Original Research Article

TIMELY INITIATION OF BREASTFEEDING AND ASSOCIATED FACTORS AMONG MOTHERS OF INFANT AGED 0- 6 MONTHS ATTENDING WESTERN REGIONAL HOSPITAL, KASKI, NEPAL

Abstract

Introduction: Breast milk has the single largest potential influence on child mortality of any preventive intervention. It is part of optimal breastfeeding practices, which also include timely initiation of breastfeeding and continued breastfeeding for up to 2 years of age or beyond. With the objective of estimating the prevalence and examining the factors associated with initiation of breastfeeding within one hour of birth among mothers of infant aged 0-6 months.

Methods: A cross- sectional hospital based study was conducted in Maternal and Child Health (MCH) clinics of Western Regional Hospital among mothers with infant younger than or equal to 6 months age from May to November 2019. Simple random sampling design was used to select the institutions included in this study. Face to face interview was conducted using interviewer-administered questionnaire for data collection. Data collected was entered and analyzed in Statistical Package for Social Sciences (SPSS version 23). Associations were tested using Pearson's Chi-Square test and multivariate logistic regression taking 95% confidence interval.

Results: The mean age of the respondents was 26.6 years. Most of the family were Janajati and follows Hinduism and lived in joint family. More than two-fourth of the women had secondary and predominantly works as a housewife (69.3%)Majority of the responded lived in urban area (98%). Majority of mother's claimed to have ANC visit (96.9%). Among those who visited, more than three fourth had 4 or more. More than half (57.2%) had no breastfeeding counseling during their ANC visit and. Majority (97.5%) of the mother delivered their child at health institution. Regarding the mode of delivery 40.5% have Cesarean Section. Majority (92.6%) of the children had normal birth weight.

Conclusion: More than half (55.2%) of the mother do not initiate breastfeeding within one hour after birth. Timely initiation of breastfeeding was significantly associated with family type, breastfeeding counseling during ANC visit and mode of delivery. Behavior change

UNDER PEER REVIEW

communication, minimizing indications of caesarean delivery, training of health professionals, community based breastfeeding education are recommended to be improved.
Keywords: Timely initiation, Breastfeeding, infants, Nepal

Introduction

Breastfeeding is the normal way of providing young infants with the nutrients they need for healthy growth and development. Virtually all mothers can breastfeed, provided they have accurate information, and the support of their family, society and health care system.[1] Exclusive breastfeeding—defined as the practice of only giving an infant breast-milk for the first six months of life with the exception of oral rehydration solution, or drops/syrups of vitamins, minerals or medicines. Breast milk has the single largest potential influence on child mortality of any preventive intervention. It is part of optimal breastfeeding practices, which also include timely initiation of breastfeeding and continued breastfeeding for up to 2 years of age or beyond.[2]

Timely initiation of breastfeeding is defined as breastfeeding within one hour of birth.[3, 4] It is not only the easiest, cost effective and most successful intervention. So, it tops the table of life-saving interventions for the health of the newborn [5]. Timely initiation of breastfeeding has the potential to prevent 22% of neonatal deaths if all infants were breastfed within an hour after birth. Among various reasons for the death, neonatal hypothermia that happen due to delayed initiation of breastfeeding.[3, 5-7]

Human milk is commonly classified into colostrum, transitional and mature milk. Colostrum milk is rich in protein, antibodies, vitamins and minerals which is replaced by transitional milk after two to three days [8, 9]. After 10 to 15 days of delivery, mature milk is produced, which is further classified as fore milk and hind milk. At initial fore milk arises which is bluish in color and turns white toward the end of the feeding (hind milk) as the milk's fat content increases. The consumption of hind milk is essential to ensure the baby is getting adequate nutrition [9].

Breast milk provides complete nutrition for the first six months of life while complementary food should be added with breast milk for and continue for two years of life.[8, 10] According to World Health Organization, initiation of breast feeding within the hour is the

UNDER PEER REVIEW

best practices [11]. Breastfed infants have reduced risk of obesity in future compared to formula fed infants. It reduces the risk of sudden infant death syndrome, Hodgkin's lymphoma, Leukemia and Type 1 Diabetes. It lower the risk of infections such as otitis media, lower respiratory tract infection, Diarrheal diseases, Allergies, eczema, Meningitis and inflammatory bowel diseases [8-13]. In mother's health aspects, breastfeeding reduces the risk of breast and ovarian cancers, and possibly the risk of hip fractures and osteoporosis after menopause [9]. Breastfeeding makes your life easier, saves time and money. A mother can give her baby immediate satisfaction by providing her breast milk when a baby is hungry [13]. The family's economic circumstances need not impacted by the breastfeeding and the quality of food that their baby receives. No other food than breast milk for a baby is suitable and available to the poorest family [13, 14]. Breastfeeding is central to the health and wellbeing of both mothers and children and therefore is important to the family as a whole [3, 13, 14].

Breastfeeding when initiation within one hour of birth has the potential to prevent 22 % of neonatal deaths.[5-7, 15] Most of the world's newborns are left waiting too long to begin breastfeeding. In 2017 alone, an estimated 78 million newborns had to wait more than one hour to be put to the breast. This means that only about two in five children (45 %), the majority born in low and middle-income countries, were put to the breast within the first hour of life. While this is a slight improvement from 37 % in 2005 but progress is slow.[16]

A report published by UNICEF in 2018 states Latin America and Caribbean has 49 % of early initiation of breastfeeding and this rates vary widely across regions – from 35 percent in the Middle East and North Africa to 60 per cent in Eastern and Southern Africa, 41 percent in east Asia and pacific and 35 percent in west and central Asia, 53 percent in least developed countries. In South Asia, 42% of babies are breastfed within the first hour of birth. And in India 44.6 percent of infant were breastfeed within one hour of birth. [16].

The Nepal Demographic Health Survey 2016 shows that only 55 % of newborn were initiate breastfeeding within one hour of birth. Previous study show that early initiation of breastfeeding in central Nepal, western Nepal was 63% and 57.9% respectively.[17-19] Early initiation of breastfeeding promote exclusive breastfeeding. World Health Assembly set the global nutrition target to increase exclusive breastfeeding at least 50% by the year 2025.[2]

UNDER PEER REVIEW

Child health in developing countries is a serious concern with large morbidity and mortality. There are various factors leading to child suffering and among them improper infant feeding practice is one of them [2]. Early initiation of breastfeeding and exclusive breastfeeding practices have been proclaimed to be one of the important ways of ensuring babies health. WHO recommendations for protecting, promoting and supporting early initiation of breastfeeding in facilities ensures that infant receive the "first milk", which is rich in protective factors against diarrhea and common childhood illnesses such as pneumonia and may also have longer term health benefits, such as reducing the risk of overweight and obesity in childhood and adolescent [16]. Therefore, in recent years much efforts are being made by national and international stakeholders to encourage mothers to initiate breastfeeding early. Overall 42% of world's newborn, 40% South-Asian newborn and 55% newborn's in Nepal are put to breast within one hour of birth [16, 18]. However, the prevalence of delaying in initiation of first breastfeeding is still high in Nepal reflect the contribution in increasing child morbidity and mortality. Furthermore, improvement in timely initiation of breastfeeding in Nepal is very essential and cost effective intervention to meet Sustainable Development Goal [2, 16, 18]

There are very few studies being done on timely initiation of breastfeeding in our country with limited information still exist. This indicates that there are some flaws for further improvement. More research are needed to identify strong factors association between delayed initiations of breastfeeding. Hence, this study was carried out in MCH clinic of Western Regional Hospital, Kaski, Nepal with an aim to identify barriers and facilitators to early initiation in order to design and deliver effective strategies to improve the practice and accelerate progress in newborn survival.

METHODS

Hospital based cross-sectional study was conducted among mothers having infants less than 6 months in Maternal and Child health clinic of Western Regional Hospital Kaski Nepal from May to November 2019. A sample size of 163 was determined on the basis of sampling formula $n = [z^2pqN/d^2 (N+1) + z^2pq]$ with 95% Confidence Interval, 8% margins of error and 10% non-response rate[20]. The proportion of initial breast feeding was 55 % [18] in the similar study setting. Western Regional Hospital is only delicated public tertiary hospital of Gandaki Province. Being the hub hospital, almost all the services were available in this health institutions and people from all over the province received the services. So, Western Regional Hospital was selected for the data collections.

The questionnaire was initially prepared in English and translated into Nepali. Face to face interview was the data collection technique. Semi structured interview schedule was used as a tool for assessing the data on initiation of breastfeeding. Mothers having infants less than 6 months providing verbal and written consent were included in this study. To reduce the bias, every participant was informed with the purpose of the study and maintain privacy of the participant. No pressure or inducement of any kind was applied to encourage an individual to a subject of research, withdrawal from my study was accepted anytime during study. Confidentiality and privacy of information was maintained. The collected data was only used for the purpose of the study. Proposal was made with extensive literature review and consultation with supervisor to maintain validity of the tools. Approval letter was obtained from the Gandaki Medical College, Pokhara and Western Regional Hospital, Pokhara to conduct research.

Before the actual data collection, the questionnaire was pretested in similar setting of Pokhara, Kaski among 10% of the total sample size in order to determine whether questions was acceptable, answerable, analyzable and applicable or not. Then necessary modification was made. Data was edited and coded on the same day of data collection. The data was entered and analyzed on SPSS (version 23). Descriptive statistical tools like frequency, percentage were used to interpret the results. Pearson chi-square test was applied for bivariate analysis to determine the presence of an association between the dependent and independent variables. Crude Odds ratio (COR) at 95% confidence interval was calculated to see the strength of association with independent variables. In multivariate analysis, binary logistic regression was carried out to calculate adjusted Odd ratio. All tests were done at the significance level of 5% (p-value <0.05).

RESULTS

Socio-demographic and economic characteristics

The socio-demographic and economic characteristics of respondent was shown in Table 1. The mean age of the mother was 26.60 years (SD±4.60).

Table 1: Socio-demographic and economic characteristics of participants

Variables		Frequency	Percentage (%)
Age Interval	<20	16	9.9
	20-24	40	24.5
	25-29	59	36.2

UNDER PEER REVIEW

	≥30	48	29.4
Ethnicity	Brahmin/Chhetri	63	38.7
	Newar	10	6.1
	Janajati	70	42.9
	Dalit	20	12.3
Religion	Hindu	127	77.2
	Buddhist	32	19.6
	Christian	4	2.5
Family Type	Nuclear	58	35.6
	Joint	105	64.4
Education of Mother	Illiterate	5	3.1
	Literate	14	8.6
	Basic	51	31.3
	Higher Secondary	67	41
	Bachelor or above	26	16
Education of Husband	Literate	10	6
	Basic	56	34.4
	Higher Secondary	56	34.4
	Bachelor or above	41	25.2
Occupation of Mother	Service	24	14.8
	Business	17	10.4
	Medical Profession	9	5.5
	Housewife	113	69.3
Place of Residence	Urban	161	98.77
	Rural	2	1.23
Family Income	<25000	44	27
	25000-49000	39	23.9
	50000-74000	42	25.8
	74000-99000	6	3.7
	≥100000	32	19.6

Obstetric and health service related characteristics

UNDER PEER REVIEW

There was 55.2% of the mother do not initiate breastfeeding within 1 hour of birth and the reason for delay initiation was maternal cause (88.9%) followed by infant cause (11.1%). The maternal cause regarding the regarding the delay in initiation of breastfeeding were cesarean section, not enough milk, mother in pain, delay episiotomy, lack of information and vacuum delivery. The reason behind infant cause were baby unable to suck, baby was in NICU and taking child for clean. Obstetric and health services related characteristics were shown in table 2.

Table 2: Maternal health and utilization of health service related characteristics.

Variable		Frequency	Percentage (%)
ANC Visit (n=163)	Yes	158	96.9
	No	5	3.1
Frequency of ANC Visit (n=158)	More than 4	142	87.1
	Less than 4	16	9.8
Breastfeeding Counseling during ANC visit(n=158)	Yes	67	42.8
	No	91	57.2
Birth Weight(n=158)	Low Birth Weight	6	3.68
	Normal Weight	157	96.31
Place of Delivery(n=158)	Health Institution	159	97.5
	Home	4	2.5
Mode of Delivery(n=158)	Normal	97	59.5
	Cesarean Section	66	40.5
Complicated Delivery (N=97)	Yes	1	1
	No	96	99
Gestational Age(n=158)	< 36	5	3.1
	≥ 37	158	96.9
Timely initiation of	Yes	73	44.8

UNDER PEER REVIEW

breastfeeding(n=158)	No	90	55.2
Reason for delay initiation of breastfeeding(n=158)	Maternal Cause	145	89.9
	Infant Cause	18	11.1

Association between Socio demographic characteristics with timely initiation of breastfeeding

Table 3: Association between Socio demographic characteristics with timely initiation of breastfeeding

Variables		Timely initiation of Breastfeeding		Chi-square	p-value
		Yes	No		
Age Interval	<20	6 (37.5%)	10 (62.25%)	0.822	0.663
	20-29	47 (47.5)	52 (52.5)		
	≥30	20 (41.7)	28 (58.3)		
Ethnicity	Brahmin/Chhetri	34 (54)	29(46)	3.66	0.16
	Janajati	32 (42.9)	48 (57.1)		
	Dalit	7 (35)	13 (65)		
Religion	Hindu	57 (44.9)	70 (55.1)	0.002	0.96
	Buddhist	16 (44.4)	20 (55.5)		
Family Type	Nuclear	30 (51.7)	28 (48.3)	1.75	0.18
	Joint	43 (41)	62 (59)		
Education of Mother	Illiterate	23 (41.1)	33 (58.9)	0.476	0.490
	Literate	50 (46.7)	57 (53.3)		
Occupation of Mother	Employed	23 (46)	27 (54)	0.043	0.83
	Housewife	50 (44.2)	63 (55.8)		

UNDER PEER REVIEW

Family Income	<50000	46 (45.5)	55 (54.5)	0.062	0.80
	≥50000	27 (43.5)	35 (56.5)		
Place of residence	Urban	72 (44.4)	90 (55.6)	1.240	0.265#
	Rural	1(100)	0(0)		
Husband Education	Literate	6 (60)	4 (40)	0.001	0.97
	Basics	23 (41.8)	32 (58.2)		
	Secondary and Above	44 (44.9)	54 (55.1)		

Fischer Exact Test

Table 3 shows the relationship between socio demographic characteristics and timely initiation of breastfeeding. No any variable was seen to be associated with timely initiation of breastfeeding.

Association between Maternal health and utilization of health service with timely initiation of breastfeeding

Table 4: Association between Maternal health and utilization of health service related factors with timely initiation of breastfeeding.

Variables		**Timely initiation of Breastfeeding**		**Chi-square**	**p-value**
		Yes	**No**		
ANC Visit	Yes	72 (45.6)	86 (54.4)	1.28	0.258#
	No	1 (20)	4 (80)		
Frequency of ANC Visit	More than 4	66 (46.5)	76 (53.5)	1.27	0.258
	Less than 4	7 (33.3)	14 (66.7)		
Breastfeeding Counselling	Yes	39 (57.4)	29 (42.6)	7.452	**0.006***
	No	34 (37.4)	57 (62.6)		
Birth Order	< 2	33 (41.3)	47 (58.8)	0.794	0.373
	≥ 2	40 (48.2)	43 (51.8)		
Birth Weight	Normal Weight	68 (45)	83 (55)	1.992	0.158#
	Low Birth Weight	1 (16)	5 (83.3)		
Place of Delivery	Health Institution	72 (45.3)	87 (54.7)	0.649	0.420#
	Home	1 (25)	3 (75)		

UNDER PEER REVIEW

Mode of Delivery	Normal	64 (66)	33 (33)	43.51	**<0.001***
	Cesarean Section	9 (13.6)	57 (86.4)		
Gestational Age	< 36	2 (40)	3 (60)	0.048	0.827[#]
	≥ 37	71 (44.9)	87 (55.1)		

[#]Fischer Exact Test, *p-value significant at <0.05

Table 4 shows the association between maternal health and utilization of health service related factors with timely initiation of breastfeeding. In Maternal and health service related factors breastfeeding counselling (P-value 0.006) and mode of delivery (P-value <0.001) were highly significant with timely initiation of breastfeeding.

Adjusted relationship between associated variable and timely initiations of breastfeeding

Table 5: Relationship between associated variables with timely initiations of breastfeeding.

Variables		**Crude Odds Ratio (95% CI)**	**Adjusted Odds Ratio (95% CI)**	**p-value**
Breastfeeding Counselling during ANC visit	Yes	2.413 (1.275-4.56)	4.17 (1.71-10.19)	**0.002***
	No	1	1	
Mode of Delivery	Normal	12.28 (5.41-27.85)	17.90 (6.89-46.4)	**0.001***
	Cesarean Section	1	1	

1 = Reference Category, *p-value significant at <0.05

Timely initiation of breastfeeding was significantly associated with breastfeeding counseling during ANC visit (P=0.002) and mode of delivery (P=0.001). Mother who had breastfeeding counseling during ANC visit were 4 times more likely to initiate breastfeeding within one hour than the mother who were not counselled during ANC visit (AOR 4.17, 95% CI: 1.71-10.19, P-value 0.002) and mother who had normal delivery were 17 times more likely to initiate breastfeeding within one hour than the mother who had cesarean section. (AOR 17.90, 95% CI: 6.89-46.4, P-value 0.001).

DISCUSSION

UNDER PEER REVIEW

This study assessed the prevalence and factors associated with initiation of breastfeeding within one hour of birth among mothers of infants younger than or equal to 6 months age. Timely initiation of breastfeeding is vital for the survival of the infant. In spite of this importance the practice of timely initiation of breast feeding in the study area was not satisfactory.

This study found a lower prevalence (44.8%) of timely initiation of breastfeeding compared to previous studies done in central Nepal(63%) [19], western Nepal(57.9%) [21], Midwest Nepal (65.5%) [19] and NDHS 2016 (55%) [18]. But the study from rural southern Nepal shows only 3.4% have breastfed within first hour of life [22]. Similarly studies done in other countries like Bangladesh (67%)[23], Namibia (74.9%)[24], Tanzania (51%)[25] and Ethiopia (58%)[26] also found higher prevalence. A study done in India (44.6%) show similar prevalence with present study[27]. The finding of the present study is far from WHO recommendation that states all mother should have initiate breastfeeding within the first hour of birth [16, 28]. This difference may be due to health policy difference among the countries and due to difference in socio-demographic characteristic.

Regarding mothers educational status, mother having secondary level education were 1.9 times more likely to initiate breastfeeding within one hour of birth compared to primary level education in the study of Rupandehi Nepal [17]. This may be due to that educated mothers were probably more aware of the benefits of early breastfeeding in infants and for themselves [17, 24, 29]. Mothers belonging to advantage ethnic groups were 2.4 times more likely to initiate breastfeeding within one hour than others (minority ethnic groups) [19]. Ethnic minorities in western Nepal [21], Tanzania [25] and scheduled castes/tribes in India[27] have also been shown to use less neonatal cares including timely initiation of breastfeeding compared to majority ethnic groups. These differences in initiation of breastfeeding may be due to the socio- cultural differences and level of awareness regarding breastfeeding. However, this study suggests more studies to explore why minority ethnic groups such as Muslims, Dalit's had lower rate of early initiation of breastfeeding [19, 28].

A study of Ethiopia states that Mothers who are self-employed were 1.5 more like to be breastfed than mothers whore were house wife [4]. Another study from Ethiopia states that unemployed had a better practice of early initiation of breast feeding than employed mother which is supported by the study done in Malaysia, Netherland and Cameroon [5]. Previous studies from Namibia showed that maternal occupation was also found to have a significant

UNDER PEER REVIEW

association with early initiation of breastfeeding. It also showed that mothers who were not working were less likely to initiate early breastfeeding than the mothers working in agriculture. Women engaged in paid work may have more access to financial resources, and due to attitudes related to modernity and urbanization, may be more accepting of infant formula[24].

Mothers with higher family income were more likely to initiate breastfeeding as compared to mothers with low family income. The finding was supported by similar study done in Ethiopia[4]. This might be due to mothers with a better monthly income may had access to education, health care services, mass medias and other sources of information that impose the practice of timely initiation of breastfeeding. But some study also showed that mothers with higher family income were less likely to initiate breastfeeding within one hour as compared to mothers with low family income. This finding maybe due to that higher family income mother go for cesarean section and start bottle feeding which also leads to delay initiation of breastfeeding. [4, 21, 29, 30]

Mothers who had got counseling on breastfeeding during ANC attendance were more likely to be breastfed within one hour than those who were not counseled. This finding was also consistent with the study conducted in western Nepal[21], Midwest Nepal[19], Ethiopia [4, 5, 31] and India [19]. The reason behind that was counseling about the timely initiation of breastfeeding during ANC period which enabled mothers to give emphasis on timely initiation of breastfeeding after delivery and led them to practice as compared to those who did not get the service. [4, 25, 26]

Timely initiation of breastfeeding is significantly associated with mode of delivery in this study. Mothers who gave birth vaginally were almost seventeen more likely to initiate breastfeeding than mothers who deliver through caesarean section. This findings is supported by the study of Ethiopia [32]. Childbirth by caesarean section emerged as the strongest factor with negative association with early initiation of breastfeeding. It has been pointed out that postoperative care sometimes takes longer, preventing the mother from achieving contacting her baby during the postpartum period which results in delaying breastfeeding initiation. [5, 23, 32-35]

In many low and middle income countries, rates of childbirth by caesarean section are rapidly increasing. In Nepal, the overall CS rate was 9% in 2016 (7.1% in rural as compared to 19% in urban) and it is 40.5% in the current study [36]**.** A study of India and Bangladesh states

UNDER PEER REVIEW

that having C-section delivery results in delay for initiation of breastfeeding [23, 27, 34]. While caesarean section is considered a valuable lifesaving tool for both the mother and newborn in an obstetric emergency. Appropriate guidelines for caesarean deliveries are needed to minimize delays in initiation of breastfeeding. [21, 25]

With respect to place of childbirth, women who gave birth in health facilities were more likely than those who gave birth at home to initiate breastfeeding within 1 hour of birth[4]. This may be because health workers at health facilities facilitate timely initiation of breastfeeding. This implies that efforts to discourage nonuse of health facilities for childbirth should continue given the detrimental health outcomes associated with the practice, including delayed breastfeeding initiation which consequently increases the risk of newborn morbidity and mortality. This finding was also consistent with the study conducted in Ethiopia [5], India, Pakistan and Bangladesh [28] . A study from Nepal states that mother who deliver in health institution were 3.3 time early initiation of breastfeeding than the mother who had delivered at home[19].

Another study states that Mother who had ANC visit more than four times were 2.75 times more likely to initiate breastfeeding than the mother who had antenatal visit less than four. This might be due to the fact that when mother visit health facilities more time, health worker counseled her. Lower ANC attendance leading to delayed initiation of breastfeeding [4, 23, 32, 34].Similar studies of Bangladesh states mothers education, ANC visit and mothers age at birth had significant associations with the initiation of early breastfeeding [23, 34]. Another study from Saudi Arabia shows the area of residence, parity, prelacteal feeding and breast problem shows significant association in initiation of early breastfeeding [37]. More specifically, breastfeeding is less likely to be initiated by mothers with preterm infants and those with infants born at a low birth weight. Infants born prematurely had significantly less chance of rapidly initiated breastfeeding than full term infants [23, 34, 38].

Although research meet its objectives, some limitation was creeping with it. This study was small scale survey and focused only on MCH clinic of western regional hospital, the information collected from single unit may not represent its whole country. The accuracy and reliability of the output mainly depends on the adequacy and quality of data but data availability is the main issue. The element of subjectivity might have not been completely checked as respondents might have responded based on their own perception.

CONCLUSION

UNDER PEER REVIEW

The prevalence of timely initiation of breastfeeding in the study area was 44.8 %, which was lower than the country recommended level. Among different socio-demographic, health service, maternal, and infant related factors studied; the family type, mode of delivery and breastfeeding counselling during ANC visit were the determinant factors for higher chance of timely initiation of breastfeeding.

Recommendations for improving exclusive breastfeeding include; behavior change communication to avoid traditional activities, minimizing indications of caesarean delivery by health professionals, training of health professionals regarding to infant feeding practices, community based breastfeeding education and counseling to pregnant women during ANC visit and encouraging all mothers to give birth in health facilities.

CONSENT AND ETHICAL APPROVAL

Approval was taken from Gandaki Medical College and Western Regional Hospital, Pokhara Kaski for the conduction of the research. This study was approved by Department of community medicine and public health, Gandaki Medical College, Pokhara Kaski. Inform written and verbal consent was taken from the participant and maintain during the process of research.

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UNDER PEER REVIEW

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UNDER PEER REVIEW

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