

# Family influences on health and nutrition practices of pregnant adolescents in Bangladesh

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## Abstract

Adolescent pregnancy can result in serious risks to the mother and her baby; yet, adolescents are among the least likely to access healthcare. Specific nutrition or antenatal care (ANC) guidelines for supporting pregnant adolescents are not available. To understand experiences and decision-making of pregnant adolescents in Bangladesh related to ANC and nutrition practices, peer interviewers were trained to conduct qualitative interviews in Dhaka and Rangpur with pregnant adolescents ( $n = 48$ ), adolescent mothers ( $n = 48$ ), adolescents' family members ( $n = 64$ ) and health service providers ( $n = 32$ ). Key themes explored included perception and support of adolescent pregnancy, experiences in seeking ANC, dietary practices, sources of information and roles of male and female family members. Spheres of influence on adolescent pregnancy were identified through analytical framework informed by the socio-ecological model. Respondents felt that adolescent pregnancy is risky and that adolescents require support and guidance through this experience. Families were highly influential on the care seeking, health and nutrition of pregnant adolescents, and mothers/mothers-in-law primarily took on the decision-making roles, with husbands actively participating. Adolescents valued family support but felt a loss of autonomy and agency upon becoming pregnant. Financial constraints were the greatest perceived barrier to appropriate nutrition and healthcare; yet, both were valued. There is sometimes discord of health and nutrition beliefs between families and health service providers; more research is needed to understand this further. It is essential to engage family members and adolescents in initiatives to increase access to quality ANC for pregnant adolescents, improve dietary practices and support the ability to delay pregnancy.

## KEYWORDS

adolescent nutrition, adolescent pregnancy, cultural context, family influences, maternal nutrition, qualitative methods

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## 1 | INTRODUCTION

Pregnancy and childbirth complications are the leading cause of death for 15- to 19-year-old girls globally, 12 million of whom give birth each year, the majority in low- and middle-income countries (World Health Organization [WHO], 2020). Negative infant and maternal outcomes can result from adverse biological, behavioural and social factors associated with adolescent childbearing (Fall et al., 2015; Rah et al., 2008). For example, obstructed labour is one of the most common yet preventable causes of death and disability among adolescent mothers and their newborns (Senderowitz, 1995; Shaikh et al., 2012; WHO, 2004). Pregnant adolescents are also at increased risk of anaemia, haemorrhage, sepsis, eclampsia and maternal mortality; consequences for their babies are preterm births, low birth weight, stillbirths and neonatal deaths (Branca et al., 2015; Fall et al., 2015; Nguyen et al., 2017; Senderowitz, 1995; WHO, 2016a).

Compared with pregnant women, pregnant adolescents have increased nutrient needs and require extra energy and micronutrients to support both their own growth and that of their fetus (Karakochuk et al., 2017; Scholl & Hediger, 1993); yet, their diets are often inadequate (Mridha et al., 2018; Thorne-Lyman et al., 2020). Adolescents tend to have diets low in dietary diversity, energy and micronutrients (Alam et al., 2010; Hyder et al., 2019; Keats et al., 2018; Leroy et al., 2018; National Institute of Population Research and Training (NIPORT) et al., 2016).

In northwest Bangladesh, more than one-third of pregnant adolescents are underweight, 28% are anaemic, and 32% have vitamin A deficiency (Mridha et al., 2018). Nationally, the prevalence of moderate and severe stunting in 2014 was 11% and 42% among young (10–14 years) and older (15–19 years) adolescent girls, respectively (Hyder et al., 2019). Adolescent girls tend to weigh significantly less than adult women and recover with greater difficulty after childbirth (Nguyen et al., 2017). Prior research in Bangladesh has shown that pregnancy within 24 months of menarche results in cessation of growth in height and weight of the adolescent girl—a missed catch-up growth opportunity in an undernourished population (Rah et al., 2008).

The rate of adolescent pregnancy in Bangladesh is the highest in South East Asia (Islam et al., 2017; WHO, 2014); 59% of women age 20–24 report being married before age 18, and 28% of adolescents aged 15–19 years report having begun childbearing (National Institute of Population Research and Training (NIPORT) & ICF, 2019). Although the legal age for marriage in Bangladesh is 18 years for girls and 21 years for boys, the *Child Marriage Restraint Act* includes a special provision allowing child marriage in 'special circumstances' conducted with the permission of her parents/guardians and at the discretion of the court (2017).

Quality healthcare service use in pregnancy and during and after childbirth is a key proximate determinant of maternal and infant outcomes and mortality (Kuhnt & Vollmer, 2017; Reynolds et al., 2006); however, access to antenatal care (ANC) services and skilled delivery in Bangladesh is low. According to the latest Demographic and

### Key messages

- Most families viewed adolescent pregnancy as high risk and endeavored to provide advice and support. This did not always align with guidance from healthcare providers.
- Mothers and mothers-in-law play a central role in supporting the adolescent's pregnancy and should be intentionally engaged in programming.
- Lack of family financial resources is consistently cited as a barrier to good nutrition and healthcare.
- Youth-led research approaches should be further utilized for data collection, design, and delivery of services for pregnant adolescents.
- Counselling during ANC should be tailored both for pregnant adolescents and their family members who can be enablers of positive behaviour change.

Health Survey (DHS), less than half of pregnant females age 15–49 had four or more ANC visits (National Institute of Population Research and Training (NIPORT) & ICF, 2019). Lack of disaggregated survey data for the adolescent population means that ANC rates are unclear; however, Shahabuddin et al. (2015) report that compared with adult women, adolescent girls in Bangladesh are less likely to utilize maternal healthcare services for ANC and postnatal care and have facility-based deliveries. Even when health services during an adolescent pregnancy are accessed in Bangladesh, the risk of adverse maternal and child health outcomes remains substantial (Nguyen et al., 2017).

In Bangladesh, factors affecting adolescents' health and nutrition include family dynamics, social and gender norms, decision-making power, freedom of movement, education level and gender-based violence (Haque et al., 2012; Shahabuddin et al., 2015; Story et al., 2012; WHO & Regional Office for South-East Asia (SEARO), 2014). Married adolescent girls often have minimal decision-making power at the household or community level and are expected to follow the directives of male family members and in-laws (Presler-Marshall & Stavropoulou, 2017). According to the 2014 Bangladesh DHS, one-third of married adolescent girls report having no say in household decision-making (National Institute of Population Research and Training (NIPORT) et al., 2016). Gender norms also influence adolescent girls' dietary quality. Females in Bangladesh (especially married adolescents) are often expected to sacrifice their food consumption so male family members can have more (Blum et al., 2019).

In 2016, the World Health Organization published *Recommendations on Antenatal Care for a Positive Pregnancy Experience* (WHO, 2016b). These guidelines apply to all pregnant females and may need further tailoring to effectively respond to the unique

needs of pregnant adolescents. There is no specific guidance regarding risks faced by pregnant adolescents, their nutrient needs and how families can support their care. Additionally, not enough is known about health and nutrition practices of pregnant adolescents, especially as most nutrition studies for women of reproductive age do not disaggregate adolescent data (Lassi et al., 2017). The combination of physiological and social vulnerabilities of pregnant adolescents and lack of knowledge about their health and nutrition practices warrants the need for more context-specific learning to develop and implement better services for adolescents during and after their pregnancies.

Understanding how various family members influence health and nutrition practices, as well as the cultural systems within which these practices operate, can help create a link between knowledge and adoption of evidence-based practices (Aubel & Rychtarik, 2015). This study aimed to understand the family influence, experiences and decision-making of pregnant adolescents in Bangladesh related to health behaviour, seeking ANC and nutrition practices during pregnancy to inform and improve youth responsiveness within ANC and other programming for pregnant adolescents.

## 2 | METHODS

### 2.1 | Study setting

This qualitative study took place in urban slum areas of Dhaka and rural areas of Rangpur, Bangladesh. As of 2017, about 26% and 32% of adolescents age 15–19 years had begun childbearing in Dhaka and Rangpur divisions, respectively (National Institute of Population Research and Training (NIPORT) & ICF, 2019).

### 2.2 | Research approach

Adolescent girls and young women (ages 17–20) known as Technology Enabled Girl Ambassadors (TEGAs) were recruited through selection workshops in Dhaka and Rangpur and trained as paid peer interviewers within their own communities. Most of the TEGAs were students, though some had dropped out of school due to financial difficulties. Their training topics included pregnancy-related healthcare, healthcare resources for pregnant adolescents (both formal and informal), nutrition needs in adolescent pregnancy

and sensitive interviewing techniques. See Table S1: Sample interview questions. The training ensured TEGAs understood each interview question and the overall research purpose. TEGAs became certified as digital interviewers by the Bangladesh Market Research Society.

TEGAs used interview guides within a customized mobile phone research platform from Girl Effect. This enabled collection of audio, video and photos. Twenty-four TEGAs (12 from each division) conducted the interviews. Questions explored the unique experiences of pregnant adolescents in Bangladesh related to ANC, nutrition, dietary practices and the current roles and perspectives of family members of pregnant adolescents.

### 2.3 | Sampling

Respondents included a purposive sample of adolescent girls ( $n = 96$ ) aged 15–19 who were currently pregnant or had a child under 1 year old (see Table 1). Family members ( $n = 64$ ) were identified by the adolescent respondents as influential (people who influence the support they receive and decisions they make during pregnancy) (see Table 2). A diverse sample of healthcare providers was also interviewed ( $n = 32$ ), which included formal and informal healthcare providers who worked with pregnant adolescent girls (midwives, health assistants, traditional birth attendants and community healthcare providers).

### 2.4 | Data collection

A total of 288 interviews were conducted each lasting approximately 30 min. TEGAs worked in pairs, and each TEGA conducted 12 interviews. Pregnant adolescents and adolescent mothers were

**TABLE 1** Adolescent respondents sampling framework

	Dhaka	Rangpur	Total	Age		
				Mean	SD	Range
Adolescent girls with first pregnancy ('pregnant adolescents')	23	25	48	18	1.2	15–19
Adolescent mothers with child <1 year ('adolescent mothers')	23	25	48	18	0.9	16–19

**TABLE 2** Family member sampling framework

	Dhaka	Rangpur	Total
Mothers	12	8	20
Mothers-in-law	12	8	20
Fathers	1	8	9
Husbands	3	8	11
Other family members	4	0	4
Total	32	32	64

interviewed twice; once focusing on their experiences of care seeking and a second time focusing on nutrition. Data were collected June–July 2019, and interviews were conducted in Bengali. TEGAs debriefed with supervisors and also offered feedback to Girl Effect researchers.

## 2.5 | Data management and analysis

All interviews were transcribed then translated from Bengali to English by a team trained to translate data from adolescents. Files were imported into an encrypted qualitative analysis software (DataHub from Girl Effect, which allows tagging, organizing and filtering of qualitative content). The database allowed for continual analysis of answers to open-ended questions, consideration for emerging themes and gaps, and theoretical saturation. The translated transcripts were manually coded by four researchers, and intercoder reliability was assessed. The research team agreed upon key results by debate and dialogue to ensure quality, consistency and consensus.

Spheres of influence on pregnant adolescents were identified through an analytical framework informed by the socio-ecological model (Bronfenbrenner, 1977, 1979). The model as described by McLeroy et al. (1988) shows how individual behaviour is determined by personal, interpersonal, institutional, community and policy influences. Each level has both unique overlapping norms, practices and resources, which interact to guide or constrain a person's beliefs, desires, abilities and actions. For the purposes of our analysis, we have focused on four layers: at the centre being the pregnant adolescent (personal), surrounded by her family (interpersonal), with both the adolescent and her family interacting with healthcare providers

(interpersonal and institutional) and the health system and society within which they exist (community and policy). Data analyses focused on each layer of the socio-ecological model, elucidating the main themes emerging in each, with constant comparison between layers.

## 2.6 | Ethical considerations

TEGAs obtained informed consent from each adolescent in addition to parental consent from those under 18. Collected data were anonymized.

## 3 | RESULTS

The mean age of the pregnant adolescents interviewed was 17.7 years. Forty-five were pregnant for the first time, and three had one child. The mean age of the adolescents interviewed was 18.2 years. All adolescents in this study were married. Most lived with their in-laws' and husband, although some reported living with parents. Table 3 shows additional characteristics of respondents.

Applying a socio-ecological model, findings related to the spheres of influence and support for pregnant adolescents are explored below (see Supporting information Table S2).

### 3.1 | The pregnant adolescent

Pregnancy and motherhood were described as life altering by adolescents; many adolescents reflected on their inexperience and lack of

**TABLE 3** Socio-demographic characteristics of adolescent respondents

		N	%
Level of education	Currently attending secondary	2	2.1
	Dropped out of secondary	40	41.7
	Completed secondary	25	26.0
	Dropped out of primary	15	15.6
	Completed primary	10	10.4
	Never attended	4	4.2
Age at marriage (years)	<15	11	11.5
	15	15	15.6
	16	28	29.2
	17	26	27.1
	18	14	14.5
	19	2	2.1
Religious perspective	Islam	93	96.9
	Hinduism	3	3.1
Stage of pregnancy (pregnant adolescents only, n = 48)	1st trimester	8	16.7
	2nd trimester	24	50.0
	3rd trimester	16	33.3

understanding about pregnancy and childbirth compared with more experienced mothers. They described pregnancy as a time of increased reliance on their families for advice, guidance and support (perceived to be greater than what an older first-time mother would require).

As my mother-in-law is experienced, she has two children - my husband and sister-in-law. So she knows, she definitely knows what is good for me and what [is] not. —Pregnant adolescent, 19, Dhaka

[Women] who get pregnant in an adult stage, they know and understand everything, and they have the ability to understand everything. They have less difficulties... And those who are underage ... we understand less, or, we do not have the ability to understand. That is why they [doctors] explain to us, or elders at home explain things to us. —Pregnant adolescent, 15, Rangpur

Regarding dietary practices, pregnant adolescents did not tend to control what they ate. Meals were often selected and prepared by mothers or mothers-in-law, which adolescents saw as beneficial. Some adolescents reported eating a wider variety of nutritious food during pregnancy, including some foods they had not eaten previously. Many also reported avoiding other foods during pregnancy based on advice from various family members such as their mothers and husbands.

I don't cook at home. My mother does everything, cooking and all, she does everything...I don't have [the] least control in food habits. I eat everything which my mother cooks because that's for my benefit and I can eat that. —Adolescent mother, 17, Dhaka

When asked about the broader impacts of pregnancy and motherhood on their daily lives, girls often discussed a loss of autonomy and opportunity, citing how they can no longer work or move about freely as they could before. Pregnant adolescent expressed perceptions of low self-efficacy related to decision-making and isolation associated with pregnancy. Many adolescents who worked or attended school before pregnancy had stopped and were not planning to resume after childbirth.

I was able to live independently. Now I walk less, hang around less; I have to sit at home, can't go anywhere outside. Can't live willingly. —Pregnant adolescent, 18, Dhaka

Adolescent girls first accessed the formal health system for their pregnancy at an average of 3.4 months into the pregnancy. Reasons for waiting to seek care included not knowing (or unsure)

she was pregnant, not knowing she was supposed to seek care right away, not having complications, told by others it was too early to seek care and being sick or busy. The WHO recommends eight ANC contacts (WHO, 2016b); yet among adolescents who were 8- to 10-month pregnant ( $n = 15$ ), only six sought care at least four times.

They go [to the health clinic] at 5 months, and the [professionals] treat them. They again examine at 9 months, how long the baby is due. They call them once at 7.5 months. We go for check-ups and examinations then. —Aunt, 26, Dhaka

### 3.2 | The families of pregnant adolescents

Like the girls themselves, family members described pregnant adolescents as underprepared for motherhood, needing extra support and protection. They perceived adolescents as emotionally and physically vulnerable with a perceived lack of knowledge and experience of on how to manage their pregnancies.

They're younger in age, they don't understand anything ... When the time arrives then they get more scared. —Mother-in-law, 42, Rangpur

Family members readily assumed a supportive role in both the health and nutrition of the adolescent.

I have always given nutritious food to my daughter since she had her baby and always kept her in rest. I have given polio vaccine to her baby and didn't allow her to lift up heavy things. And ... we're always buying them vitamin tablet. —Father, 58, Rangpur

This support also came from extended family such as grandparents, aunts, uncles and siblings-in-law.

We've given all the instructions. Because she's young so she can't learn. She is a child herself that's why we've given her instructions. She has learned. —Aunt, 35, Dhaka

The mother is a child herself. She has her mothers and aunts around her who try to make her understood. They tell her affectionately, 'If you follow this, you'll be good. You are of a young age, whereas we are elder and we know more. —Aunt, 26, Dhaka

Regarding healthcare, family members frequently stated that pregnant adolescents required special clinical support. Although families made deliberate efforts to ensure the adolescent girls received

healthcare, financial constraints were commonly described as a barrier to providing more support. When they did visit a health facility, adolescents were almost always accompanied by a family member (most often mothers/mothers-in-law, husbands or sisters/sisters-in-law). Adolescents frequently brought health concerns to family, then decisions were made collectively about the best course of action; adolescents described varying degrees of 'voice' within the collective.

After a few months into my pregnancy, my baby went down to my lower abdomen ... From then I had a severe stomachache ... for which I got a checkup and treatment... But there was no solution for the pain ... At first I told my husband, then my husband took me for treatment. —Pregnant adolescent, 17, Dhaka

Ensuring pregnant adolescents had a good diet was a priority for families, although the types of food sought varied from family to family.

If she eats vegetables, she will be in good health. Lentil, vegetables, small fish - these ensure sound and strong health of the mother and the child. —Aunt, 26, Dhaka

Depending on the tradition, certain foods were avoided during pregnancy including coconut, pineapple, papaya, nuts, some kinds of fish and meat and (more rarely) categories like 'non-liquid foods' or 'cold foods.' Mainly, it was believed that these foods could harm the baby. These beliefs were inconsistent across respondents and sometimes conflicted with advice from healthcare providers.

My mother-in-law and my sister-in-law told me to avoid duck's meat and egg but ... the professional doctors told [me] that I can eat everything except for pineapple, papaya, nuts, these are forbidden. —Pregnant adolescent, 16, Rangpur

Mothers and mothers-in-law of pregnant adolescents emerged overall as the principal influencers on pregnant adolescents' care, including her access to medical services. They often made decisions about when and which medical services to seek and the location of the delivery. Although a few felt their own wellness and survival proved the adequacy of traditional ways, most families acknowledged the importance of clinical support for pregnant adolescents. These older women also provided advice and support around meal choices, rest and emotional care.

Older sisters-in-law or grandmothers were sometimes the go-to persons for the pregnant adolescent seeking advice and guidance; often adolescent respondents would refer to these women collectively.

I did not tell anyone after I conceived my child [but] following the suggestion of sister-in-law, I brought a stick and took a test with it. —Pregnant adolescent, 17, Rangpur

[TEGA] What advice do you hear about particular foods or drinks you should have more or avoid during pregnancy? [RESP] Yes. It is good to drink water. And coffee, tea is good to drink less. [TEGA] Okay. Who gave you that advice? [RESP] My grandmother said so. —Pregnant adolescent, 16, Rangpur

Although the influence of husbands, fathers and fathers-in-law on decision-making related to nutrition and ANC was less, they were commonly involved in family-wide discussions about supporting the pregnant adolescent. Many families described males' involvement in spending decisions.

Sometimes the sister from the [health] center would visit me. They would advise for buying medicines. But I didn't have that much capability. My husband, he wouldn't give me money. I suffered a lot at that time in life. —Adolescent mother, 18, Dhaka

Husbands demonstrated some knowledge about the needs of their adolescent wives and helped decide the types of support she received yet were more often involved in small day-to-day decisions rather than larger ones such as place of childbirth. Among those adolescents who reported requiring permission to visit a health facility, most needed permission from their husband. Sometimes adolescents got money from parents to purchase supplements such as iron and calcium but more often from their husband.

Obviously [the decision about the care a girl receives] is taken by other members of the family. Her husband, mother-in-law and father-in-law, they take the decision. An adolescent [girl] can never take. —Female skilled birth attendant (informal), 34, Rangpur

Sometimes husbands had a more active role than the mother-in-law in food choices or supplement intake.

I always take [iron supplements], when I remember to take them. When I do not remember to take them, my husband reminds me. —Pregnant adolescent, 18, Dhaka

In addition to providing reminders around supplement use and healthy eating, husbands played a role in enabling greater rest.

[I] Didn't allow the pregnant woman to do heavy work, always, and I help in every kind of work. And ... I

always keep her happy...I feed her leafy greens and vegetables. —Husband, 26, Rangpur

### 3.3 | Healthcare providers

Many adolescents sought care, support and information from healthcare providers (doctors, nurses, non-governmental organization [NGO] clinic staff or village midwives) during and after pregnancy. However, families were the primary decision-makers regarding their access to medical care and nutrition practices. Healthcare providers were aware that their advice did not always align with that given at home and that their services were not always valued.

When mother-in-law or mother of the past is present, they say, for example, 'aren't we well? We also got married off at a young age'... nowadays, a lot of women say, 'haven't we gone through these days? We did not need special care back then. Nowadays new doctors have come, new ideas have come.' To make them understand these and to give advice to the mother- this is definitely challenging. —Female community health worker (formal), 23, Dhaka

Healthcare providers were generally viewed as experts by adolescents and family alike, especially when complications arose. When pregnant adolescents and adolescent mothers were asked 'whose advice do you trust the most?' doctors were by far the most common response.

Adolescent mothers know nothing. They are new. What they will know? That's why they need to know everything from healthcare professionals and workers. —Husband, 32, Rangpur

Some healthcare providers expressed frustration that compared with older women, pregnant adolescents were less likely to follow their advice. Healthcare providers also frequently mentioned that less educated families are more likely to adhere to traditional practices. Despite these concerns and the recognition of the family influences, providers did not describe any strategies for behaviour change or directly engaging family.

A doctor advises the patient to eat well which the patient can't get from her family. The family members are superstitious and tell, 'this is nonsense what the doctor says. Follow what we say. —Female nurse (formal), 26, Dhaka

Healthcare providers expressed concern for adequate nutrition to support an adolescent's pregnancy and lactation yet point out discrepancies between the nutrition advice that is often given and the

families' ability to afford nutritious food. Healthcare providers were not sought for resolving these challenges.

We feed her vegetables, spinach, small fish, pumpkin just as the doctors have suggested ensuring the wellbeing of the child and mother. —Aunt, 26, Dhaka

When asked about decision-making around food choice, one husband (24, Dhaka) responded,

I take the decision nowadays as I am her guardian and I have learned many things from the doctor.

### 3.4 | Health system and society

The choice to access the health system was almost always a family decision; however, perceived financial barriers for supplements, ultrasounds, C-sections and facility-based care were frequently mentioned by respondents (although sometimes services were free). Cost was one of the main reasons cited by families and girls for trying to avoid a C-section; yet, few acknowledged the preventative measures that could be taken. Some adolescents expressed that the only times to seek care or deliver in a medical facility is when complications arise.

We expect our daughter in law to deliver her child here [at home] ... If we have money, we can take her to medical. If we don't have money, we stay at home and pray to Allah. —Mother-in-law, 48, Dhaka

The costly and feared experience of a complicated delivery was described by one adolescent's father (45, Rangpur):

At 12 am the water broke. We thought the baby will be delivered at home... At 4 pm we [contacted] the doctor at clinic. After checking up they said as the water broke, baby got dried in womb. They can't deliver the baby there. They said we have to take her to the hospital ... We almost spent 35–40 thousand there in the hospital. We have financial crisis. We did not have that much money that time. We have to loan money from people for the delivery.

Although healthcare providers were aware of the national policy in Bangladesh for pregnant women to be provided with daily iron-folic acid supplements throughout pregnancy and until 90-day post-delivery (Institute of Public Health Nutrition, 2015), among pregnant adolescents reporting supplement use, only half began taking them during first trimester and about half in the second trimester. For those who managed to access supplements, sometimes food insecurity was cited as a barrier to taking them.



I do not like [taking tablets] ... because ... to take these one needs plenty of food. They – the doctors tell us to take these in full stomach. But we are poor people. [clears throat] We cannot have full stomach always ... due to financial problems, we, I mean [clears throat] have to be selective in what we eat ... For these reasons, I mean, I take this tablet sometimes when, when I am on full stomach. –Pregnant adolescent, 18, Dhaka

## 4 | DISCUSSION

This study explored spheres of personal, family and health system influences on pregnant adolescents and their ANC and nutrition practices in Bangladesh. To our knowledge, this is the first qualitative analysis of adolescent girls' and their families' reflections on the experience of pregnancy with respect to nutrition and ANC.

Pregnant adolescent girls described feeling overwhelmed and not having adequate knowledge to make decisions for themselves and their pregnancies. Although adolescents felt supported by their families in their pregnancies, there seemed many barriers for pregnant adolescents to reach out to friends and peers or to see neighbours without family consent. This limits her interactions and chances of getting alternative opinions and support. Adolescent girls' agency (the skills needed to define one's values and goals combined with the ability to make and implement meaningful and strategic choices [Riddle et al., 2019]) needs to be strengthened by supporting both the adolescent and her family, which itself is an integral part of her agency. Being first-time mothers, adolescents need access to information tailored to her age and stage (Blum, 2017). There is a clear need to strengthen the self-efficacy of the adolescents.

Most families saw adolescents as needing extra care and support in pregnancy, and they responded to this need. Evidence of collective decision-making by multiple family members of both genders is widespread in the data, and adolescents often rely heavily on advice from older female family members who have more knowledge and experience about pregnancy. These women play a central role in supporting the adolescent's pregnancy and deciding about healthcare and dietary choices. This is consistent with existing literature, where older women (sometimes also referred to as 'grandmothers') have a central influence on pregnant women around matters related to maternal and child nutrition and serving as gatekeepers for health-seeking behaviour (Aubel, 2012; Karmacharya et al., 2017; MacDonald et al., 2020). Husbands were commonly 'permission-granters' for adolescents going to a health facility and also had a notable say in what their wives ate. Sisters and sisters-in-law were often sources for help when the adolescent faced complications or had questions about pregnancy.

As influencers with access to culturally relevant information and knowledge, mothers and mothers-in-law can be enablers of positive behaviour change and need to be duly recognized in nutrition programmes involving pregnant adolescents. A cross-sectional study in Nepal examining associations between grandmothers' knowledge and infant and young child feeding practices found that the odds of

optimal breastfeeding practices and introduction of complementary food were higher in households where grandmothers had correct knowledge (Karmacharya et al., 2017). Similarly, a quasi-experimental hospital-based study among pregnant Thai adolescent assessed the effectiveness of experiential learning with empowerment strategies and social support for grandmothers. Adolescents with their mothers in the programme had improved rates, duration of, and knowledge and attitudes regarding breastfeeding, which was sustained for 6 months (Bootsri & Taneepanichskul, 2017). Similar trends were seen in a randomized trial in Brazil (Bica & Giugliani, 2014; Oliveira et al., 2014). Nutrition information and messaging should be tailored not only to the pregnant adolescent but also to key decision-makers such as mothers and mothers-in-law.

Multiple systematic reviews (Suandi et al., 2019; Yargawa & Leonardi-Bee, 2015) also show that male involvement in ANC in low- and middle-income countries improves use of maternal health services including skilled birth attendance and postnatal care. As partners, parents and allies, men also have an important role to play in supporting behaviours related to maternal health (Greene et al., 2006; Paul & Rumsey, 2002). Yet, social and cultural norms that do not promote gender equality also shape men's beliefs and practices, which risk undermining the health of women and girls during pregnancy (Greene et al., 2006; Promundo, UNFPA, & MenEngage, 2010). Husbands and fathers/fathers-in-law also have a key role to play in financial support of pregnant adolescents, especially considering the respondents in this study stated that financial resources constrained their ability to access optimal nutrition and ANC. Although many services were supposed to be available free of charge in the public system, families described costs and barriers to access.

At the healthcare provider and health system level, given the high burden of undernutrition among adolescents in Bangladesh, public health systems need to consider ways for effectively supporting improved dietary intake and nutrition of pregnant adolescents. There is a need for youth-responsive ANC services that engage families in the discussion of nutrition practices so family members are all given the relevant information. Current global ANC guidelines are not specific to adolescents and do not acknowledge their unique needs and nutritional situation (especially considering many girls enter pregnancy stunted and/or underweight). Regardless of family involvement, health systems and services need to be tailored to adequately respond to the unique needs of pregnant adolescents such as ensuring availability of emergency obstetric care. Frontline healthcare providers should also be equipped with skills and behaviour change communication strategies for counselling pregnant adolescents with their families.

Programmes to improve the health and nutrition of pregnant adolescents in Bangladesh should be accompanied by an understanding of family dynamics, cultural and gender norms, roles and responsibilities of male and female family members and sources of support for the adolescent. They must go beyond acknowledgement of such factors to actively engaging and supporting family (especially older women) in meaningful and culturally fitting ways to improve the health and nutrition of the adolescent. As reported in a 2020



systematic review by Dickin et al., 2020 on interventions engaging family members in maternal, infant and young child nutrition (MIYCN), evidence favours inclusion of family in programme design with attention to building support in ways that fit cultural contexts. Similarly, in a systematic review, Martin et al. (2020) reported beneficial impacts on support to mothers and improved knowledge, attitudes and nutrition practices when family members (fathers, grandmothers and others) are engaged in MIYCN interventions and that such engagement was acceptable and feasible, especially when in line with existing cultural norms. In monitoring and evaluating programmes, consideration should be given to indicators for measuring family engagement and influence; potential consequences should be monitored, analysed and translated to programme course correction.

As adolescent pregnancy has such negative consequences, the growth, health, education, future earning potential and quality of life of adolescents in Bangladesh, identifying the most effective actions to prevent adolescent pregnancy is a priority (Nguyen et al., 2017). This is especially true given that in our study, both adolescents and their families seemed to agree that pregnancy is physically risky for adolescent girls, some expressing preference for childbearing to begin later. The fact that the current COVID-19 pandemic has heightened risks of early marriage and pregnancy for adolescent girls (UNICEF, 2020) adds urgency. Enabling girls to continue and/or complete high school education would reduce the prevalence of adolescent pregnancy, and increased access to information on sexual and reproductive health could contribute to adolescent girls gaining agency to decide to delay pregnancy, with support from husbands. Caution must be exercised here, as interventions promoting adolescents' rights over their bodies are at risk of being perceived as inappropriate by families or communities and should be designed with sensitivity to the prevailing cultural context for greater acceptance. Inclusion of family members including influential men as well as women in programme planning and implementation can be helpful to root programmes in the cultural context and could potentially lead to higher acceptance of nutrition messages by families and communities.

Further research is needed to better understand social and cultural practices, family dynamics and systems, the types of support pregnant adolescent girls want and from whom and adolescents' experience of nutrition and health during pregnancy, especially with the lens of collective decision-making. The motivations, financial vulnerabilities and circumstances for families to pursue adolescent marriages also need to be better understood. Sex- and gender-based analysis to further understand the role of family, gender norms and attitudes is also required. Intrafamily relationships and their impact on health and nutrition decision-making, such as the bond between the adolescent girl and her mother-in-law, are complex and can be explored further. In addition, as is rarely done, future health- and nutrition-related studies on pregnancy should disaggregate data by age group (Oh et al., 2020) to identify phenomena that are unique to adolescent girls.

Our findings complement the literature showing that close household members play a key role in adolescents' decisions related to

reproductive health and healthcare utilization (Story et al., 2012). Some study limitations of this study are the small sample size and limited geography. The peer-led data collection approach by adolescent girls is a unique aspect of this study and likely helped provide deeper, more authentic insight into the position of adolescents and the influence of family members. Some challenges of this approach included the intensive training requirement, and ensuring interviewers were able to maintain engagement with respondents throughout the interview. Nevertheless, hearing from pregnant adolescents at all stages of pregnancy and from adolescent mothers reflecting on their pregnancies generated a variety of valuable first-hand accounts, which can be useful for programme design.

It is widely agreed that adolescents' meaningful participation and engagement in the research for design and implementation of solutions to improve their health is essential to ensure effective action (Anthrologica & World Food Programme, 2018; Patton et al., 2016; UNICEF Office of Research, 2017; WHO, 2017a, 2017b). Upon reflection on their experience as peer researchers in our study, TEGAs reported in an anonymous survey that they have experienced an increase in self-confidence and life skills. Anecdotally, some TEGAs reported an increased value now placed on them by their families and communities that they 'now feel listened to' and are more independent decision-makers because of this paid work experience.

## 5 | CONCLUSION

Adolescence should be a time of discovery as young people learn to assert their independence, start to make choices and to develop aspirations for who they want to be in the world. Adolescents have the right to participate meaningfully in programmes that are meant to reach them and to demand quality gender-responsive, youth-friendly sexual and reproductive health and nutrition services. Yet, despite being the centre of this study, pregnant adolescents seemed to have limited voice, contrasting with the female youth interviewers.

Understanding the spheres of influence (personal, family, healthcare providers and health systems) on pregnant adolescents provides the opportunity to strengthen the enabling environment and better support the unique nutrition, health and social needs of pregnant adolescents. Families, particularly mothers and mothers-in-law, are vital support for pregnant adolescents with respect to health and nutrition and should be engaged in future initiatives that aim to improve pregnant adolescents' agency and health behaviour.

This type of study together with a sex- and gender-based analysis is important for designing and implementing much needed effective youth-responsive programmes that engage family members as change agents and key influencers and respond to the specific needs and motivations of adolescent girls. This research also lays a piece of the foundation useful for development of nutrition and ANC guidelines tailored to pregnant adolescents.

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## CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

## CONTRIBUTIONS

MLR and JBH conceived of and designed the study. VP, MLR and AB analysed the data. AKR conducted the review of the literature. VP wrote the paper with substantial intellectual input and critical review from all authors. All authors read and approved the final manuscript.

## DATA AVAILABILITY STATEMENT

Data are available on request due to privacy/ethical restrictions.

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## SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

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