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Pregnancy-Related Low Back Pain and The Quality of Life among Pregnant Women: A Narrative Literature Review

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Abstract
Introduction: Around 50-70% of pregnant women have reported pregnancy-related back pain during the second and third trimesters of pregnancy. Physical and physiological aspects during pregnancy might affect the quality of life (QoL) of pregnant women, and the problems due to the alteration can be seen in how they run their daily activities. The effect of LBP in pregnancyon the QoL among pregnant women must be known to avoid the pain that affects pregnant women's activities and well-being. The aim of this study is to review the relationship betweenlow back pain and the QoL during pregnancy.
Methods: Using the search terms via PubMed and Google Scholar, seven cross-sectional studies have met the inclusion criteria and included for further analysis. The appraisal tool for Cross-Sectional Studies (AXIS) is used to assess the quality of the included studies includingthe risk of bias.
Results: The findings show that LBP in pregnancy affects the level of quality of life such as sleep quality and sexual activity, limits the activities and productivities, and even make physical disability among pregnant women. The 75-90% was of the range score obtained fromthe AXIS critical appraisal.
Conclusions: This review mentioned those pregnant women with PRBP had decreased QoL during and after childbirth, so the awareness of health professionals needs to be improved.

Keywords: low back pain, quality of life, pregnant women

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Introduction

Pregnancy is one of the particular phenomena in women that could make physical and physiological alterations consecutively.[1] The changes due to this phenomenon could lead the postural adaptations and weight gain that causes a shifting center of the gravity of the body and increase the arm's moment of forces in the lumbar spine physically.[1,2] Consequently, this condition leads to problems-related pregnancy, including low back pain, pelvic girdle pain, sleep disturbance, and mental health problemand during pregnancy.[9-15] Around 50-70% of pregnant women reported low back pain (LBP) during pregnancy[2-5] and it was found that their problems start more often in the second trimester (43,23%)[6] and third trimester of pregnancy.[1]

LBP during pregnancy is assumed as a reasonable condition worldwide. Many unfavorable conditions for women during

pregnancy. Decreasing quality time for work, the early day off for maternity, and reducing physical activity occurred in pregnant women is the state of LBP during pregnancy.[2-5] Both physical and physiological changes relating to LBP in pregnancy might affect the quality of life (QoL) of pregnant women, and few studies have shown the effect of LBP on pregnant women with their daily activities.[5-7] According to Skaggs et al. (2007), pregnant women experienced poor sleep quality due to low back painwith the alteration of their body shape and affected their daily living.

Around 70% - 72% of LBP problems might occur during pregnancyand it would be classified as a public health issue.[3-4] The pain intensity, frequency, duration, and disturbances during pregnancy have a significant impact on pregnant women performing their daily activities and the quality of life.[8] This study focuses on the relationship between pregnancy- related back pain and their quality of lifeduring pregnancy.

Methods

Eligibility criteria

A search of PubMed and using another database search (google scholar) for research about pregnancy-related back pain and the quality of life during the pregnancy period. The eligible criteria of the relevant studies are (1) pregnant women aged morethan 18 years old, (2) having a problemwith low back pain (3) using the qualityof life questionnaire, (4) the cross-sectional studies design.

Search strategy

The relevant studies were searched using PubMed and the second database search engine (Google Scholar) and done in August 2020. The following search terms were used for PubMed were:

Table 1. Search Strategy using Pubmed

Search	Query	Items found
#3	((((((((((Pregnancy-related back pain[Title/Abstract]) OR back pain in pregnancy[Title/Abstract]) OR back pain in pregnant women[Title/Abstract]) OR low back pain in pregnant women[Title/Abstract]) OR low back pain in pregnancy[Title/Abstract]) OR lumbar pain in pregnancy[Title/Abstract]) OR lumbar pain in pregnant women[Title/Abstract]) OR pelvic pain in pregnant women[Title/Abstract]) OR pelvic pain in pregnancy[Title/Abstract]) OR low back pain during pregnancy[Title/Abstract]) OR (low back pain[Title/Abstract] AND pelvic pain during pregnancy[Title/Abstract]))) AND ((Quality of life in pregnant women[Title/Abstract]) OR Quality of life during pregnancy[Title/Abstract])	**54**
#2	(Quality of life in pregnant women [Title/Abstract]) OR Quality of life during pregnancy [Title/Abstract]	**1075**
#1	(((((((((Pregnancy-related back pain[Title/Abstract]) OR back pain in pregnancy[Title/Abstract]) OR back pain in pregnant women[Title/Abstract]) OR low back pain in pregnant women[Title/Abstract]) OR low back pain in pregnancy[Title/Abstract]) OR lumbar pain in pregnancy[Title/Abstract]) OR lumbar pain in pregnant women[Title/Abstract]) OR pelvic pain in pregnant women[Title/Abstract]) OR pelvic pain in pregnancy[Title/Abstract]) OR low back pain during pregnancy[Title/Abstract]) OR (low back pain[Title/Abstract] AND pelvic pain during pregnancy[Title/Abstract])	**933**

In addition, the other search terms were used Google Scholar were:

Table 2. Search Strategy using Google Scholar

Search	Query	Items found
#1	Pregnancy-related “back pain”	**31**

Quality Assessment

The quality assessment or critical appraisal is used to assess the quality of the research paper systematically, toset a well-organized study design, and to report the quality of writing.[16] In this narrative literature review, DAK was appraised using the Appraisal tool for Cross-Sectional Studies (AXIS) as critical appraisal tools for seven selected research designs above. All ofthe related studies were cross-sectional studies design. The AXIS is an appropriate appraisal tool that is specially designed for cross-sectional studies research design to answer the hypothesis and to introduce the bias in the research study and it would be a helpful tool for the author to assess thestudy.[16] The structure of the AXIS questions about the introduction (1 question), methods (10 questions),Results (5 questions), Discussion (2questions), and the others consist of conflict of interest, funding sources, and ethical approval. (see **Table 4**)

Table 4. Axis score

Author	AXIS Score	Percentage
Olsson, C. et al.[9]	2/20	90%
Khan, M.J. et al.[10]	5/20	75%
Ibanez, G. et al. [11]	3/20	85%
Lima, Ana. et al. [12]	2/20	90%
Eser, F. et al. [13]	4/20	80%
Robinson, P.et al.[14]	3/20	85%
Manyozo, S.D. et al.[15]	4/20	80%

Results

Our study found seven articles from PubMed and Google Scholar withparticular keywords related to back painand pregnant women (see **figure 1[22]**). The population in all studies waspregnant women. For groups of womenthat complained about the problems, pregnancy with back pain is the most category of inclusion criteria followed by neuropathic pain, pelvic girdle pain and low back pain, consecutively. Meanwhile, in control group used with and without categories as the comparison. The quality of life questionnaire by World Health Organization (WHO), WHOQOL-BREF and Oswestry Low Back Pain Disability Index (ODI) are the most outcome measurement for quality of life of pregnant women. In conclusion, the finding, the majority of studies revealedthe condition of pregnancy-related to back pain has associated with quality of life among pregnant women in a physical, social, and physiological context (see **Table 3**).

Discussion

Of the seven resources assessed for this review, all of the papers above have the similarities of each other’s characteristic. The ranged from variable, outcome, outcome measurements and the conclusions. This review demonstrated the effect of PRBP on the QoL among pregnant women.

Seven studies related were included in the analysis. Olsson C. et al[9] had focused on pregnancy-related back pain among pregnant women in the 34th – 37th week of pregnancy. Thestudy was categorized into two groups, pregnant women with pain and without pain. They found that women with backproblems had the most decreased quality of life than women without backpain. Also, the Olsson C[9] result was supported by a study from Ibanez G et al.[11] He found the physical, social, and psychological health scores and the quality-of

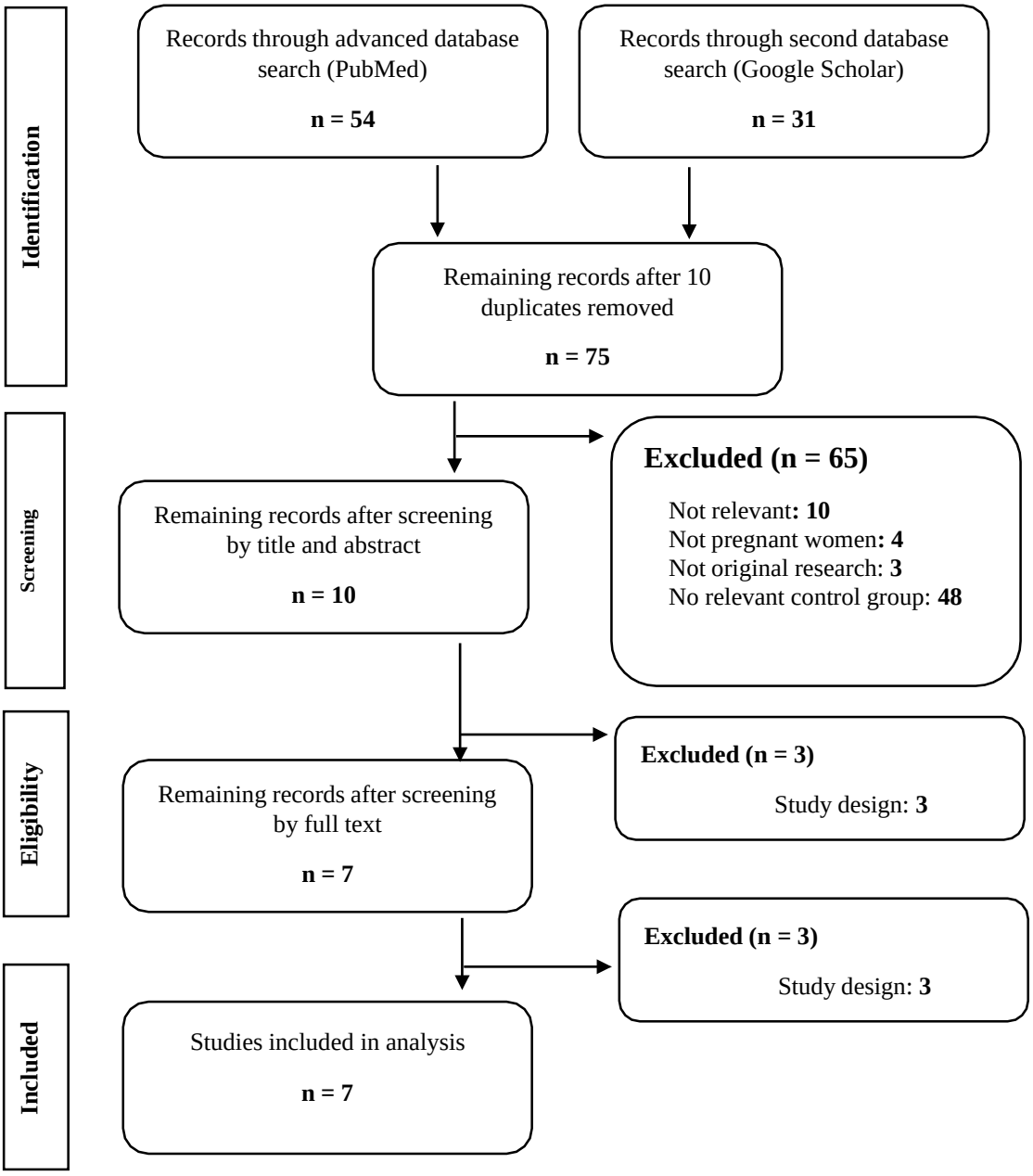

Figure 1. Literature Flow Diagram

Table 3. Data Extraction

Author	Population	Intervention/ Exposure	Comparison/ Control	Outcome	Outcome measures	Type of Study	Key findings	Conclusion
Olsson, C. et al.[9]	Pregnant women in the 34th – 37th week of pregnancy	Pregnancy with back pain	Pregnant women with and without back pain	Health-related quality of life and physical ability	The quality of Life: The Nottingham Health Profile Daily physical activity : The disability Rating Index (DRI)	Cross-sectional studies	51% of women with BP have a high score of DRI, NHP, subscales sleep, energy, pain, physical functioning, occupation, andjobs, compared with women without BP	Women with back problems had the most decreased the QoL
Khan, M.J. et al.[10]	Pregnant women	Pregnancy-related back pain	Pregnant women with and without back pain	The quality of life and physical limitation of pregnant women	Activity Daily Living: Katz's Activity's Daily Living Index, Quality of Life: WHOQOL-BREF, Functional disability: Oswestry Low Back Pain Disability Index (ODI)	Cross-sectional studies	68.8% had PLBP. In which, 20.8% were physically inactive, 31.3% respondents had a disability scale of 31.3%, and pain intensity of 54.5% of women was moderate.	PRBP affect the pregnant women's quality of life, limit their daily activities and even make them physically disable. Younger aged women with first parity are more prone to sever PRBP
Ibanez,G. et al. [11]	Pregnant women	Back pain during pregnancy and the intensity of pain	Pregnant women with and without back pain	The quality of life	The quality of life: SF-12v2	Cross-sectional studies	63% were suffering LBP.The intensity of pain was5.04 ± 1.73	PRBP has significant association between physical, social, and psychological health (the QoL)
Lima, Ana. et al. [12]	Pregnant women	Low back pain in pregnant women	Pregnant women with and without back pain	The quality of life	The functional impairment: Roland Morris Disability Questionnaire (RMDQ) The quality of life: WHOQOL-BREF	Cross-sectional studies	139 pregnant women as the respondent. There has been a correlation between the gestational age, Quality of Life Questionnaires, and Social relation domain.	In the group of pregnant women of the Health Units of the city of Cabo Frio, there is a correlation between the LBP and general QOL.
Eser, F. et al. [13]	Pregnant women	Neuropathic pain	Pregnant women and non-pregnant women and healthy subject	The functional status and Health-related quality of life	Health-related Quality of Life: The Nottingham Health Profile. The functional status: the Oswestry Disability Index. Diagnostic of Neuro-pain scale : LANNS Questionnaire	Cross-sectional studies	The prevalence of neuropathic pain was higher in pregnant women with LPP (odds ratio=6.22; 95% confidence interval=2.68-14.44) (p<0.001) than in controls.	Neuropathic pain syndrome is associated with pregnancy-related LPP and has a negative impact on the functional status and HRQoL

Table 3. Data Extraction (Continued)

Robinson, P. et al.[14]	Pregnant women	Pelvic girdle pain	Population norms, severe and less severe pain	Health-related quality of life	General health : SF-36 The quality of life: The Nottingham Health Profile	Cross-sectional studies	Women with PGP had lower HRQoL than women without, and the most affected women scored lowest. SF-36 detected a deficit in Social Function compared to norms whereas the NHP showed no evidence of Social Isolation.	Pregnancy itself influences HRQoL negatively and having PGP increases this influence
Manyozo, S.D. et al.[15]	Pregnant women	Low back pain	Pregnant women with and without back pain	Functional activities	Validated questionnaire by researcher	Cross-sectional studies	Prevalence of LBP in pregnancy was 62% (*n=249*); 172 *(69%)* of these reported LBP for the first time during the current pregnancy. LBP was associated with the women's sleep patterns, mobility, lifting techniques and sexual activities.	The PRBP's experiences result in reduced social engagement, self-productivity and disablement.

-life status among pregnant women was lower in the back pain group than in the other group. However, the questionnaire that they use in this study was different from Olsson C[9] research. The first one was to use the Nottingham Health Profile, and the others one used SF-12v2.

Furthermore, Khan MJ et al[10] was looked at prevalence of pregnancy-related back pain and the aims of the study was to evaluate the impact on the quality of life and physicallimitation among pregnant women in the third trimester and the results were pregnancy-related back pain could affect their physical ability that could limit their daily activities and make low productivity during their life. Besides, the prevalence of younger aged and the first parity have severe pregnancy- related back pain than others group.

Moreover, one study conducted in 2017 by Lima, Ana et al[12], 267 pregnant women answered the WHOQOL-BREF questionnaire and theresults were there is the correlation between the low back pain and the quality of life. Another study by Manyozo, S et al.[15] had similar results with the previous research has attention in Malawi pregnant women, and the study found at least 2 in every three pregnant women have back pain and two times higher among the previous research. These experiences result in the decrease of social and self- productivity and disablement.

When we are talking about the type of pain, neuropathic pain is one ofthe kinds of lumbopelvic pain. The study was the focus on the functional status and health-related quality of life (social and emotional functioning) among Turkish women and categorized the population into pregnant women and non-pregnant women and health subject. The results of the study were the neuropathic pain syndrome relatedto pregnancy-related back pain but have no significant association between the functional status and the health-related quality of life.[13]

Moreover, the study that assesses the measurement (questionnaire) is essential to discuss. The study was aimed to know the impact of pregnancy and pelvic girdle pain (PGP) on health-related quality of life by comparing the two tools (SF-36 and the Nottingham Health Profile) and exploring the relationship between the PGP and health-related back pain. The result shows that pregnancy decreased the health-related back pain scores, and having PGP increases the influence.[14]

Improving knowledge and information about PRBP may gather the amount and type of healthcare management of pregnant women[21]. The results of the study such as the Katonis and Olsson C studies have theprevalence of pregnancy-related back pain mostly occurred in the late pregnancy (2nd or 3rd trimester) due to the significant of the physical or physiological body changes. There was a significant association between the pregnancy-related back pain with the decrease of quality of life (or health- related quality of life), physical and psychosocial disability while performing daily life activities and the lower score of the functional status.[2]

In addition, the studies conducted in Nepal, Iran, and India, mentioned that women who experience musculoskeletal problems needed both health professionals' and researchers' attention.[17-19] The main hindrance to this was the lack of information and assessment, limited coverage, and low quality of antenatal care. Moreover, the lower education level and lack of information regarding pregnancy- related problems in Nepal were suspected of having lied to the post- partum pain perceptions.[17-20]

The study has limitations on the back pain related or back pain keywordthat referred to the general term of backpain. In term of the definition, the keyword our study covered back pain with and without pregnancy condition for selected papers.

Conclusion

Literature mentioned that the decrease of the QoL, limited activities and physical

disability, decreased social engagement, low self-productivity and disablement were impacted due to the PRLBP among pregnant women.Based on the literature, health professional need to be aware about this problem and produce the effective management for this problem.

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Author Contribution
TF analyze and interpreted the data, conducted quality assessment of data and writing process. RSR conducted search strategy and appraisal table of result. DAK appraisal the table of result.

Ethics approval
Not applicable

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