lack of drugs, we refer to other facilities though some women and their relatives don't always wish for referrals due to the change of environment and inconveniencies” (Transverse).

Midwives had to spend time to constitute one dose by using several syringes to withdraw about 25mls of MgSO_4 . In order to be quick enough to get the constituted drug ready, an additional midwife is called upon to assist.

“...With the drugs, currently MgSO_4 are supplied in 2g ampoule instead of the 5g, to constitute the drug quickly you ask your colleague to assist in withdrawing the other vial.” (Anterior).

Furthermore, some of the midwives place an order ahead for 5g of MgSO_4 to help reduce or avoid the situation of having to calculate and withdraw from 2g ampoules, which hitherto takes so much time.

“...due to the delays in reconstituting the 2g MgSO_4 , we do place orders ahead of time to get the 5g of MgSO_4 since this is easy to administer and the calculation is not so tedious (Dorsal).

We also ensure that for most of the time we have it available in our store if not on the ward it will be in our store” (Superior).

In times of shortage of drugs for the treatment of eclampsia, the midwives tried to make do with what they have in stock. Most of them start at least with the loading dose and continue with the maintenance dose, but at times they are unable to complete the maintenance dose due to drug shortage.

“So, coping with the challenges as I said we can give the loading dose sometimes but we do not get the needed drugs to complete with the maintenance dose, so you are not able to complete the regimen for eclampsia sometimes” (Posterior)

“And then most of the times the total amount or dose you require for the patient for the 24hrs is not available so if you give the loading dose and you are halfway or you start the maintenance dose where ever we get to and there is caesarean section then we stop there and then the person is okay” (Superior).

One midwife said she always prayed she never encounters any situation where a client will need calcium gluconate, which is almost always not available, due to the adverse reaction of MgSO_4 .

“Well, with the calcium gluconate, at the moment it's still not available but in all that we do, we just pray that a client will not react in the facility or whatever it is, or if there is any such case, we will have calcium gluconate around to administer” (Anterior).

Inadequate logistics to resuscitate: Challenges

Midwives mentioned that they at times lack the most essential materials to resuscitate women in critical conditions. They stated that their efforts to provide the best maternity care for women attending the facility are hindered by the lack of some of this essential equipment. Some of the logistics mentioned

were oxygen, spatulas, tongue depressors, and bag masks. Thus, making it difficult for them to provide quality care for clients with eclampsia.

Oxygen

"When it comes to logistics sometimes, we do not have the needed equipment to carry out the management. In my ward, we have just one oxygen cylinder for the for all the 6 cubicles" (Ventral).

At times you have two or three patients needing oxygen at the same time...just imagine what happens to the midwife at that moment..." (Posterior).

Tongue depressors

"...we do not have tongue depressors; I don't remember the last time I saw them on the ward" (Inferior).

"The tongue depressors are not in this unit 'ooo' and am not sure there can be found in any part of the hospital. While maybe the theatre, that one I cannot tell" (Lateral).

Spatulas

"It's even shameful to mention that common spatulas are not common in this our hospital. As basic but important tool as it might be, it's just not there..." (Inferior)

Bag masks

"For the bag masks, the least said about their availability the better. They are just not there, not only on the wards but in the hospital as well" (Dorsal)

Coping with inadequate resuscitation equipment

Midwives indicated that whenever they lack resuscitation equipment they borrow from other units to manage the emergency. In the absence of a spatula in the ward, the midwives wrap gauze around spoons to depress patients' tongues. The common phrase used by midwives was "we improvise" to save the woman's life.

"If a woman with eclampsia needs oxygen, we rush to the labour ward to get one to where we need to manage her and you know we do not have much time at hand and when it comes to maternal health every minute count so these are some of the challenges we do face" (Inferior).

"...and as I said we do not have spatulas to help put the tongue down so we end up using spoon padded with gauze for that and maybe we tilt the head to the left side and open the doors for air... we do improvise a lot which is a worry to us because we are not able to deliver the best form of care for our patients" (Posterior).

Lack of appropriate beds: Challenges

We do not have the appropriate beds to provide quality care for women in critical conditions. The participants stated that the few normal ward beds lack the appropriate accessories such as side rails to aid in the management of women with eclampsia. This is further illustrated through the following quote;

"First of all, when it comes to managing eclamptic patients, we do not have beds designed with side rails to nurse the client and as we know when managing eclamptic patient, she must be protected from injuries" **(Posterior)**.

"Absence of suitable beds to nursing the eclamptic client's frustrations to us the midwives. Sometimes, you become tired of the same bad working conditions that interfere the care given to clients" **(Transverse)**.

"You know the issue of eclampsia is life and death, so, if you have the required beds with side rails and other accessories, it helps serves time" **(Anterior)**.

"The improvising in this hospital is too much. We need beds with side rails to nurse eclamptic clients to get proper better which is our utmost hope" **(Ventral)**.

Coping with inappropriate beds

Midwives complained that due to the lack of appropriate beds they were compelled to nurse eclamptic patients on the floor when they had exhausted other necessary options. This is illustrated through the following quote;

"Hmmm, with the resuscitation, when it happens that way we nurse the patient on the floor because we don't have beds with side rails so they are nursed on the floor..." **(Posterior)**.

Others went to other units to borrow suitable beds to nurse clients with eclampsia on it.

"So, we either go for a suitable bed from the main ward, orthopaedic or surgical ward. They have side rails so instead of having the eclamptic bed which is fitted with most of the things you just have to make do with the side rails which is available" **(Superior)**.

For those who have beds without side rails and do not wish to nurse clients on the floor, midwives ask patient relatives to sit by the side of the patient to prevent the patient from falling.

"Okay we manage to do with the bed that is available and then usually we work with the relatives and have them sit at the sides of the bed to provide a human rail for us at that moment until the client is calm then other necessary care will be rendered" **(Anterior)**.

"In a situation where the midwife cannot do much with the type of beds in the unit, the client's relatives must step in. Yes, they must be by the bedside of the clients to guide the clients from falling and this helps" **(Posterior)**.

Discussion

Our study found three main challenges midwives are confronted with when providing care for women with eclampsia in a low resource setting. Amidst these challenges, the study unravels the coping strategies these midwives adopt to provide women-centered midwifery care. To provide quality women-centered midwifery care, adequate resources are needed to execute it well. All the challenges midwives faced in delivering quality midwifery care to women with eclampsia were lack of resources. In most low and middle-income countries, resource constraints are a major problem amidst its weak health systems. Although MgSO_4 has been recommended by WHO and GHS for use in the management of pre-eclampsia/eclampsia [14], the midwives in this study lacked or had an inadequate supply of the recommended drug to manage eclampsia. This finding is not different from some other studies in Ghana where there were frequent stockouts and lacked essential antihypertensive drugs for managing pre-eclampsia/eclampsia crisis [15,16]. Our study finding is also consistent with a study conducted in six sub-Saharan African countries where they observed inadequate and lack of supply of MgSO_4 in some health facilities [17]. Several factors have been associated with the poor uptake or utilization of MgSO_4 in sub-Saharan Africa. These factors include; the drug not registered at the national level, low incentives and poor profit margins for pharmaceutical companies, stockouts due to poor distribution systems, poor supply leading to unavailability of MgSO_4 in health facilities [17, 18]. A recent study in Ghana revealed that all the maternal deaths that occurred in the facility were related to pre-eclampsia/eclampsia [19] and this was partly due to the unavailability of antihypertensives in managing pre-eclampsia/eclampsia. This recent occurrence of maternal deaths related to pre-eclampsia/eclampsia is alarming. While other hypertensive drugs may be used to manage severe pre-eclampsia/eclampsia, evidence shows that MgSO_4 is the clear drug of choice to prevent seizures and to reduce its potential impact on maternal mortality considerably. For example, in Nigeria, maternal deaths associated with severe pre-eclampsia/eclampsia in Kano hospitals reduced drastically from 20.9% to 2.3% after the introduction of MgSO_4 in treating pre-eclampsia/eclampsia. In the effort to reduce maternal mortality by midwives, an adequate supply of MgSO_4 to manage pre-eclampsia/eclampsia is imperative.

Midwives also complained about the lack of calcium gluconate to manage the adverse effects of MgSO_4 in case it occurs. The adverse effects of magnesium sulfate (i.e. respiratory depression and cardiac arrest) occur mainly from its relaxing effect on the smooth muscles of the heart. Due to this effect the patients are at risk of impending respiratory depression and will require continuous oxygenation and emergency correction with calcium gluconate 10% solution, 10mls intravenously over three minutes. Here lies the case where midwives lacked logistics for resuscitation. Midwives stated clearly that they lacked oxygen and other basic essential equipment in managing eclamptic crisis and adverse effects from MgSO_4 . A systematic review in low and middle-income countries revealed 0.2% usage of calcium gluconate in managing adverse reactions from MgSO_4 [20]. The non-usage of this drug might have been due to unavailability or shortage in these countries. Our finding is different from a study conducted in one of the biggest hospitals in Ghana. The researchers found that the facility was well resourced with the equipment to manage emergency obstetric and gynaecological care [19]. The current study facility is a

secondary level facility while the study by Dassah et al. [19] was conducted in a tertiary level facility where much emphasis might have been placed on resource allocations than the present study facility. In Ghana, there is evidence that the management of pre-eclampsia/eclampsia is suboptimal in most facilities across the country [21, 16]. One of the keys to improving this suboptimal care is to provide the basic essential equipment for midwives to deliver quality care for women with eclampsia.

Lack of beds in health facilities has been a major public issue in most recent times across the country which brought about the new phraseology “*no bed syndrome*” in Ghana. The situation is not different from the current study setting where midwives lacked adequate beds to provide care for eclamptic women. Also, another study in rural northern Ghana revealed that midwives lack beds to provide maternity services for women admitted to the health facilities [22]. Due to lack of suitable beds (do not have the necessary bed accessories such as side rails), some women in the current study were managed on the floor and this act is observed in resource constraint settings, where women would have to share beds with other women during and after childbirth or even nursed on the floor [23]. In this study, the midwives indicated that in instances where the beds had no side rails, family relatives were invited to sit by the side of the patient to prevent falls due to eclamptic seizures. Most often, where patient relatives were not around and the bed had no side rails, they had to nurse the patient on a floor.

Midwives adopted various coping strategies to manage eclampsia amid the challenges. The common coping strategy was the referral of women with eclampsia to other higher facilities for care. The midwives stated that when they lacked MgSO_4 to treat eclampsia, they did not waste time in order not to complicate the condition of the woman, so they had to quickly recommend referral to a higher facility. The midwives also coped with the lack of essential resuscitation logistics by borrowing oxygen and bag-mask from other wards to resuscitate the patients. If the other wards lacked oxygen they were left with no option other than referral for urgent care. The midwives also improvised with spoons padded with gauze as a tongue depressor to prevent the patient from biting the tongue due to lack of spatulas. It is also interesting to note that some midwives relied on religious faith as a coping strategy. Due to the lack of calcium gluconate, some midwives prayed that no adverse reaction of MgSO_4 should occur.

Limitations

The researchers acknowledge some limitations of this study and findings should be interpreted with caution. Social desirability bias was a limitation to this study. Midwives may not adduce challenges and coping strategies that might put them in an unfavourable light. Additionally, the study sample size was relatively small and covered only one secondary-level hospital in Ghana. The findings may, therefore, not be representative of the midwives in the country. Nonetheless, this is an important study at a time where maternal mortality in Ghana is still exponentially high. This study provides a platform for midwives' voices to be heard by policymakers and other stakeholders on the challenges they face in managing preeclampsia and eclampsia. These findings will provide an opportunity for the provision of the necessary resources needed in the care of eclampsia.

Conclusion

Currently, the quest of midwives to promote and provide quality care for women with eclampsia faces some bottlenecks. The main challenges confronting midwives in delivery care for eclamptic women were: inadequate supply of drugs, lack of equipment for resuscitation, and inappropriate beds. These challenges led to the adaptation of some strategies to provide care for women with eclampsia. One major coping strategy in the absence of drugs (MgSO_4) was the referral to a higher facility. They also borrowed equipment from neighboring wards for resuscitation. Midwives improvised by nursing eclamptic women on the floor due to lack of suitable beds. In times that they had beds without side rails patient relatives were asked to sit by the side of the bed to prevent falls in case of seizures.

Abbreviations

LMICs: Low and Middle Incomes Countries

MgSO_4 : Magnesium Sulfate

WHO: World Health Organisation

GHS: Ghana Health Service

Declarations

Ethics approval and consent to participate

Ethics approval was obtained from the University of Health and Allied Sciences Research Ethics Committee, Ho, Ghana with reference (UHAS-REC A.2 [11] 18-19). We also obtained permission from the hospital management and unit managers before commencing our interviews in the study settings. We also obtained verbal and written informed consent from all the participants before commencing the interviews. **All methods performed in this study are in accordance with the relevant guidelines and regulations of the Declaration of Helsinki.**

Competing interest

The authors declare that they have no conflict of interest.

Consent to publish

Not applicable

Availability of data and materials

Datasets used and/or analysed during the current study are available from the lead author on reasonable request

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Authors contributions

All the authors contributed to this article in various ways: The AFD analysed the data, supervised the project, and drafted the manuscript. GD analysed and reorganized the manuscript, CRO and CEAB collected the data and AA modified the manuscript according to the journal specifications and did the editing.

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