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Common Mental Disorders in Pregnancy in Middle Income Countries: A Review of Predictors, Outcomes, and Early Detection

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Abstract— Mental health in pregnancy is often forgetten and not integrated with antenatal care in most middle income countries (MICs). Many common mental disorders (anxiety and/or depression) in pregnant women are not well identified and untreatment in MICs. The aim of this review to identify common mental disorders' predictors and outcomes in pregnancy, and evaluate the implementation of early detection of anxiety and/or depression symptoms in antenatal care in MICs. Sources of this review are from grey literature and scientific articles that have been published between 2009-2020 on Proquest, Science direct, JSTOR, Springer link, PubMed, and EBSCO. The result of this review are: family income, domestic violence, and husband's low support are dominant predictor factors to cause anxiety disorder and/or depression in pregnancy. Untreated anxiety and/or depression in pregnancy increase risk of depression postpartum, suicidal ideas, and disability for maternal; risk of low birth weight, undernutrition, and stunting for children. On the other hand, early detection for pregnant women's mental health almost never done in antenatal care in MICs. There are stigma and inequality health service for poor pregnant women makes they more inability to access mental health care.

Keywords— pregnant women, depression, anxiety, screening, antenatal care

1. Introduction

Pregnancy period is a vulnerable time which common mental disorders (CMDs) namely anxiety and/or depression are commonly occur. Globally, 1% - 65% of pregnant women have anxiety disorder and depression with prevalence in MICs (15%-25%), 2 times higher than high income countries (HICs) (<10%). [1–4]

In Asia region, the prevalence of depression in pregnant women was China 13,7%, Malay 12.2%-13.8%, India 9.2-16.2%, Indonesia 15%, Thailand 18.9%. [5–10] Prevalence of depression antenatal 41,5% in South America, Brazil. [11] In Africa, prevalence of depression in pregnant women was 23.5-27.5% in Abeokuta (Nigeria), 21.5% in Hawassa (Ethiopia), 27% Soweto (South Africa). [12–14] Prevalence of anxiety disorder in pregnancy was Malay 28,8%, Southern India 55,7%, and South Africa 15.2% - 23% [5,14–16].

Although the prevalence of anxiety and/or depression in pregnancy are high in MICs, the implementation of mental health in antenatal care such as, screening anxiety and/or depression symptoms in pregnant women has not still got enough attention, thus many cases of CMDs in pregnant women are unindentify and under diagnosed (50-75%), and untreated (> 80% of identified cases) in most MICs. [17,18] Ignorance of mental health issue in antenatal care may occur due to obstacles of government policy, health workers, pregnant women and families, and also the community.

There is still misapprehension about anxiety and depression in pregnant women, it is rare and normal in pregnancy, even though CMDs untreated can affect morbility and mortality of maternal or children, and leading cause global disease burden. [19,20] Until now, there is little information about CMDs in pregnancy and what has be done in pregnancy mental health services in the most MICs.

Therefore, the purpose of this review is identifying the predictors and outcomes of CMDs in pregnancy for mothers and children, and evaluating the implementation of early detection (screening) of anxiety and depression symptoms of pregnant women in antenatal care in MICs. This review can be used as an evidence-based for stake holders to plan the implementation of promotive and preventive mental health programs in antenatal care, can also be used giving education for

practitioners to up to date and aware with anxiety and/or depression symptom, predictors and outcomes factors in pregnant women to improve their mental health.

2. Method

This review was conducted based on guidelines for writing a literature review for a journal.[21]

2.1 Search Strategy

The keywords used in this search were: "pregnant women" AND "common mental disorders," AND "anxiety antenatal"OR "anxiety in pregnancy" AND "depression antenatal" OR depression in pregnancy" AND "determinant" OR "predictor factors" AND "impacts to maternal AND children" OR "outcome birth" AND "early detection of mental health" OR "mental health screening. Searches were restricted from 2009-2020 to find out novelty of evidence.

2.2 Eligibility assessment

First step was identifying articles, then screening: check duplication, the relevance of the title and abstract. The articles were be excluded if there were not similar with topic, purpose, and population. After that, assessing the quality of study and extracting data, Finally, synthesizing selected articles.

3. Result

3.1 Predictor Factors of CMDs

a. Demographic Factors (Socio-economic)

In community-based research, 73-79% of study results suggest a positive relationship between poverty and CMDs. [22]In previous researchs, it was found that family income was a very dominant external stressor factor and the only demographic factor that was always significantly related to CMDs in pregnancy. Studies in MICs result: pregnant women with low family income were at a higher risk for anxiety (AOR = 1.44 - 2.8) and depression antenatal (AOR = 1.89 - 2.79). [14,15,23–28]

This is certainly not surprising because pregnancy means having additional expense in the future, thus mothers and families tend to choose not to seek for health services in order to save family expenses. The existence of stigma or inequality in services perceived by pregnant women with low socioeconomic also causes pregnant women not to receive optimal mental health services.

b. Biological Factors

Many studies in MICs found that history of mental disorder is the strongest determinant factor for the occurrence of CMDs during pregnancy. Mothers who have a history of depression before pregnancy will have odds ratio 3 times than pregnant women who have never experienced a mental disorder. [29]

c. Psychological Factors

Pregnant women whose stressfull life such as, having marital conflict, family members get ill, have children under five years old, and also unplaned pregnancy will increase the mind burden on mothers can increase anxiety antenatal.[10,14,24,30] Many pregnant women feel anxious about the possibility of infant development disorder, and feel fear of traumatic labor.[31] But, if the pregnancy is planned (OR = 0.45) and the mother is happy with the pregnancy (OR = 0.43), these are protective factors for anxiety and/or depression antenatal.[6]

Domestic violence is also has association with anxiety and/or depression antenatal (OR=1.69-9.25) in MICs.[5,11,27,32] Pregnant women who experienced intimate partners' (verbal/emotional/physical/ sexual) abuse domestic violence, commonly have symptoms like anxiety, worry, lack of enthusiasm.[23]

Pregnant women who experienced a traumatic event, especially during their childhood were raised by parents with low attention and/or too restrictive tended to be six times more higher risk for anxiety and/or depression antenatal. They were anxious whether they were able to be a good parents because of their past being treated badly from their family and environment. [30,33,34]

d. Social Factor

The husband's low support during pregnancy increase the risk of anxiety and depression in pregnant women (OR = 1.89-3.21). [12,29] Mothers with unwanted pregnancy are higher risk of less husband support and low self-efficacy. [35] In contrastly, husband's high support is a protective factor to prevent CMDs in pregnany (OR = 0.43). [14]

Beside that, family's and environment's support for pregnant women is also needed to prevent CMDs. Pregnant women who lack of social support from family will more easily to have CMDs (OR = 1,733). [12,15]

3.2 Outcomes of CMDs

a. Mothers

Prolonged depression during pregnancy results in increased inflammation and oxidative stress which is a trigger for cardiovascular risk. Research conducted in the districts of Bhopal and Betul (India) found that gestational hypertension and preeclampsia were associated significantly with untreated depression antenatal. [36,37].

The previous study also stated that there was a relationship between preterm birth (less than 37 weeks gestational) was associated with anxiety disorders (OR = 1.47), depression (OR = 1.31-3.8), or both (OR = 2.31). [28,38,39].

Antenatal depression is also a predictor factor for postpartum depression. There was study that stated that of all mothers who experienced antenatal depression, 80.4% of them still showed symptoms of depression until two months postpartum. [40]

Untreated CMDs in pregnancy will have an effect on ideas of suicide and self-injury which can be fatal and causing premature death of maternal in MICs. [41,42] Until today, data on recording and reporting of maternal deaths due to suicide, especially in MICs, is very difficult to obtain because it is often under-reported.

Common mental disorders in pregnancy also leading cause disability of mothers who are still in their productive age, higher health financing compared to treatment for infectious diseases. [22,43,44] CMDs can cause a vicious circle of family health and well-being that begins with maternal disability.

b. Children

The results of the study stated that the increase in cortisol in CMDs during pregnancy will result in slower and/or limited fetal intrauterine growth such as fetal head circumference growth, weight growth, and abdominal growth disorders. [45,46]

Depression during pregnancy were more at risk of giving birth to a low weight baby (LBW) (OR = 4.75), more often in MICs (RR = 2.05; CI 1.43-2.93) compared to the United States (RR = 1.10; CI 1.01-1.21) [47,48]. But, there was also recent study stated that depression antenatal not associated directly with birth outcome [28].

Incidence of anxiety and/or depression in pregnancy was related to the growth of children in their 1 year old age and persist to 8 years old in India and Vietnam. There was also a significant relationship with stunting at the age of 5 and 8 years and underweight at the age of 1 and 8 in India, and underweight at the age of 5 and 8 years in Vietnam. [49] Another study stated that CMDs of maternal can be a predictor of stunting in children. Children who have mothers with CMDs are three times more likely to have stunting. [50]

Research in Bujajira (Ethiophia) stated that anxiety and/or depression in pregnancy increase the risk of undernutrition (RR = 1.71; CI 1.05-2.8) in children aged 12 months, diarrhea (Arr = 2.15; CI = 1.39-3.34), acute respiratory disease (cRR = 2.24; CI = 1.52-3.30), and fever (cRR = 1.61; CI = 1.1-2.35). [51,52]

Symptoms of depression and anxiety during early pregnancy will increase the risk of internal child behavior problems as adults, emotional difficulties and self-regulation during the first two years of a child's life such as crying and temperamental , and also cognitive development in children was lower. [53–55]

3.3 Early Detection of Anxiety and Depression Symptoms in antenatal care

a. Policy

Situational research that has been conducted in five countries (South Africa, Uganda, Ethiophia, India, and Nepal) with low-middle income showed that none of these five countries have implemented maternal mental health programs. [7] On the other hand, countries that already have maternal mental health programs sometimes face obstacles that are not yet integrated with the maternal health program. This is due to the existence of inaccurate views about CMDs in pregnancy which are rare and hard to find, diagnosis and treatment can only be done by specialists thus it is not relevant to the maternal and child health program. [20]

In the implementation of antenatal care programs, "Mental is often neglected because antenatal services are still more focused on monitoring the physical health of pregnant women. The implementation of mental health screening in pregnant women is not yet a standard for antenatal care in most MICs, such as in Indonesia. Even though, since 2008, WHO has recommended to screening mental health and mental disorders including the perinatal period and it is very important to identify and treat mental health problems early. [56–58]

HICs like the United States and the United Kingdom, has issued regulations and mechanisms for the implementation of mental health screening in the prenatal period, also recommend screening for symptoms of depression and anxiety using standardized and valid instruments in all patients at least once during the perinatal period. [59–62]

Based on the results of this review, there are no policies, regulations or recommendations from the government and professional organizations in MICs to implement screening for maternal mental health at least once in antenatal care.

b. Health Workers and Their Competencies

The main pillar of the implementation of maternal health services is health workers. Symptoms of CMDs that are often identical to the physiological complaints in pregnant mothers cause symptoms of mental disorders are often not detected by health workers.

The results of this review found inhibiting factors in terms of competency of health workers, especially midwives, to identify mental disorders in early pregnancy, including: (1) lack of knowledge about maternal mental health which results in low self-confidence and determination to identify, screen, and refer patients, (2) lack of skills in identifying cases of mental disorders in pregnancy, (3) lack of experience related to mental disorders of pregnant women for midwives student in clinical practice. [63–65]

As for other factors, mental health screening at antenatal clinics is not a standard of service at an institution, short service times with large numbers of patients, the presence of negative stigma against mothers with mental disorders, and the absence of a clear implementation mechanism and referral.

c. Pregnant Mother, Family and Community

The success of health workers to identify mental disorders during pregnancy will not succeed if pregnant women as the subject do not want to cooperate. Some things that often become obstacles in the implementation of mental health screening in pregnant women are: (1) lack of knowledge and

literacy barriers about symptoms of anxiety and depression antenatal, (2) reluctance to be honest with their complaints for various reasons such as not wanting to be assessed as mentally ill, (3) discomfort with health workers, location and privacy of screening, (4) influence from husband, family, friends or the community such as not there is support, opinion that all psychological complaints are normal in pregnancy, (5) negative stigma from the community towards mothers with mental disorders, and (6) the inability of mothers to receive services (inaccessibility) that could be due to poverty. [66–69]

d. Using of Screening Instruments

There have been many screening instruments for anxiety and/or depression symptoms. Some depression screening instruments that are often used for pregnancy in MICs are Self Reporting Questionnaire (SRQ)-20, Edinburgh Postnatal Depression Scale (EPDS), and General Health Questionnaire (GHQ). [5,7,9,14] Some anxiety screening instruments that are often used in MICs such as State Trait-Anxiety Inventory (STAI) and Pregnancy Related Thought (PRT), and Depression, Anxiety and Stress Scale (DASS 21). [5,14,15] There are also several MICs had their own screening instruments such as the Aga Khan University Anxiety and Depression Scale (AKUADS) which was developed for the people of Pakistan using Urdu language. [23]

Ideally, a country has a screening instrument standard to detect anxiety and/or depression in pregnancy that is used in all health facilities. The screening instrument must be simple, easy to use and interpret, cheap, short assessment time and have a high sensitivity and specificity. A screening instrument may be valid and can be used in a country, but may be is not valid and suitable in others because of demograph characteristic, social and culture are different each other. [59,70]

4. Discussion

There are several important points found in this review.

4.1 Predictor factors

The prevalence of anxiety and/or depression antenatal is high in MICs, ranging from 9%-56%. This has become a big homework for governments in MICs. This review found that the dominant predictor factors for anxiety and/or depression antenatal in MICs were low socioeconomic, domestic violence, and low husband support during pregnancy period. From these three factors, it can be seen that the husband or partner of pregnant women has a very important role as a protective factor for anxiety and/depression antenatal.

Therefore, prevention and management of mental health interventions should not only involve pregnant women but also with their husbands as partners of pregnant women.

4.2 Outcomes factors

Anxiety and/or depression that are not identified and treated during pregnancy have a long-term impact on both the health and well-being of the mothers and children and also their family. The results of this review indicate that anxiety and/or depression in pregnant women can increase morbidity and mortality of mothers and the children, non fatal burden for family and countries. The quality of the children as the next generation of the nation in MICs are also redused because CMDs in pregnancy increase risk of infectious diseases, psychological disorders, as well as growth and development disorders.

Therefore, an early detection program for screening anxiety and/or depression symptoms in pregnancy should be promoted in order to make efforts to prevent anxiety and/ depression antenatal, improve maternal mental health, and do early and prompt treatment.

4.3 Implementation of early detection (routine screening) of mental health in antenatal care

The implementation of screening anxiety and/or depression symptoms in antenatal care in most MICs

experiences various obstacles due to the following: not a standard component of pregnancy services, the absence of recommendations from the relevant government, the integration of maternal and child health programs with mental health has not run optimally and not yet the standard of screening in that country. [7,56]

Other factors are due to lack of knowledge and skills of health workers, such as midwives to identify anxiety and/or depression symptoms in pregnancy, and little literacy of pregnant women, family, and community about anxiety and/or depression in pregnancy, negative stigma, lack of social support, and inability to access services due to economic problems. [63,64,68,71] Promotion health about anxiety and/or depression antenatal is very essensial to reduce negative stigma about mental disorder in community. This is also need a efficient strategy to screen anxiety and/or depression symptoms of pregnant women in antenatal care.

This review also found that further development of the mental health screening instrument in pregnancy is needed because its use is not optimal. There is a need for reliable and validated mental health screening instruments for pregnant women to be used in all health care settings, especially primary health services in one country, because one instrument that is valid in one country is not necessarily valid in another.

5. Conclusion

Low social economic, intimate violence and low support of partner are predictor factors thas should be awared by practitioners as anticipant step to prevent anxiety and/or depression in pregnant women. Untreated anxiety and/or depression antenatal that are will result in a vicious circle to the health and welfare problems of a family. It will increase the risk of morbility and mortality maternal and children, disability of mothers, and become a non-fatal burden to the family and community, also leading cause burden disease for MICs. The magnitude of the outcome of CMDs in pregnancy, so promotive and prevention programme should be more encouraged. National policies and guidelines for mental health services in pregnancy are crucial points so that, early detection anxiety and/or depression in pregnant women could be implemented in antenatal care routinely and became a part of antenatal care standard. No less important is the need for more research of the validity of the screening instruments used in MICs to find out valid, reliable, and suitable to be used in those countries.

References

[1]. Jha S, Salve HR, Goswami K, Sagar R, Kant S. Burden of Common Mental Disorders among Pregnant Women: A Systematic Review. Asian J Psychiatr. 2018;36:46–53.
[2]. Ogbo FA, Eastwood J, Hendry A, Jalaludin B, Agho KE, Barnett B, et al. Determinants of Antenatal Depression and Postnatal Depression in Australia. BMC Psychiatry. 2018;18(49):1–11.
[3]. Usuda K, Nishi D, Makino M, Tachimori H, Matsuoka Y, Sano Y. Prevalence and Related Factors of Common Mental Disorders during Pregnancy in Japan: a Cross-sectional Study. Biopsychosoc Med [Internet]. 2016;1–7. Available from: http://dx.doi.org/10.1186/s13030-016-0069-1
[4]. Dadi AF, Miller ER, Bisetegn TA, Mwanri L. Global Burden of Antenatal Depression and Its Association with Adverse Birth Outcomes: An Umbrella Review. BMC Public Health. 2020;20(1).
[5]. Nasreen HE, Rahman JA, Rus RM, Kartiwi M, Sutan R. Prevalence and Determinants of Antepartum Depressive and Anxiety Symptoms in Expectant Mothers and Fathers: Results from a Perinatal Psychiatric Morbidity Cohort Study in the East and West Coasts of Malaysia. BMC Pregnancy Childbirth. 2018;18:1–14.
[6]. Yusuff ASM, Tang L, Binns CW, Lee AH. Prevalence of Antenatal Depressive Symptoms among Women in Sabah,Malaysia. J Matern Fetal Neonatal Med. 2015;(June).
[7]. Baron EC, Hanlon C, Mall S, Honikman S, Breuer E, Kathree T, et al. Maternal Mental Health in Primary Care in Five Low- and Middle-Income Countries: a Situational Analysis.

BMC Health Serv Res [Internet]. 2016; Available from: http://dx.doi.org/10.1186/s12913-016-1291-z

[8]. Anindyajati G, Ismail RI, Diatri H, Elvira SD. Antenatal Depression and Its Determinant Factors in Urban Community Setting. Adv Sci Lett [Internet]. 2017;23(4):3439–41. Available from: https://scholar.ui.ac.id/en/publications/antenatal-depression-and-its-determinant-factors-in-urbancommuni%0A

[9]. Wang Y, Wang X, Liu F, Jiang X, Xiao Y, Dong X, et al. Negative Life Events and Antenatal Depression among Pregnant Women in Rural China: the Role of Negative Automatic Thoughts. PLoS One. 2016 Dec 1;11(12).

[10]. Tuksanawes P, Kaewkiattikun K, Kerdcharoen N. Prevalence and Associated Factors of Antenatal Depressive Symptoms in Pregnant Women Living in an Urban Area of Thailand. Int J Womens Health. 2020;12:849–58.

[11]. da Silva Lima L, do Carmo TOA, de Souza Brito Neto C, da Cunha Pena JL. Depressive Symptoms in Pregnant Women and Intimate Partner Violence: a Cross-sectional Study. Enferm Glob. 2020;19(4):31–45.

[12]. Duko B, Ayano G, Bedaso A. Depression among Pregnant Women and Associated Factors in Hawassa City,Ethiopia: an Institution-based Cross-sectional Study. BMC Reprod Heal. 2019;214:1–7.

[13]. Thompson O, Ajayi IO. Prevalence of Antenatal Depression and Associated Risk Factors among Pregnant Women Attending Antenatal Clinics in Abeokuta North Local Government Area, Nigeria. Depress Res Treat. 2016;2016.

[14]. Redinger S, Norris SA, Pearson RM, Richter L, Rochat T. First Trimester Antenatal Depression and Anxiety: Prevalence and Associated Factors in an Urban Population in Soweto,South Africa. J Dev Orig Heal Dis. 2018;9(2018):30–40.

[15]. Nath A, Venkatesh S, Balan S, Metgud CS, Krishna M, Murthy GVS. The Prevalence and Determinants of Pregnancy-Related Anxiety amongst Pregnant Women at Less Than 24 Weeks of Pregnancy in Bangalore, Southern India. Int J Womens Health. 2019 Apr;Volume 11:241–8.

[16]. Heyningen T Van, Honikman S, Myer L, Onah MN, Field S, Tomlinson M. Prevalence and Predictors of Anxiety Disorders Amongst Low-Income Pregnant Women in Urban South Africa: a Cross-Sectional Study. Arch Womens Ment Health. 2017;20(6):765–75.

[17]. Littlewood E, Ali S, Ansell P, Dyson L, Gascoyne S, Hewitt C, et al. Identification of Depression in Women during Pregnancy and the Early Postnatal Period Using the Whooley Questions and the Edinburgh Postnatal Depression Scale. BMJ Open. 2016;6:1–9.

[18]. O'Connor E, Rossom RC, Henninger M, Groom HC, Burda BU. Primary Care Screening for and Treatment of Depression in Pregnant and Postpartum Women: Evidence Report and Systematic Review for the USPSTF. J Am Med Assoc. 2016;315(4):388–406.

[19]. World Health Organization. Maternal Mental Health and Child Health and Development in Low and Middle Income Countries: Report of the Meeting Held in Geneva, Switzerland,30 January - 1 February,2008 [Internet]. World Health Press. 2008. Available from: https://www.who.int/mental_health/prevention/suicide/mmh_jan08_meeting_report.pdf?ua=1

[20]. Rahman A, Surkan PJ, Cayetano CE, Rwagatare P, Dickson KE. Grand Challenges: Integrating Maternal Mental Health into Maternal and Child Health Programmes. PLoS Med. 2013;10(5).

[21]. Green BN, Johnson CD, Adams A. Writing Narrative Literature Reviews for Peer-Reviewed Journals: Secrets of the Trade. J Chiropr Med. 2006;5(3):101–17.

[22]. Lund C, Breen A, Kakuma R, Corrigall J, Flisher AJ, Kakuma R, et al. Poverty and Common Mental Disorders in Low and Middle Income Countries: a Systematic Review. Soc Sci Med. 2010 Aug;71(3):517–28.

[23]. Karmaliani R, Asad N, Bann CM, Moss N, McClure EM, Pasha O, et al. Prevalence of Anxiety, Depression and Associated Factors among Pregnant Women of Hyderabad, Pakistan. Int J Soc Psychiatry. 2009;55(5):414–24.

[24]. Bisetegn TA, Mihretie G, Muche T. Prevalence and Predictors of Depression among

Pregnant Women in Debretabor. PLoS One. 2016;1–11.
[25]. Tilahun B, Mossie TB, Sibhatu AK, Dargie A, Ayele AD. Prevalence of Antenatal Depressive Symptoms and Associated Factors among Pregnant Women in Maichew , North Ethiopia: an Institution Based Study. Ethiop J Heal Sci. 2017;27:59–66.
[26]. Zeng Y, Cui Y, Li J. Prevalence and Predictors of Antenatal Depressive Symptoms among Chinese Women in Their Third Trimester: a Cross-sectional Survey. BMC Psychiatry. 2015;15(1):1–7.
[27]. Lillie M, Gallis JA, Hembling J, Owusu RK, Ali M, Abubakr-Bibilazu S, et al. Prevalence and Correlates of Depression Among Pregnant Women Enrolled in a Maternal and Newborn Health Program in Rural Northern Ghana: a Cross-sectional Survey. Glob Soc Welf. 2020;7(2):131–40.
[28]. Dadi AF, Miller ER, Woodman RJ, Azale T, Mwanri L. Effect of antenatal depression on adverse birth outcomes in Gondar town, Ethiopia: A community-based cohort study. PLoS One [Internet]. 2020;15(6):1–24. Available from: http://dx.doi.org/10.1371/journal.pone.0234728
[29]. Biratu A. Prevalence of Antenatal Depression and Associated Factors among Pregnant Women in Addis Ababa,Ethiopia: a Cross-sectional Study. BMC Reprod Heal. 2016;(January).
[30]. Franks WLM, Crozier KE, Penhale BLM. Women's Mental Health during Pregnancy: a Participatory Qualitative Study. Women and Birth [Internet]. 2017;30:179–87. Available from: http://dx.doi.org/10.1016/j.wombi.2016.11.007%0A
[31]. Deklava L, Lubina K, Circenis K, Sudraba V, Millere I. Causes of Anxiety during Pregnancy. Procedia - Soc Behav Sci. 2015 Oct;205:623–6.
[32]. Nasreen HE, Kabir ZN, Forsell Y, Edhborg M. Prevalence and Associated Factors of Depressive and Anxiety Symptoms during Pregnancy: a Population-based Study in Rural Bangladesh. BMC Womens Health [Internet]. 2011;11(12):1–9. Available from: http://www.biomedcentral.com/1472-6874/11/22%0A
[33]. Choi KW, Sikkema KJ, Velloza J, Marais A, Jose C, Stein DJ, et al. Maladaptive Coping Mediates the Influence of Childhood Trauma on Depression and PTSD among Pregnant Women in South Africa. 2015;18(5):731–8.
[34]. Grant KA, Bautovich A, McMahon C, Reilly N, Leader L, Austin MP. Parental care and control during childhood: Associations with maternal perinatal mood disturbance and parenting stress. Arch Womens Ment Health. 2012 Aug;15(4):297–305.
[35]. Shahry P, Kalhori SRN, Esfandiyari A. A Comparative Study of Perceived Social Support and Self-Efficacy among Women with Wanted and Unwanted Pregnancy. Int J Community Based Nurs Midwifery. 2016;4(2):176–85.
[36]. Ghoghre S, Singh T. Relationship of Maternal Depression during Pregnancy and Risk of Preeclampsia. IRA-International J Appl Sci (ISSN 2455-4499). 2016 Oct 5;4(3):541.
[37]. Hu R, Li Y, Zhang Z, Yan W. Antenatal Depressive Symptoms and the Risk of Preeclampsia or Operative Deliveries. PLoS One. 2015;1–16.
[38]. Mannisto T, Mendola P, Kiely M, O'Loughlin J, Werder E, Chen Z, et al. Maternal Psychiatric Disorders and Risk of Preterm Birth. Ann Epidemiol. 2016 Jan;26(1):14–20.
[39]. Mochache K, Mathai M, Gachuno O, Stoep A, Kumar M. Depression during Pregnancy and Preterm Delivery: a Prospective Cohort Study among Women Attending Antenatal Clinic at Pumwani Maternity Hospital. Ann Gen Psychiatry. 2018 Jul 25;17(1).
[40]. Silva F, Conde A, Costa R. Impact of Prenatal Depressive Symptoms on Postpartum Depressive Symptoms: Mediation Effect of Perinatal Health. Span J Psychol. 2018;21(2018):1–7.
[41]. Sachini N, Arachchi M, Ganegama R, Wahib A, Husna F, Chandima DL, et al. Suicidal Ideation and Intentional Self-harm in Pregnancy as a Neglected Agenda in Maternal Health: an Experience from Rural Sri Lanka. Reprod Health. 2019;16(1):1–7.
[42]. Onah MN, Field S, Bantjes J, Honikman S. Perinatal Suicidal Ideation and Behaviour: Psychiatry and Adversity. Arch Womens Ment Health. 2017;20(2):321–31.
[43]. Layte R. The Association Between Income Inequality and Mental Health: Testing Status Anxiety,Social Capital and Neo-Materialist Explanations. Eur Sociol Rev. 2012

Aug;28(4):498–511.
[44]. Bindt C, Appiah-Poku J, Te Bonle M, Schoppen S, Feldt T, Barkmann C, et al. Antepartum Depression and Anxiety Associated with Disability in African Women: Cross-Sectional Results from the CDS Study in Ghana and Côte d'Ivoire. PLoS One. 2012 Oct 26;7(10).
[45]. Henrichs J, Schenk JJ, Roza SJ, Van Den Berg MP, Schmidt HG, Steegers EAP, et al. Maternal psychological distress and fetal growth trajectories: The generation R study. Psychol Med. 2010 Apr;40(4):633–43.
[46]. Hompes T, Vrieze E, Fieuws S, Simons A, Jaspers L, Bussel J Van, et al. The Influence of Maternal Cortisol and Emotional State during Pregnancy on Fetal Intrauterine Growth. Int Pediatr Res Found Inc. 2012;72(3):305–15.
[47]. Diego MA, Field T, Hernandez-reif M, Kuhn C, Gonzalez-quintero VH. Prenatal Depression Restricts Fetal Growth. Early Hum Dev. 2009;85(1):65–70.
[48]. Grote NK, Bridge JA, Gavin AR, Melville JL, Iyengar S, Katon WJ. A Meta-analysis of Depression During Pregnancy and the Risk of Preterm Birth,Low Birth Weight and Intrauterine Growth Restriction. Arch Gen Psychiatry [Internet]. 2010;67(10):1012–24. Available from: https://jamanetwork.com/
[49]. Bennett IM, Schott W, Krutikova S, Behrman JR. Maternal Mental Health and Child Growth and Development in Four Low-Income and Middle-Income Countries. J Epidemiol Community Heal Community Heal. 2016;70:168–73.
[50]. Girma S, Fikadu T, Abdisa E. Maternal Common Mental Disorder as Predictors of Stunting among Children Aged 6-59 Months in Western Ethiopia: A Case-Control Study. Int J Pediatr. 2019 Mar 10;2019:1–8.
[51]. Ross J, Hanlon C, Medhin G, Alem A, Tesfaye F, Worku B, et al. Perinatal Mental Distress and Infant Morbidity in Ethiopia: a Cohort Study. Arch Dis ChildhoodFetal Neonatal Ed [Internet]. 2011;96(1). Available from: https://search.proquest.com/docview/1780449083?accountid=17242
[52]. Medhin G, Hanlon C, Dewey M, Alem A, Tesfaye F, Lakew Z, et al. The effect of maternal common mental disorders on infant undernutrition in Butajira, Ethiopia: The P-MaMiE study [Internet]. Vol. 10, BMC Psychiatry. 2010. Available from: http://www.biomedcentral.com/1471-244X/10/32
[53]. Betts KS, Williams GM, Najman JM, Alati R. Maternal Depressive, Anxious and Stress Symptoms during Pregnancy Predict Internalizing Problems in Adolescence. Depress Anxiety. 2014;31(1):9–18.
[54]. Korja R, Nolvi S, Ann K, Cathy G. The Relations between Maternal Prenatal Anxiety or Stress and Child's Early Negative Reactivity or Self-Regulation: a Systematic Review. Child Psychiatry Hum Dev. 2017;48:851–69.
[55]. Sinclair I, St-pierre M, Roofigari N, Buffa G. Prenatal Stress and Child Development: a Scoping Review of Research in Low- and Middle-Income Countries. PLoS One [Internet]. 2018;1–25. Available from: https://doi.org/10.1371/journal.pone.0207235
[56]. Openshaw MR, Bomela HN, Pretlove S. An Evaluation of the Timing and Use of Healthcare during Pregnancy in Birmingham,UK and Pretoria,South Africa. ISRN Obstet Gynecol. 2011;2011:1–6.
[57]. Kementerian Kesehatan Republik Indonesia. Peraturan Menteri Kesehatan Republik Indonesia Nomor 97 Tahun 2014 tentang Pelayanan Kesehatan Masa Sebelum Hamil,Masa Hamil, Persalinan dan Masa Sesudah Melahirkan,Penyelenggaraan Pelayanan Kontrasepsi serta Pelayanan Kesehatan Seksual [Internet]. 2014. Available from: www.peraturan.go.id
[58]. World Health Organization. EPHO5: Disease Prevention, including Early Detection of Illness [Internet]. 2008. Available from: http://www.euro.who.int/en/health-topics/Health-systems/public-health-services/policy/the-10-essential-public-health-operations/epho5-disease-prevention,-including-early-detection-of-illness2
[59]. Kendig S, Keats JP, Hoffman MC, Kay LB, Miller ES, Simas TAM, et al. Consensus Bundle on Maternal Mental Health: Perinatal Depression and Anxiety. J Midwifery Women's Heal. 2017;62(2):232–9.
[60]. Siu AL, US Preventive Services Task Force (USPSTF). Screening for Depression in

Adults: US Preventive Services Task Force Recommendation Statement. JAMA-Journal Am Med Assoc. 2016;315(4):380–7.

[61]. National Collaborating Centre for Mental Health. Antenatal and Postnatal Mental Health: the NICE Guideline on Clinical Management and Service Guidance. National Institute for Health and Care Excellence, editor. the British Psychological Society and The Royal College of Psychiatrists; 2018. 1–923 p.

[62]. American College of Obstetricians and Gynecologists. Screening for Perinatal Depression: Committee Opinion No.757. Obstet Gynecol. 2018;132(5):208–12.

[63]. Noonan M, Lecturer RGN, Doody O, Lecturer R, Jomeen J, Galvin R. Midwives' Perceptions and Experiences of Caring for Women who Experience Perinatal Mental Health Problems: an Integrative Review. Midwifery [Internet]. 2017;45:56–71. Available from: http://dx.doi.org/10.1016/j.midw.2016.12.010

[64]. Mcgookin A, Furber C, Smith DM. Student Midwives' Awareness, Knowledge and Experiences of Antenatal Anxiety within Clinical Practice. J Reprod Infant Psychol [Internet]. 2017;35(4):380–93. Available from: https://doi.org/10.1080/02646838.2017.1337270%0A

[65]. Sorsdahl K, Petersen P. Feasibility and Preliminary Responses to a Screening and Brief Intervention Program for Maternal Mental Disorders Within the Context of Primary Care. 2015;962–9.

[66]. Kingston DE, Mcdonald S, Austin M, Hegadoren K, Lasiuk G, Tough S. The Public's Views of Mental Health in Pregnant and Postpartum Women: a Population-based Study. BMC Pregnancy Child birth [Internet]. 2014;14(84):1–10. Available from: http://www.biomedcentral.com/1471-2393/14/84%0A

[67]. Kingston D, Austin M, Heaman M, Mcdonald S, Lasiuk G, Sword W, et al. Barriers and Facilitators of Mental Health Screening in Pregnancy. J Affect Disord [Internet]. 2015;186:350–7. Available from: http://dx.doi.org/10.1016/j.jad.2015.06.029

[68]. Nakku JEM, Okello ES, Kizza D, Honikman S, Ssebunnya J, Ndyanabangi S, et al. Perinatal Mental Health Care in a Rural African District,Uganda: a Qualitative Study of Barriers,Facilitators and Needs. BMC Health Serv Res [Internet]. 2016;16(295):1–12. Available from: http://dx.doi.org/10.1186/s12913-016-1547-7

[69]. Tabb KM, Choi S, Pineros-Leano M, Meline B, McDonald HG, Kester R, et al. Perinatal Depression Screening in a Women, Infants, and Children (WIC) Program: Perception of Feasibility and Acceptability among a Multidisciplinary Staff. Gen Hosp Psychiatry [Internet]. 2015;37(4):305–9. Available from: http://dx.doi.org/10.1016/j.genhosppsych.2015.03.008

[70]. Ali GC, Ryan G, De Silva MJ. Validated Screening Tools for Common Mental Disorders in Low and Middle Income Countries: A Systematic Review. Vol. 11, PLoS ONE. Public Library of Science; 2016. p. 1–14.

[71]. Kingston D, Austin MP, Mcdonald SW, Vermeyden L, Heaman M, Hegadoren K, et al. Pregnant Women's Perceptions of Harms and Benefits of Mental Health Screening. PLoS One. 2015 Dec;10(12):1–14.