The Relationship Between Knowledge Level and Anxiety Level in Facing Menarche: A Systematic Review of Cross-Sectional Studies

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ABSTRACT

Menarche is the first menstruation in young women. In society, the issue of menstruation is still considered very taboo to discuss, so that young women lack good knowledge and attitudes about physical and psychological changes related to menarche problems. Usually young women will experience anxiety, worry, fear and anxiety when facing menarche. Articles searched via database from 2018-2022. Searches were obtained from the PUBMED and Google Scholar databases. The keywords used are "Knowledge AND Menarche" OR "Anxiety AND Menarche" "Knowledge and Menarche and Anxiety". Free full text in English or Indonesian. The subjects used were young women aged 10-14 years. The study design used was Cross-Sectional. Based on the results of the study, it shows that knowledge has an impact on anxiety in facing menarche in young women.

Keywords: Anxiety, Knowledge, Menarche

INTRODUCTION

Menarche is an important event that marks the beginning of sexual and reproductive maturation in girls (Guan dkk., 2020). It is the last in a series of events involved in the process of normal pubertal development (Wang dkk., 2020). Menarche is characterized by the onset of menstrual flow in the life of a developing young girl and is accompanied by many signs of fertility and reproductive implications (G. Chen dkk., 2020). The average age of menarche varies from population to population and reflects...
various characteristics of the population including nutritional status, geographic location, environmental conditions, and socioeconomic status in the community.

For example, the mean age at menarche in the African racial population of Pasquet et al. using the “status quo” method in 1999 averaged 13.18 ± 1.08 years in urban areas, 13.98 ± 1.55 years in suburban areas, and 14.27 ± 1.65 years in rural areas (J. Chen dkk., 2020). Early age of menarche has been associated with several adverse effects during childhood including eating disorders, depression, type 2 diabetes mellitus, metabolic syndrome, breast cancer, cardiovascular disease (Powles dkk., 2020), and overall mortality (Garg dkk., 2020). Establishing the age of menarche is also important for patient education and can guide the clinical evaluation of such patients to identify normal deviations (Murthy dkk., 2020). The last study on this topic in Abakaliki was nine years ago which reported a mean age of menarche of 15 years which was a community-based study with a study population of less than 19 years to above 50 years.

Over the past three decades, the age of menarche has experienced a very consistent decline (Shibeshi dkk., 2021). Epidemiological evidence reveals various psychosocial and public health challenges caused by the declining age of menarche (Rinott dkk., 2020). Early menarche has been associated with early marriage, premature parenthood, breast cancer, myoma development (Manson dkk., 2019), psychosocial disorders, metabolic syndrome (diabetes, hypertension and obesity), short stature, preeclampsia (Wiusn dkk., 2021), poor academic performance and substance abuse (Ashina dkk., 2021). A large body of evidence from both developed and developing countries agrees that early menarche (commonly defined as menarche before age 12) increases the likelihood of adverse sexual and reproductive health outcomes including early pregnancy and childbearing (Yustikasari dkk., 2021), sexually transmitted diseases (Gnocchi dkk., 2022), and early sexual intercourse.

**RESEARCH METHODOLOGY**

**Search Strategy**

Articles were searched through data access from January 2018-2022. Searches were obtained from various databases such as: PUBMED and Google Scholar. No attempt was made by the authors to specifically search for unpublished articles (De Santiago-Martin dkk., 2020). The keywords used were "Knowledge AND Menarche" OR "Anxiety AND Menarche" "Knowledge and Menarche and Anxiety".

**Inclusion Criteria**

Articles published in English or Indonesian. Free full text or open access articles. Subjects are adolescent girls aged 10-14 years (Barbagallo & Sacerdote, 2018). The study design used is Cross-Sectional.

**Exclusion Criteria**

Articles published in Chinese, Japanese, Spanish and Arabic. Articles with case study, quasi-experimental, RCT, and observational designs such as COHORT Retrospective, case report, and case control.
Quality assessment strategy and data synthesis
All identified studies were independently assessed by all authors for relevance based on title and abstract. Then, full-text versions of all possible relevance, disagreements among authors were resolved through a discussion forum (Hajek dkk., 2019). Filtered data were presented in flowcharts according to PRISMA (preferred items of systematic review and meta-analysis) item (Black dkk., 2019). The quality assessment of studies using articles that did not meet the qualitative criteria, most of which will be discussed in this article and used as literature sources.

RESULT AND DISCUSSION

![PRISMA flow diagram for article selection in a systematic review](image-url)
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Table 1: Case Study Assessment

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1. Does the cross sectional study clearly address the clinical problem?</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>2. Are the subjects selected in the right way?</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>3. Is the exposure measured correctly?</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>4. Was the outcome measured accurately?</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
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<tr>
<td></td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
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<tr>
<td></td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>5. Did the researchers identify important confounding factors?</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>6. Did the research subjects complete the full study time?</td>
<td>Lack of trust</td>
<td>YES</td>
<td>Lack of confidence</td>
<td>Lack of trust</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>7. Did the main results of the study report effects or complete analysis?</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

Table 2: Result Summary Table

<table>
<thead>
<tr>
<th>Study</th>
<th>Subject</th>
<th>Location</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Ajong dkk., 2020)</td>
<td>1157 female students aged</td>
<td>Cameroon</td>
<td>The level of knowledge of research subjects in rural areas is 67.20% good knowledge, while urban subjects only</td>
</tr>
</tbody>
</table>
The Relationship Between Knowledge Level and Anxiety Level in Facing Menarche: A Systematic Review of Cross Sectional Studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample Size</th>
<th>Grade Level</th>
<th>Results</th>
<th>Significant Relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nora, 2020</td>
<td>32 girls in grades V and VI</td>
<td>Lubang Buaya Padang</td>
<td>46% have good knowledge about menarche.</td>
<td>The results showed that respondents had low knowledge (59.4%) with severe anxiety level (43.8%). After statistical tests there is a significant relationship between knowledge and anxiety level, namely with P &lt; 0.05, namely P = 0.003.</td>
</tr>
<tr>
<td>Manoppo dkk., 2022</td>
<td>96 girls in grades IV, V, and VI</td>
<td>SD Inpres Sukur and SDN Kolongan</td>
<td>This research shows that the majority of adolescent girls have knowledge in the less category as many as 61.5% of respondents. There is a strong and significant negative relationship with a negative direction of p value = 0.000 ≤ 0.05 with a co-relation coefficient value of r = -0.662.</td>
<td></td>
</tr>
<tr>
<td>Anggraeni &amp; Sari, 2018</td>
<td>41 girls in grades IV and V</td>
<td>SDI Darul Hikmah Krian Sidoarjo</td>
<td>This study shows that most respondents with good knowledge experience mild anxiety, namely 17 students (44.73%), moderate knowledge experience moderate anxiety as many as 8 students (18.42%), and those with less knowledge experience mild anxiety as many as 3 students (7.89%). Based on data analysis, it is known that ρ = 0.009 significance value α = 0.05, which means that H1 is accepted, there is a relationship between knowledge of adolescent girls about menstruation and anxiety level in facing menarche SDI Darul Hikmah Krian Sidoarjo.</td>
<td></td>
</tr>
<tr>
<td>Deade dkk., 2022</td>
<td>20 adolescent girls</td>
<td>Aisyiyah Orphanage Bukittinggi</td>
<td>The results showed that most had high knowledge as many as 12 people (60.0%) and those with low knowledge were 8 people (40.0%).</td>
<td></td>
</tr>
<tr>
<td>Simon dkk., 2021</td>
<td>34 girls in grades V and VI</td>
<td>SD Islam Guppi Sorong city</td>
<td>The results showed that out of 34 respondents where respondents who had good knowledge amounted to 20 respondents (58.8%) while respondents who had sufficient</td>
<td></td>
</tr>
</tbody>
</table>
A study conducted by (Ajong et al., 2020) showed that there was a highly statistically significant difference in the level of knowledge in urban and rural areas (p-value <0.001) (Critchley dkk., 2020). Most participants (80.58% in rural areas and 63.00% in urban areas) had good knowledge about menarche (Jain dkk., 2019). The proportion of participants with good knowledge was higher in this study. A total of 67.20% of participants from rural areas had good knowledge, while only 46.00% had good knowledge in urban areas.

Research from (Nora, 2020) found that respondents had low knowledge (59.4%) with severe anxiety levels (43.8%) (Bilal dkk., 2019). After statistical testing, there is a significant relationship between knowledge and anxiety level, namely with P < 0.05, namely P = 0.003 (Klok dkk., 2020). The anxiety experienced by female students in facing menarche is a process of their own form of reaction to an event, due to the lack of knowledge of students about the changes that occur when students face menarche, so that students feel embarrassed because of physical changes in their bodies.

This is in line with research conducted by found the results of more than half of the female students have insufficient knowledge about menstruation, namely the majority of adolescent girls have knowledge in the insufficient category as many as 61.5% of respondents (Middeldorp dkk., 2020). There is a strong and significant negative relationship with a negative direction of p value = 0.000 ≤ 0.05 with a correlation coefficient value of r = -0.662 (Karavani dkk., 2019). Knowledge about menstruation is needed for adolescent girls so that they can prepare themselves in facing menarche (Nazariana, 2017).

Research from found that the majority of respondents with good knowledge experienced mild anxiety, namely 17 students (44.73%) (Lumley dkk., 2021), with sufficient knowledge experienced moderate anxiety as many as 8 students (18.42%), and those with less knowledge experienced mild anxiety as many as 3 students (7.89%). This shows that the better the knowledge of adolescent girls about menstruation, especially in recognizing the early signs of menstruation, will make the adolescent girls have a low level of anxiety.

In a study conducted by after conducting research on 20 adolescent girls, the majority had high knowledge as many as 12 people (60.0%) and those with low knowledge were 8 people (40.0%) (Rubin dkk., 2020). Adolescent girls who have good knowledge about menstruation will easily understand about physiological changes that can cause psychological stability, so that they can anticipate the anxiety experienced.

This is in line with research conducted by (Dobson & Giovannoni, 2019). This research was conducted on 34 female students in grades V and VI. Knowledge is very important to be given to female students before experiencing menarche because if an adolescent is not given an understanding of menarche and is not prepared to face menarche (Villar dkk., 2020), there will be a feeling or desire to reject this physiological
process, adolescents will have the wrong assumption about menstruation, they will think that menstruation is something dirty (Shah dkk., 2019), impure, unclean, stained and threatening that situation can continue in a more negative direction (Turner dkk., 2019). Different for those who have a positive attitude in dealing with menarche, they will feel happy and proud (Rodriguez-Wallberg dkk., 2023), because they consider themselves biologically mature.

CONCLUSION
Various cross-sectional studies have shown that knowledge has an impact on anxiety in facing menarche in adolescent girls. It is expected that health workers always provide counseling - counseling to schools - schools to increase children's knowledge and the need for an active role of health workers to increase early adolescent girls about menarche so as not to be too anxious.

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