Unintended pregnancy: its proportion and associated factors among rural women in Bench Maji zone south west Ethiopia: Community based cross sectional study

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Abstract

**Background:** Globally, unintended pregnancy affects life of thousands of women annually. It harms the health of both the mother and baby. By avoiding unwanted pregnancies, it is possible to save thousands of mothers from premature pregnancy-related deaths.

**Objectives:** to assess level of unintended pregnancy and associated factors among rural women in Bench Maji zone south west Ethiopia.

**Methods:** A community-based cross-sectional study was conducted among 829 pregnant women from March to June 2018 in the Bench Maji Zone, southwest Ethiopia. A multistage sampling technique was used to select study participants. The data were collected by trained data collectors using a structured and pre-tested questionnaire. Data were entered into the epi data manager version 4.0.2.101, and then exported to SPSS version 21 for analysis. Multivariable binary logistic regression was done and variables with a p-value < 0.05 were factors associated with unintended pregnancy.

**Results:** Of the 829 interviewed women, 109 (13.1%) of them became pregnant without their intention. Factors associated with unintended pregnancy were having exposure to media (radio) [AOR=5.06: 95% CI: 1.89-13.53], having 3 and more children [AOR=2.34: 95CI:1.19-4.64], place of recent delivery [AOR=2.07, 95%CI: 1.12-3.84], and having post-natal care utilization for recent delivery AOR=4.03, 95% CI: 2.09-7.79].

**Conclusion:** The magnitude of unintended pregnancy was significant in number in the study area. Interventions have to take based on exposure to media (radio), number of born children, place of recent delivery, and post-natal care utilization for recent delivery of the women.

1. **Background**

Globally, it was approximated that 44% of pregnancies were unintended in 2010–14. Among women aged 15–44 unintended pregnancy rate declined by 30% in developed nations, from 64 per 1000 in 1990–94 to 45 in 2010–14. However, in developing nations, the unintended pregnancy rate fell only by 16% from 77 per 1000 to 65 per 1000 women (1). In addition, this among women presenting for abortion, unintended pregnancy was found in 86% of cases, and only 6.8% of women continued pregnancy(2). Approximately 1.8 million UPs resulted in 159,151 miscarriages, 48,769 induced abortions, 1.58 million live births, and 312 maternal deaths, including ten (3%) attributed to unsafe abortions (3).

Unintended pregnancy can lead to various negative results like academic failure and school dropout, suicide, and unsafe abortion (4, 5). Unintended pregnancy also results in psychological distress. Women who experienced an unintended pregnancy were more likely to parade signs of PD at 9 months postpartum (4–6). Also, it was explained that women with an unintended pregnancy have high levels of marital conflict than women with an intended pregnancy. Moreover, women with an unplanned pregnancy showed a tendency for lower knowledge of infant development (7).
The most of unintended pregnancies undergo full-term pregnancy, which results in an socioeconomic burden to the society(8). This burden is greater in low and middle income countries, as unintended pregnancies are more common among poor adolescents. Hence, implementation of public health interventions to reduce unintended pregnancy can cause growth and economic development (9). Unplanned pregnancies can reduce labor productivity by declining the health stock for individuals, which in turn lowers the standards of living (10). Prevention of unintended pregnancies will help to increase national savings and lead to higher rates of economic growth (11).

Unintended pregnancy also influence the health of children (20). Children whose conception was unintended are more likely to result in poor physical, mental health. Also they are more likely to engage in misbehaving during adolescence (12). Additionally study suggest that a strong and persistent relationship between having an unintended pregnancy resulting in a live birth and poorer in later life of mental health outcomes(13). Additionally, the cognitive development of children is low when the birth follows an unintended compared to the planned pregnancy(14).

Some efforts have been made to decrease the burden of unintended pregnancy for instance new WHO report shows that preconception care has a positive impact on maternal and child health outcomes(15). Previous conducted studies, have identified factors associated with unintended pregnancies like number of parity, having more than three or four children (16–18). Almost all studies conducted in Ethiopia focused on facility-based women using maternal health services (18–23) while this study focused on community-based and rural women. Therefore, the aim of this study was to assess the magnitude of unintended pregnancy and associated factors among rural women in the Bench Maji zone south west of Ethiopia.

2. Methods

2.1. Study design and setting

A community-based cross-sectional study was conducted in the Bench Maji Zone, Southern Nations Nationalities and People Regional State, southwest Ethiopia, from March 15 to June 20, 2018. The zone capital city, Mizan-Aman, located 561 km away from Addis Ababa in the southwest direction. The Bench-Maji zone is divided into one urban district (Mizan-Aman), five pastoral or semi-pastoral districts (Surma, Maji, Meint Goldia, Meint Shesha, and Bero districts) and five agrarian districts (Sheko, Semen-Bench, Debub-Bench, Shey-Bench, and Guraferda districts). During the study period, the zone has 1 hospital, 40 health centers, and 300 health posts (24).

2.2. Population

The study was done on randomly selected pregnant women who were living in selected districts of the zone during the data collection period. Those pregnant mothers who were severely sick and unable to respond to an interview during the data collection period were not included in the study.

2.3. Sampling procedure
To recruit study participants, the zone was stratified into five pastoral or semi-pastoral districts and five agrarian districts. Six districts; three from each stratum were randomly selected to include at least 30% of the districts. Then, the districts were further stratified into kebeles (small administrative units below district in Ethiopia). A simple random sampling technique was employed to select 30% of kebeles from each district. A total of 846 pregnant mothers were identified from selected kebeles during the study period. Accordingly, all of the pregnant mothers in the selected kebeles were considered as a final sample for this study. The list of pregnant mothers in selected kebeles was obtained from the family folder (a registry book that contains all family profiles in the kebele).

2.4. Data collection tool and procedures

A structured questionnaire was adapted from different literature, including socio-demographic, obstetric history, and maternal health service utilizations (25–28). The questionnaire was translated into the local language (Amharic) by persons who are proficient in both languages and have a good knowledge of the subject matter. Then, the questionnaire was pre-tested on a 5% total sample size in a district that was not selected for the actual study and modified based on the pre-test. Fifteen experienced BSc public health and three MPH supervisors were recruited and trained for data collection and supervision, respectively. The training was given for three days on how to ensure confidentiality, tool, and interview techniques. Data collection was through a face-to-face interview method. The supervisors and principal investigators supervised the process of data collection daily basis.

2.5. Study variables

The dependent variable of the study was unintended pregnancy (pregnancy status). The independent variables were socio-demographic characteristics (age, religion, educational status, occupational status, monthly income, ethnicity, and marital status), ANC visit during the current pregnancy, birth experiences, previous place of delivery, maternity waiting home use for previous pregnancy, and parity.

2.6. Data processing and analysis

Data were entered into the epi data manager version 4.0.2.101 and exported to SPSS version 21 for analysis. Descriptive statistics, such as percentage, mean, and standard deviation, were done for different variables. Binary logistic regression analysis was used to determine the association between the outcome variable and explanatory variables. Variables with an association in the bivariate analysis (p-value ≤ 0.25) were selected for a multivariable analysis to determine the independent predictors of unintended pregnancy. P-values below 0.05 were considered statistically significant.

2.7. Ethical Approval

Ethical approval was obtained from the ethical review committee of Mizan Tepi University College of Health Sciences. The respective district and kebele administrators was granted consent on behalf of the study participants. Verbal informed consent was obtained from each participant before beginning the study and data collection was ensued after the purpose of the study was explained for the study participants. There was no personally identifiable information collected from participants and also...
approved by research ethical review committee of College of Health Sciences, Mizan Tepi University. Verbal informed consent was preferred because our study participants were rural mothers where literacy level is low. The study was conducted as per Helsinki declaration.

3. Results

3.1. Socio-demographic characteristics

A total of 829 women were interviewed making a response rate of 98%. The mean age of the respondents was 27.1 (± 5.2) years. About 30.2% of the respondents were from the Bench ethnicity group. Nearly two-thirds (62.7%) (64.2%) were Protestant. Of the total respondents, 89.3% were married, 52.2% 46.7% did not attend formal education, and 89.3% were housewives (Table 1).

3.2. Reproductive characteristics of the respondents

The mean age at first marriage was 17.1 (± 4.75) years. Among the total 829 respondents, nearly three fourth (77.3%) had a history of childbirth, of which 309 (59.1%) of them have less than three children, and 37.6% of previous pregnancies were delivered at home. Furthermore, 86.7 % of the respondents reported that the current pregnancy was wanted, and 91.8% had at least one ANC visits the current pregnancy. Approximately 537 (73.2) of them had post-natal care visits, while 323 (39%) mothers had a history of previous maternity waiting for home use (Table 2).

3.3. Magnitude of unintended pregnancies

From the total of interviewed pregnant mothers, about 109 (13.1%) of them became pregnant without their intention (plan). Figure 1

3.4. Factors associated with unintended pregnancies

Binary logistic regression was conducted to select candidate variables for multivariable logistic regression for assessment factors associated with unintended pregnancy. Variables with p-values less than 0.25 were taken in the multivariable logistic regression. Variables like age of mothers, educational status of mothers, occupation of mothers, exposure to media (radio), number of born children, place of recent delivery, history of abortion, and post-natal care utilization for recent delivery had p-value of less than 0.25 in binary logistic regression. Finally, exposure to media(radio) [AOR = 5.06: 95% CI:1.89–13.53], number of born children [AOR = 2.34: 95CI:1.19–4.64], place of recent delivery [AOR = 2.07, 95%CI:1.12–3.84], and post-natal care utilization for recent delivery[AOR = 4.03, 95% CI: 2.09–7.79] were associated with unintended pregnancies having a p-values of less than 0.05 in multivariable logistic regression (Table 3).

Discussion

This study aimed to determine the magnitude of unintended pregnancies among rural mothers in the Bench Maji zone south west of Ethiopia. It has been shown that the magnitude of unintended among
pregnant mothers in the study area was 13.1%. This figure is in line with a study conducted among married women in West Belessa Woreda, Northwest Ethiopia, which showed that the magnitude of unintended pregnancy was 13.7% (30). This figure is lower than the study conducted in the Hadiya Zone, Southern Ethiopia, which showed that the unintended pregnancy was 36.2% (31). Also, the finding is lower than study conducted in a rural area of Bengal 28.5%(32), among rural women in Bangladesh 29% (33), among Pregnant Women Visiting Dilla University Referral Hospital 36.9% (20) and among women attending antenatal care in Maichew Town, Northern Ethiopia 29.7% (18). This discrepancy might be because in this study area health extensions workers are moving from house to house and teach mothers about their health and health service utilization, including modern family planning use, which has a major role in decreasing unintended pregnancies.

The study showed that having parity was associated with unintended pregnancy. Mothers those have parity greater than 2 were about two times more likely to have unintended pregnancies than mothers with parity less than or equal to two. This might be due to mothers with a limited number of children i.e. less than or equal to two, may think to have more children and plan to have additional children, while those with many children may not think to having child a and result in unintended pregnancy. This finding is in line with a study conducted among women attending antenatal clinics in Pakistan, which had a parity of > 2, was associated with unintended pregnancy(28). Similarly study conducted among women attending antenatal care in Maichew Town, Northern Ethiopia showed that having three or mor children was associated with unwanted pregnancy(18).

Exposure to media specifically to radio in this context was associated with the occurrence of unintended pregnancy. This might be because of women who have media exposure can access information about family planning and consequences of unintended pregnancy. This finding is similar to a study conducted among rural women in Bangladesh, which showed that women who had no exposure to media were more likely to have unintended pregnancies than women who have exposed to media (33).

The study revealed that giving preceding delivery at home and not having post-natal visits were associated with the probability of having an unintended pregnancy. This might be because those women gave birth at a health facility may be advised about contraceptives as the result, they mar refrain from unintended pregnancies.

**Conclusion And Recommendation**

The magnitude of unintended pregnancies was low in the study area, relatively previously conducted studies. Exposure to media (radio), number of born children, place of recent delivery, and post-natal care utilization for recent delivery were associated with unintended pregnancies. Still, efforts have to be made to bring unwanted pregnancies to zero level because it is the major risk factor leading to maternal mortality and morbidity. The zonal health department and other concerned bodies have to increase awareness of the rural community to utilize health facilities for different purposes like ANC, delivery, and PNC services.
Limitations

Since the study design is cross-sectional study it does not determine causalities. Also social desirability bias may affect the finding of this study.

Declarations

Conflicts of Interest

The authors declare that there exists no competing interest.

Availability of data and materials

All data generated during and/or analyzed during the study are available from the corresponding author on reasonable request.

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Tables

Table 1: Socio-demographic characteristics of pregnant mothers in Bench Maji Zone South West Ethiopia (N=829) October 2018.
| Variable                        | Frequency (%) |
|--------------------------------|---------------|
| Age group                      |               |
| Less than 20                   | 100 (12.1)    |
| 21-34                          | 641 (77.3)    |
| Above 35                       | 88 (10.6)     |
| Religion                       |               |
| Protestant                     | 520 (62.7)    |
| Orthodox                       | 268 (32.3)    |
| Muslim                         | 61 (5)        |
| Ethnicity                      |               |
| Bench                          | 250 (30.2)    |
| Sheko                          | 126 (15.2)    |
| Amhara                         | 145 (17.5)    |
| Menit                          | 173 (20.9)    |
| Kafa                           | 110 (13.3)    |
| Others*                        | 25 (3)        |
| Marital status                 |               |
| Married                        | 740 (89.3)    |
| Single                         | 49 (5.9)      |
| Widowed and Divorced           | 40 (4.8)      |
| Educational status of mothers  |               |
| No education                   | 449 (52.2)    |
| Primary Education              | 366 (45)      |
| Secondary Education and above  | 14 (1.8)      |
| Occupational status of mothers |               |
| Housewife                      | 740 (89.3)    |
| Merchant                       | 34 (4.1)      |
| Daily laborer                  | 55 (6.6)      |

* Tigre, Majang, Oromo

Table 2: Reproductive characteristics of pregnant mothers in Bench Maji Zone South West Ethiopia (N=829) October 2018.
| Variables                                      | Frequency (%) |
|------------------------------------------------|---------------|
| History of childbirth (n=829)                  |               |
| Yes                                           | 653 (77.3)    |
| No                                            | 188 (22.7)    |
| Status of recent delivery (n= 653)             |               |
| Healthy                                       | 610 (93.4)    |
| Stillbirth and others                         | 43 (6.6)      |
| Place of recent delivery (n=582)               |               |
| Home                                          | 219 (37.6)    |
| Health facility                               | 363 (62.4)    |
| History ANC for current pregnancy (n=811)      |               |
| Yes                                           | 761 (91.8)    |
| No                                            | 50 (8.2)      |
| History abortion                              |               |
| Yes                                           | 76 (9.2)      |
| No                                            | 752 (90.8)    |
| History PNC for recent delivery (n=733)        |               |
| Yes                                           | 537 (73.2)    |
| No                                            | 196 (26.8)    |
| History of modern contraceptive use (n=829)    |               |
| Yes                                           | 698 (84.2)    |
| No                                            | 188 (15.8)    |

Table 3: Bivariate and multivariable analysis of factors associated with unintended pregnancy among pregnant mothers in Bench Maji Zone South West Ethiopia (N=829) October 2018.
| Variables                                      | Pregnancy status                  | Crude OR (95% CI) | AOR (95% CI) |
|------------------------------------------------|-----------------------------------|-------------------|--------------|
| Age of mothers                                |                                   |                   |              |
| Less than 20                                   | 2 97 1                            | 0.04 (0.01-0.19)  | 0.19 (0.02-1.97) | 1.04 (0.01-1.97) |
| 20-34                                          | 79 552 0.30 (0.18-0.50)           | 0.19 (0.02-1.97)  | 0.43 (0.19-0.95) |
| Above 34                                       | 28 59                             | 0.30 (0.18-0.50)  | 0.43 (0.19-0.95) |
| Educational status of mothers                  |                                   |                   |              |
| No education                                   | 79 291 4.29 (1.68-10.95)          | 0.77 (0.16-3.74)  |               |
| Primary school                                 | 21 325 1.02 (0.37-2.790)          | 0.37 (0.07-1.89)  |               |
| Secondary and above                           | 5 79 1                            | 1.02 (0.37-2.790) |               |
| Occupational status of mothers                 |                                   |                   |              |
| Housewife                                      | 84 614 0.52 (0.26-1.05)           | 0.68 (0.16-2.89)  |               |
| Merchants                                      | 6 28 0.82 (0.27-2.47)             | 1.37 (0.18-10.21) |               |
| Daily laborer                                  | 11 42 1                            | 1.37 (0.18-10.21) |               |
| Presence of radio in home                     |                                   |                   |              |
| No                                             | 95 524 2.38 (1.33-4.28)           | 5.06 (1.89-13.53) |               |
| Yes                                            | 14 184 1                            | 1.37 (0.18-10.21) |               |
| History of abortion                            |                                   |                   |              |
| Yes                                            | 22 54 3.058 (1.76-5.27)           | 1.62 (0.77-3.43)  |               |
| No                                             | 87 653 1                            | 1.62 (0.77-3.43)  |               |
| Parity                                         |                                   |                   |              |
| Less than three                                | 29 277 1                            | 1.62 (0.77-3.43)  |               |
| Above or equal to three                        | 48 162 2.83 (1.72-4.67)           | 2.34 (1.19-4.64)  |               |
| Place of birth for recent delivery             |                                   |                   |              |
| Home                                           | 55 160 2.99 (1.89-4.73)           | 2.07 (1.12-3.84)  |               |
| Health facility                                |                                   |                   |              |
| PNC for recent delivery                        |                                   |                   |              |
| No                                             | 37 322 1                            | 1.62 (0.77-3.43)  |               |
| Yes                                            | 53 484 1                            | 1.62 (0.77-3.43)  |               |

*p<0.05, OR: Odds ratio, AOR: Adjusted Odds ratio

Figures
Figure 1: Prevalence of unintended pregnancy

Figure 1

Prevalence of unintended pregnancy