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Demographic determinants of reproductive health outcomes affecting teenagers in Momba District, Tanzania

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Abstract: Teen pregnancy poses a serious public health issue in sub-Saharan Africa, impacting the physical, educational, and socio-economic futures of young women. This study aimed to assess the socioeconomic factors influencing pregnancy status and outcomes among adolescents in Momba District, Songwe Region. Backed up by the Social learning and Ecogical system theories a cross-sectional survey involving 349 teens aged 13 to 19 who were currently pregnant or had at least one child was conducted using semi-structured surveys. Purposive sampling was used to select most affected Wards that was followed by a random sampling technique that was adopted to select the respondents. Data was analyzed using SPSS to get descriptives and Correlation analysis was used to explore the relationships between key variables. The study found that majority (55.2%) of teen mothers were between 15 to 17 years of age, and most of them had secondary education (55.6%). Of all the respondents, 43.3% reported to be divorced and 41.6% reported to be married. 97.7% were unemployed. Age was found to be moderate negatively correlated with both current pregnancy status (r = -0.335) and previous outcomes (r = -0.529). Higher educational attainment was positively correlated with current pregnancy status (r = 0.306) and past outcomes (r = 0.443). Marital status significantly affected previous pregnancy outcomes (r = 0.448), while employment status influenced earlier outcomes only. It is concluded that teen pregnancy is influence by the interplay between various socio-economic factors such as age, level of education, marital and employment status. Thus, teenager need to be empowered to make informed choices about sexual health.

Keywords: Teen pregnancy, Pregnancy status, Pregnancy outcome

1. INTRODUCTION

Teen pregnancy remains a major global public health concern, especially in sub-Saharan Africa, which reports some of the highest rates worldwide. This issue significantly affects young women's health, education, and socio-economic prospects. Early pregnancies often result in serious health complications, contributing to high rates of maternal illness and death among adolescents, who frequently face limited access to healthcare and support services (Chandra-Mouli et al., 2021). Adolescent pregnancy rates in Africa rank among the highest in the world, driven by a complex interplay of socio-economic challenges, cultural practices, limited educational opportunities, and inadequate reproductive health services. According to the United Nations Economic Commission for Africa (UNECA, 2023), almost one in

four young women in sub-Saharan Africa becomes a mother by the age of 19, highlighting the critical need for focused intervention efforts. Additionally, prevailing social norms and gender roles often sideline young women, making it more difficult for them to access healthcare and receive support from partners (Ayen et al., 2024).

Numerous studies have examined teenage pregnancy outcomes, highlighting significant differences influenced by social and economic factors. For example, according to WHO (2024), approximately 21 million pregnancies occurred each year among adolescents aged 15 to 19 in low- and middle-income countries (LMICs) as of 2019, with about half being unintended. These resulted in an estimated 12 million births, and roughly 55% of the unintended pregnancies ended in abortions, many of which are unsafe in LMICs (Sully et al., 2024). Additionally, evidence indicates that teenage mothers face a higher likelihood of pregnancy and childbirth complications such as preterm birth, low birth weight, hypertensive disorders, prematurity, and anemia. These complications pose health risks for both the mother and the infant (Azevedo et al., 2015). Studies show that many teens face repeat pregnancies, which can have significant social and health consequences. Teenage mothers have a roughly 30% chance of becoming pregnant again within a year and a 50% chance within two years after their first pregnancy (Luttges et al., 2021; Reese et al., 2017).

Like in many developing countries, Tanzania, has seen unprecedented high rates of teenage pregnancy, with estimates indicating that approximately 27% of young women aged 15 to 19 have given birth (NBS,2021). NBS (2021), survey showed that 54% of teens were pregnant in Songwe Region, a level that is higher than that of the National average. Among the districts,in Songwe region, Momba District, was leading among the four Districts of Songwe Region. This study focuses on gaining a deeper understanding of teenage pregnancy in Tanzania by examining the socioeconomic backgrounds of pregnant adolescents and their correlation with current pregnancy status and outcomes in the Momba District. By exploring these factors, the research aims to offer valuable insights that can guide targeted interventions to help reduce the rate of teenage pregnancies in the region.

2. SUPPORTING THEORIES

2.1. Social learning

Theory Albert Bandura's Social Learning Theory (1963) proposes that people acquire behaviors by watching and copying others, particularly within social settings. In 1977, Bandura highlighted that learning is shaped by the dynamic interplay between individual characteristics, actions, and the surrounding environment. According to this theory, teenagers might replicate sexual behaviors they see in friends, media, or family members, which can influence their choices regarding pregnancy. The strength of the theory lies in its emphasis on the role of social context and peer influence in shaping behaviors, making it particularly relevant to adolescents. Additionally, it highlights the importance of role models and their impact on individual decision-making. However, this theory may downplay the significance of personal agency and a lack of awareness regarding sexual health education, and it can be limited in its applicability to individuals who may not have clear role models for making healthy decisions. This theory can explain how adolescents in the Momba District may be influenced by their partners and peer groups regarding sexual behavior and attitudes toward pregnancy. Adolescents support plays a critical role in determining whether a teenager feels empowered to make informed choices about sexual health, which in turn impacts pregnancy rates.

2.2. Ecological systems theory

Developed by Urie Bronfenbrenner in 1979, Ecological Systems Theory proposes that human development is shaped by multiple environmental layers, from close environments like family and school to larger societal forces such as culture and policies (Bronfenbrenner, 1981). The theory stresses how these different systems are interconnected and underscores the role of socioeconomic factors in influencing teen pregnancy and its outcomes. It offers a broad framework to understand the various influences on teen pregnancy, including personal, relational, community, and societal elements. Moreover, it recognizes the complexity of human behavior and the dynamic interactions among social systems, making it a comprehensive perspective. However, its wide-ranging nature can also pose challenges,

as it may make it harder to isolate and analyze the specific effects of individual systems on behavior. This theory can be used to examine the multifaceted influences on teen pregnancy in the Momba District, such as socioeconomic factors and their relation to pregnancy status and pregnancy outcome among teens.

3. RESEARCH METHODOLOGY

A cross-sectional design where data is collected at a single point in time was used for the study. The participants were from five wards out of fourteen wards in Momba District including; Chilulumo, Chitete, Kapele, Msangano, and Nzoka located within Songwe District and selected purposively as they were more affected Wards. A total of 349 adolescents aged between 13 and 19 year who were either pregnant during the study period or had at least one child were randomly selected and then recruited for the study. Data were collected through a semi-structured survey that was designed and administered to the chosen participants to capture both qualitative and quantitative data. Descriptive and inferential statistical analyses were conducted using SPSS version 25. and correlation analysis was used to explore the likeliness of the relationships between key variables. Binary logistic regression was employed to assess the association between selected socio-demographic variables and two binary reproductive health outcomes (current pregnancy status and first pregnancy status). The independent variables included age (continuous), education level (ordinal), marital status (binary), and employment status (categorical). For each model, all predictors were entered simultaneously to estimate adjusted effects. The strength and direction of associations were reported using odds ratios (ORs) with corresponding 95% confidence intervals (CIs). Statistical significance was evaluated at the 5% alpha level ($p < .05$). The regression diagnostics, including standard errors and model convergence, were reviewed to ensure validity of estimates. Analyses were conducted using standard procedures for binary outcome modeling.

4. RESULTS AND DISCUSSION

4.1. Results

4.1.1. Respondent's characteristics

Knowing background details such as age, education, marital status, and employment of teenagers in Momba District is important, as these factors are interconnected in various ways. The study found that the majority (55.2%) of teen mothers were between 15 to 17 years of age, and most of them had secondary education (55.6%) and primary education (43.8%). Of all the respondents, 43.3% reported to be divorced and 41.6% reported to be married. More to it, 97.7% reported not to be employed indicating that they depend more on their families and partners for their own survival and their children (Table 1).

Table 1: Respondent's characteristics

Background Information	Frequency	Percent (%)
Age		
15-17	195	55.2
18-19	158	44.8
Total	353	100
Education Level		
Never attended	4	0.6
Primary	153	43.8

Secondary	194	55.6
Total	351	100
Marital Status		
Not married	53	15.1
Married	147	41.6
Divorced	153	43.3
Total	353	100
Employment		
Not employed	339	97.7
Employed	1	0.3
Self-employees	7	2
Total	347	100

4.1.2. Pregnancy status and outcome of first

Regarding pregnancy status, 69.6% of the respondents were not pregnant at the time of the interview, indicating they had previously given birth as the condition for inclusion to the study is either the participant is pregnant or she has given birth. Among those who were pregnant, 92.6% reported having a live child, as shown in Table 2.

Table 2: Pregnancy Status

Item	Frequency	Percent (%)
Whether currently pregnant		
Yes	106	30.4
No	243	69.6
Total	349	100
The outcome of the pregnancy		
Live child	63	92.6
Dead child (still birth)	3	4.4
Miscarriage	2	3.0
Total	68	100

Age

Age is a significant determinant of teen pregnancy, as it directly relates to the likelihood of sexual activity, contraceptive use, and overall maturity. Younger teens may have less access to sexual health education and resources, making them more vulnerable to unintended pregnancies. Findings on current pregnancy status revealed a moderate negative correlation ($r = -0.335$, $p = 0.000$), suggesting that older individuals are less likely to be currently pregnant

and that younger women tend to become pregnant earlier. The outcomes of teen pregnancies are critical in assessing the effectiveness of existing support systems. A strong negative correlation was found (r = -0.529, p = 0.000), indicating that as age increases, individuals are less likely to be experiencing their first pregnancy.

Level of education

Education enhances reproductive decision-making by enabling individuals to plan pregnancies for a later time when they feel prepared to have children. However, research reveals a moderate positive correlation (r = 0.306, p = 0.000) regarding current pregnancy status. Additionally, higher education is linked to better pregnancy outcomes. Women with more education tend to be better informed about prenatal care and health practices, which can improve live birth results. The findings also show a positive correlation (r = 0.443, p = 0.000), suggesting that those with higher education are more likely to be experiencing their first live pregnancy.

Marital status

Married women tend to have higher rates of pregnancies compared to their unmarried counterparts. Findings on the Current pregnancy was not statistically significant, suggesting that marital status does not strongly determine whether an individual is currently pregnant or not (r = 0.050, p = 0.353). The marital status of teenagers during their first pregnancy significantly impacts the results of those pregnancies. Although married teenagers might receive some support, they often face challenges with healthcare access, education, and nutrition, which affect both maternal and infant health. In contrast, unmarried teens commonly experience stigma, which can cause additional difficulties and poorer health outcomes. The study's findings revealed a strong positive correlation (r = 0.448, p = 0.000), showing that being married is significantly linked to more favorable outcomes in the first pregnancy.

Employment status

Employment may influence pregnancy experiences as it is linked with education. An individual who is educated is more likely to be employed than one who is not and so perceived to have the power to choose when to get pregnant. The findings show that the correlation was (r = 0.076, p = 0.161), which was not statistically significant, suggesting that employment status does not strongly correlate with whether a teen is currently pregnant or not.

Table 3: Correlation between Age, Education level, Marital status, employment and Current pregnancy and, Outcome of first pregnancy

Variables		Currently Pregnant	Outcome of First Pregnancy
Age	Pearson	-.335**	-.529**
	Sig.	.000	.000
	N	349	106
Level of Education	Pearson	.306**	.443**
	Sig.	.000	.000
	N	345	102
Marital Status	Pearson	.050	.448**
	Sig.	.353	.000
	N	349	106
Employment Status	Pearson	.076	.a
	Sig.	.161	.000
	N	347	105

Regression Analysis between Demographic factors and Current pregnancy and, Outcome of first pregnancy

Results in Table 4 revealed that on current pregnancy; age was found to have a significant negative predictor (B = -1.202, p = .002), meaning that younger respondents were more likely to be currently pregnant. The odds of pregnancy decreased by 70% for each additional year of age (OR = 0.301, 95% CI [0.143–0.633]). This highlights that age is a key factor in current pregnancy status. Education Level had a positive effect (B = 0.896, p = .009), indicating that higher education increased pregnancy likelihood. Respondents with higher education were 2.5 times more likely to be currently pregnant (OR = 2.450, 95% CI [1.247–4.811]).On the other hand, marital status showed a negative association (B = -0.531, p = .049), meaning that unmarried respondents were more likely to be pregnant. Married individuals had 41% lower odds of current pregnancy (OR = 0.588, 95% CI [0.347–0.998]) and marital status was found to remain as a relevant social determinant of pregnancy timing.

Looking into employment Status, it was found to be not statistically significant (B = 1.935, p = .078), however, employed respondents were found to have a higher odds of pregnancy. They were 6.9 times more likely to be pregnant (OR = 6.925, 95% CI [0.808–59.373]), but with uncertainty. In addition, age, education level, and marital status showed no significant association with whether the pregnancy was the first. All predictors had extreme standard errors and p-values .999 indicating a lack of reliable model estimates. These results suggest the model failed to explain first pregnancy likelihood meaningfully.

Results from Table 4 show that age was a significant negative predictor of current pregnancy status (B = -1.202, p = .002), with the odds of pregnancy decreasing by 70% for each additional year of age (OR = 0.301, 95% CI [0.143–0.633]). Education level had a significant positive association (B = 0.896, p = .009), suggesting that respondents with higher education were 2.5 times more likely to be pregnant (OR = 2.450, 95% CI [1.247–4.811]). Marital status was inversely associated with current pregnancy (B = -0.531, p = .049), indicating that unmarried respondents were more likely to be pregnant. Employment status, while associated with higher odds of pregnancy (OR = 6.925), did not reach statistical significance (B = 1.935, p = .078), and the wide confidence interval (0.808–59.373) reflects substantial uncertainty.

Regarding first pregnancy, none of the demographic predictors (age, education level, or marital status) were significantly associated with the outcome. The model yielded extremely large standard errors and p-values near 1.000, indicating poor model fit and instability. These results suggest the model failed to explain variation in first pregnancy status, likely due to data limitations.

Table 4: Regression Analysis between Age, Education level, Marital status, employment and Current pregnancy and, Outcome of first pregnancy

Outcome	Predictor	B	SE	Sig.	OR	95% CI
Current Pregnancy	Age	-1.202	0.380	.002	0.301	[0.143–0.633]
	Education Level	0.896	0.344	.009	2.450	[1.247–4.811]
	Marital Status	-0.531	0.270	.049	0.588	[0.347–0.998]
	Employment Status	1.935	1.096	.078	6.925	[0.808–59.373]
First Pregnancy	Age	-41.136	27091.719	.999	0.000	[0.000–.]
	Education Level	-20.257	22026.502	.999	0.000	[0.000–.]
	Marital Status	0.501	12289.916	1.000	1.650	[0.000–.]

4.2. Discussions

Demographic elements like age, education level, marital status, and employment play a crucial role in comprehending and evaluating the situation of teen pregnancies and the results of past pregnancies.

4.2.1. Age

Age is a significant factor in teenage pregnancy, with younger adolescents facing greater risks than their older peers. Younger teens generally lack sufficient knowledge regarding reproductive health education and are less likely to use contraception consistently, leading to increased pregnancy rates (Ayele et al., 2018; Kassa et al., 2018; Duell et al., 2018). In contrast, studies suggest that while older teens may have more education about reproductive health, they can also experience higher levels of peer pressure, which contributes to elevated pregnancy rates in certain demographics (Ayele et al., 2018; Worku et al., 2021; Duell et al., 2018). Additionally, the risk of adolescent pregnancy is related to inadequate sex education and family planning, as well as an inability to effectively implement that knowledge, thereby contributing to higher pregnancy rates (WHO, 2022).

This trend can also be explained by the fact that teens aged 18-19 experience both internal physiological and external socio-environmental pressures to become sexually active, having been exposed to sexual maturity longer than younger teens (URT, 2023). Research by Okigbo & Speizer (2015) indicates that about 30% of teens who reported a pregnancy had multiple pregnancies, which carry significant social and health consequences. Gaining insight into the outcomes of these pregnancies is essential for creating effective strategies that promote healthy pregnancies and positive childbirth experiences, especially since young adolescents face higher risks of complications during pregnancy and delivery.

A study by Amoadu et al. (2022) argues that socio-cultural factors often encourage early childbearing among younger demographics, while a study by Smith (Miller et al., 2022) finds that younger adolescents (ages 13-15) tend to use contraception inconsistently, leading to increased pregnancy rates. In contrast, older teens (ages 16-19) may be better informed about reproductive health but also face greater peer pressure, contributing to higher pregnancy rates within certain groups (Johnes & Taylor, 2021). Research by Zang et al. (2020) indicated that adolescent women (ages 10-19) are at an increased risk of stillbirth and neonatal death compared to adult women (ages 20-34).

4.2.2. Education

Education plays a vital role in reducing teenage pregnancy rates by extending school years. However based on the findings of this study as the level of education increase there is a 2.5 more chances of the person to get pregnant, indicating that education level alone is not enough to prevent teen from getting pregnant. Multiple studies have shown that higher levels of education are associated with fewer cases of teen pregnancies. Research from Tanzania and other East African countries reveals that teenagers who have completed secondary school or beyond are 70% less likely to become pregnant compared to those with only primary education or no schooling at all (Ngoda et al., 2023; URT, 2023; Wado et al., 2019). Adolescents with limited educational opportunities often lack sufficient knowledge about reproductive health and are less likely to use preventive methods like contraception. They generally have lower health literacy, less decision-making power, and fewer skills to negotiate or practice safe reproductive health behaviors, which contributes to higher teen pregnancy rates (Ayele et al., 2018). This may be because greater educational attainment empowers young women to make informed choices about their reproduction. Additionally, teen pregnancies frequently lead to dropping out of school, which negatively affects educational progress.

Education level significantly affects comprehension of sexual health and contraception however. As a result, teens with secondary and higher education tend to have better knowledge about reproductive options, which correlates with lower rates of unintended pregnancies (Wado et al., 2019). Conversely, those with limited education may lack access to necessary information and resources, contributing to higher rates of teen pregnancies as is the case with participants of this study. Additionally, a comprehensive review by Yakubu et al. (2018) indicates that students who remain in school are more likely to postpone childbearing, highlighting the protective effect of education. In the context of human capital, educational level and literacy are shown to be significant determinants of adolescent pregnancy, with less educated girls or those lagging behind in school being more susceptible to pregnancy than those progressing at expected levels (Amoateng et al., 2022). This reinforces the idea that education delays early pregnancies by influencing factors like career goals, access to reproductive health information, and later marriage, which in turn increases the chances of having a healthy baby. According to a study by Ajayi and Ezegbe (2020), teenage girls face greater health risks from early childbearing because their bodies are often not yet ready for pregnancy or delivery. Conversely, lower levels of education are linked to higher incidences of adverse pregnancy outcomes, including miscarriages and stillbirths. Women with less education may encounter difficulties in obtaining quality healthcare, negatively impacting their pregnancy results. Globally, adolescent pregnancy significantly contributes to maternal and infant mortality, with pregnancy- and childbirth-related complications being the leading cause of death among girls aged 15 to 19 (WHO, 2018).

4.2.3. Marital status

Marital status, especially early marriage, is frequently identified as a key factor contributing to teenage pregnancies across different cultures. Early marriages can interrupt the development of human capital by causing school dropouts, limiting participation in the workforce, and leading to adverse health outcomes linked to early childbirth (Bajracharya et al., 2019) as is the case in this study as participants who were divorced were the majority followed by those who are married. Research by Yaya et al. (2019) revealed a higher incidence of child marriages and found that early marriage is associated with increased pregnancy rates in certain demographic groups, with significant variations between rural and urban areas. Moreover, marital status can both empower and restrict teenagers' control over pregnancy decisions; those who are married tend to have a higher probability of becoming pregnant (Kassa et al., 2018; Yaya et al., 2018; Petroni et al., 2017; Ahinkora et al., 2021). Teenage girls who marry after age 15 report a lower likelihood of teenage pregnancy than those who marry earlier.

Additionally, research shows that unmarried girls have nearly zero odds (0.01) of reporting a teenage pregnancy compared to those married before 15 (Ngoda et al., 2023; Nuwabaine et al., 2023) indicating variations based on other factors as well. These results suggest that early marriage may increase pregnancy risk in three main ways. First, married adolescents may feel social pressure to conceive to meet expectations from their husbands and in-laws (Shahabuddin et al., 2016). Second, contraceptive access may be limited (de Vargas et al., 2019) because younger brides often marry older men who control decision-making (UNFPA, 2022; UNICEF, 2024). Third, parents may push daughters into early marriage following premarital pregnancies to avoid social stigma. The Sexual Offences Special Provisions Act (SOSPA) of 1998 aims to protect women and children from sexual violence. However, a close examination shows that teenage girls are only legally protected against rape if unmarried; once a girl turns 15 and is married, sexual relations with her husband are legally permitted under Tanzanian marriage laws, which some parents may exploit (Nyamhanga & Luoga, 2014).

Research has shown that marital stability is linked to a higher likelihood of pregnancy, as married couples often possess more reliable emotional and financial support systems, aiding in family planning. The influence of husbands is primarily seen through discussions about family planning and decisions regarding contraception (Tesfa et al.,

2022). Women who marry young frequently have their first child shortly thereafter, aligning their reproductive choices with their marital decisions or sometimes due to pressure from in-laws' to have a child immediately after marriage (Wodon, 2017). Besides, girls also fear to be called barren due to the absence of a child and this fear may arise from a setting where girls face stigma for being childless or are concerned about failing to establish their status in the household early by having a child, exerting pressures despite their young age.

4.2.4. Employment

Employment status plays a significant role in influencing teenage pregnancies in various ways. Teenagers who hold jobs or participate in vocational training typically have a lower likelihood of becoming pregnant during their teenage years. In contrast, economically disadvantaged girls may resort to exchanging sexual favors for money or financial commitments made out of necessity, as they try to fulfill their urgent needs (Amoateng, 2019) as is the case with participants of this study as nearly all of them were not employed . Economic hardship can compel some adolescents to prioritize immediate financial needs over their long-term aspirations, potentially heightening the risk of unplanned pregnancies. The reason being that teens may lack the financial means to cover both direct and indirect costs associated with obtaining contraceptive services (Tigabu et al., 2021).

Employment not only grants financial autonomy but also expands social networks, serving as protective factors against unintended pregnancies (Nuwabaine et al., 2023). Teens with jobs may enjoy greater independence and access to resources, aiding them in making informed decisions about their sexual health (Ahinkorah, 2020). These observations contrast with a studies by Beaujouan (2020) and Kim and Choi (2021), who suggested that for women, employment is a crucial factor in delaying childbirth. The same negative impact was also noted regarding subsequent pregnancies, with women in stable jobs tending to postpone childbearing to focus on their careers, ultimately affecting the age at which they experience their first pregnancy. This phenomenon might be linked to a majority of respondents having only a primary education, which may explain their unemployment as indicated by the findings of the current study.

5. RESEARCH IMPLICATIONS

Efforts and policies should focus on strengthening legal reforms aimed at preventing child marriage before the age of 15 to be atleast 18yrs, while also encouraging higher education for girls in Tanzania. Programs that allow teenage mothers to resume their education after childbirth should be promoted as an alternative to early marriage. Priority should be given to improving adolescent-friendly health services in schools and healthcare centers, particularly for older adolescents and those from low-income families. This includes providing reproductive health counseling and access to contraceptive options.

Lastly but not least, policymakers and stakeholders need to establish community-based social support initiatives to help pregnant teens and teens with children to cope with their challenges. The difficulties of balancing school and childcare, especially without assistance, must be acknowledged and addressed. Thus, addressing teen pregnancy in Tanzania requires a comprehensive strategy that tackles underlying social and economic issues, while promoting education, healthcare, and support services.

5. CONTRIBUTIONS TO SCIENTIFIC COMMUNITY

The finding not only deepens our understanding of the multifaceted challenges around teen pregnancies but also offers concrete, empirical insights that can pave the way for more effective, evidence-based interventions and policies. Such contributions make it an essential resource for scholars, public health practitioners, and policymakers aiming to mitigate the impacts of teen pregnancies.

6. CONCLUSION

Teen pregnancy is still a big challenge in Momba district and its is influenced by a multitude of soci-economic factors including age at first pregnancy, education level and marital status. The findings reveal that age, education level, and marital status significantly predicted current pregnancy status among respondents, with older age and being married associated with lower likelihoods of pregnancy, while higher education levels unexpectedly increased the odds. Specifically, each additional year of age reduced the likelihood of pregnancy by 70%, and unmarried respondents were more likely to be pregnant. However, although employment appeared to increase pregnancy risk, this association was not statistically significant and was marked by wide uncertainty. In contrast, the model failed to identify any significant predictors for first pregnancy.

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