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Optimizing the Role of Marginalized Women Based on Bugis Local Wisdom in Efforts to Curb Birth Rates

Marginalized women and Bugis local Wisdom in curbing Birth Rates

Sri Handayani[1*], Ahmad Syaekhu[2], Nur I. Ismaniar[3], Faradillah Paratama[1], Fitriani[4]

[1]Department of Legal Science, Faculty of Law, Sawerigading University, Makassar, Indonesia

[2]Department of Public Administration, Faculty of Social and Political Sciences, Sawerigading University, Makassar, Indonesia

[3]Department of Health Administration, Faculty of Sport and Health Sciences, Makassar State University, Makassar, Indonesia

[4]Public Administration Student, Sawerigading University, Makassar, Indonesia

*Corresponding author: Sri Handayani, Department of Legal Science, Faculty of Law, Sawerigading University, Makassar, Indonesia. E-mail: srihandayanirudy.230581@gmail.com

ABSTRACT: Background: Fertility behavior is shaped by women's empowerment, reproductive autonomy, education, socioeconomic conditions, and household decision-making. In South Sulawesi, the Bugis philosophy of Siri' na Pacce continues to shape family life, yet its relationship with marginalized women's participation in fertility-related decisions has received limited attention. This study aimed to analyze the role of marginalized women based on Bugis local wisdom in supporting birth rate control in Pangkep Regency, South Sulawesi, Indonesia, and to examine the relationship between women's cultural roles and family fertility.

Methods: This quantitative cross-sectional study surveyed 62 marginalized women in Pangkep Regency who met the researchers' inclusion criteria. Data were collected using a structured questionnaire with a five-point Likert scale. Descriptive statistics summarized respondent characteristics and study variables, and Spearman's rank correlation (significance level, $P<0.05$) was used to examine the relationship between the role of marginalized women based on Siri' na Pacce values and fertility.

Results: Most respondents were housewives (74.2%), and 51.6% had completed senior high school. A moderate, statistically significant positive correlation was found between the role of marginalized women based on Siri' na Pacce values and the fertility of Bugis families ($\rho = 0.523$; $P<0.001$; $N = 62$). The social, economic, and cultural dimensions all recorded high mean scores (4.25–4.48).

Conclusions: Bugis local wisdom, particularly Siri' na Pacce, appears to be an important social resource for strengthening women's participation in reproductive decision-making. The findings indicate an association, not causation. Integrating these values into community-based family planning programs may help inform culturally responsive approaches to birth rate control and sustainable family welfare.

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1. INTRODUCTION

Population growth remains an important challenge for sustainable development because demographic change affects the demand for healthcare, education, employment, food security, and social services. Contemporary evidence indicates that fertility behavior is influenced not only by biological factors but also by women's empowerment, reproductive autonomy, education, socioeconomic conditions, access to contraception, and household decision-making.[1–3]

Family planning is an important strategy for supporting reproductive health and enabling women and couples to determine the timing and number of children. Recent evidence from Southeast Asia shows that family planning is associated with fertility reduction, although the strength of the association varies across countries and population groups.[4] Access to family planning should therefore be accompanied by interventions that strengthen women's knowledge, autonomy, and ability to participate in reproductive decision-making.

Women's empowerment has become an important component of reproductive health policy. Research in ASEAN countries has shown that women's empowerment indicators, particularly labor force participation and knowledge, are associated with contraceptive use.[5] In Indonesia, women's work participation, knowledge, household decision-making, and asset ownership have also been associated with unmet family planning needs.[6] These findings indicate that reproductive behavior cannot be separated from women's social and economic position.

Women's autonomy and agency are also associated with contraceptive use. A systematic review found that decision-making and freedom of movement were generally positively associated with contraceptive use among women in low- and middle-income countries.[7] Similarly, studies in different settings have shown that female autonomy is associated with modern contraceptive use and with the utilization of reproductive healthcare.[8] Education is another important factor. Evidence from multiple low- and middle-income countries indicates that exposure to tuition-free primary education can improve women's access to family planning and health-related decision-making.[7] Education can improve women's access to information, strengthen communication with healthcare providers, and increase their ability to participate in reproductive decision-making.

In Indonesia, recent research has demonstrated a relationship between women's empowerment and fertility preferences and outcomes. A study using data from the 2017 Indonesia Demographic and Health Survey found that women's empowerment was associated with fertility preferences and outcomes.[9] These findings reinforce the importance of examining fertility not only from demographic and biological perspectives but also from the perspective of women's social position and decision-making capacity.

Reproductive empowerment refers to women's ability to participate meaningfully in decisions concerning contraception, pregnancy, fertility, and reproductive healthcare. Research on reproductive empowerment emphasizes that it is multidimensional and includes decision-making capacity, access to information, resources, and the ability to act according to reproductive preferences.[8,10] Programs designed to control birth rates should therefore not focus exclusively on contraceptive availability but should also strengthen women's empowerment.

In South Sulawesi, the Bugis community maintains local cultural values that continue to influence social relationships and family life. One of the important cultural philosophies is Siri' na Pacce, which encompasses dignity, empathy, solidarity, mutual responsibility, and concern for others. Recent research continues to demonstrate the relevance of Siri' na Pacce within contemporary Bugis-Makassar society.[11] The value of Siri' is also transmitted through family relationships and parenting practices, and research on Bugis families has shown that Siri' values continue to appear in family parenting and interpersonal relationships.[9] This indicates that local wisdom can provide a cultural context for understanding social behavior and decision-making within Bugis families.

Women occupy an important position within families as caregivers, educators, and participants in household decision-making. Their role can extend to decisions concerning pregnancy, birth spacing, contraceptive use, maternal health, and child welfare. Research has shown that women's empowerment and reproductive autonomy are associated with contraceptive practices and fertility-related outcomes.[12–14] However, marginalized women may face multiple barriers to reproductive health participation, including limited economic resources, educational constraints, restricted access to health information, and limited decision-making power. These barriers may reduce their capacity to participate actively in family planning programs.[15,16]

Although previous studies have examined women's empowerment and reproductive health, relatively limited attention has been given to the role of indigenous cultural values in shaping marginalized women's participation in fertility-related decision-making. Most previous studies have focused on socioeconomic, educational, and demographic factors. Consequently, empirical evidence concerning the integration of Bugis local wisdom, particularly Siri' na Pacce, into community-based family planning remains limited. This study addresses this gap by examining how the values of Siri' na Pacce are related to the participation of marginalized women in supporting birth rate control in Pangkep Regency. Unlike studies that primarily emphasize socioeconomic determinants, this study integrates cultural perspectives with quantitative evidence. The findings are expected to contribute to the development of culturally responsive family planning policies and community-based reproductive health interventions in regions with strong indigenous cultural traditions.

The aim of this study was therefore to analyze the role of marginalized women based on Bugis local wisdom in supporting birth rate control efforts in Pangkep Regency, South Sulawesi, Indonesia, and to examine the relationship between women's cultural roles and family fertility.

2. MATERIALS AND METHODS

2.1 Study Design and Setting

This study employed a quantitative approach with a cross-sectional design to examine the role of marginalized women based on Bugis local wisdom in efforts to curb birth rates in Pangkep Regency, South Sulawesi, Indonesia. The location was selected because Bugis cultural values, particularly Siri' na Pacce, continue to influence social relationships, family life, and community interaction.

2.2 Study Population and Participants

The study population consisted of marginalized women residing in the study area. A total of 62 marginalized women participated in the survey. Participants were selected according to inclusion criteria established by the researchers.

2.3 Data Collection Instrument and Procedures

Data were collected using a structured questionnaire developed according to the study variables. The questionnaire used a five-point Likert scale to measure respondents' perceptions regarding the role of marginalized women based on the values of Siri' na Pacce and fertility-related conditions.

2.4 Study Variables and Statistical Analysis

The study variables comprised the social, economic, and cultural dimensions of the role of marginalized women based on Siri' na Pacce, together with a fertility variable (Table 2). Descriptive statistics were used to describe respondent characteristics and the distribution of the study variables. The relationship between the role of marginalized women based on Bugis local wisdom and fertility was examined using Spearman's rank correlation test, because the variables were measured on an ordinal scale. Statistical significance was determined at a 95% confidence level with a significance threshold of $P<0.05$.

2.5 Ethical Considerations

The study was conducted in accordance with ethical principles governing research involving human participants. Prior to data collection, respondents were informed about the objectives and procedures of the research and voluntarily agreed to participate by providing informed consent. Confidentiality and anonymity were maintained throughout the research process.

3. RESULTS AND DISCUSSION

3.1 Characteristics of Respondents

The results are presented through descriptive and inferential statistical analyses. Descriptive statistics summarized the characteristics of the respondents, including age, educational attainment, occupation, birth spacing, length of residence, and number of children (Table 1). Inferential statistics were then used to evaluate the relationship between the role of marginalized women based on the cultural values of Siri' na Pacce and the fertility of Bugis families through Spearman's rank correlation analysis (Table 3).

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Table 1. Characteristics of respondents

Variable	Frequency (n)	Percentage (%)
Age (years)		
18–22	1	1.6
23–27	10	16.1
28–32	15	24.2
33–37	13	21.0
38–42	11	17.7
43–47	7	11.3
48–52	5	8.1
Education		
Elementary school	6	9.7
Junior high school	4	6.5
Senior high school	32	51.6
College	20	32.3
Occupation		
Housewife	46	74.2
Government employee/government contract employee	14	22.6
Entrepreneur/private-sector employee	2	3.2
Birth spacing		
Less than 2 years	10	16.1
2–3 years	16	25.8
More than 3 years	36	58.1
Length of residence (years)		
2–5	11	17.7
6–9	10	16.1
10–13	3	4.8
More than 13	38	61.3
Number of children		
0	4	6.5
1	13	21.0
2	16	25.8
3	20	32.3
4	7	11.3
5	2	3.2

Note: N = 62; n, number of respondents; %, percentage of the total sample.

Table 1 shows the characteristics of the 62 respondents. The largest proportion of respondents were aged 28–32 years (24.2%), followed by those aged 33–37 years (21.0%) and 38–42 years (17.7%). Regarding educational attainment, 51.6% of the respondents had completed senior high school and 32.3% had obtained a college degree, whereas 9.7% had completed elementary school and 6.5% junior high school. Regarding occupation, the majority of respondents were housewives (74.2%), followed by government employees or government contract employees (22.6%) and entrepreneurs or private-sector employees (3.2%). Most respondents (58.1%) reported a birth interval of more than three years, while 25.8% reported an interval of two to three years and 16.1% an interval of less than two years. Regarding length of residence, 61.3% of the respondents had lived in the community for more than 13 years. The number of children ranged from zero to five, with the largest proportion of respondents having three children (32.3%), followed by two children (25.8%) and one child (21.0%).

3.2 Descriptive Analysis of Research Variables

Table 2. Descriptive analysis of research variables

Variable	N	Minimum	Maximum	Mean	Std. deviation
Social dimension	62	3.80	5.00	4.4839	0.39761
Economic dimension	62	3.40	5.00	4.3129	0.45177
Cultural dimension	62	3.40	5.00	4.2516	0.41754
Fertility	62	1.80	5.00	4.3161	0.59677

Note: N, number of respondents; Std. deviation, standard deviation. Scores are on a five-point Likert scale.

Table 2 presents the descriptive statistics of the research variables. The social dimension recorded the highest mean score (mean = 4.48; SD = 0.40), followed by fertility (mean = 4.32; SD = 0.60), the economic dimension (mean = 4.31; SD = 0.45), and the cultural dimension (mean = 4.25; SD = 0.42). Overall, the mean scores ranged from 4.25 to 4.48 on the five-point scale, indicating that respondents generally reported high levels of agreement with the questionnaire statements.

3.3 Association Between Women's Roles Based on Siri' na Pacce and Fertility

Table 3. Spearman correlation test results

	Statistic	Fertility	Total role score
Spearman's rho			
Fertility	Correlation coefficient	1.000	0.523
	Sig. (2-tailed)	–	<0.001
	N	62	62
Total role score	Correlation coefficient	0.523	1.000
	Sig. (2-tailed)	<0.001	–
	N	62	62

Note: Sig., significance (P value); Sig. = 0.000 in the statistical output is reported as P<0.001.

Table 3 presents the results of Spearman's rank correlation analysis between the role of marginalized women based on the cultural values of Siri' na Pacce and fertility among Bugis families. The analysis produced a correlation coefficient of $\varrho = 0.523$ with a significance value of P<0.001 (N = 62). The correlation was therefore statistically significant (P<0.05), indicating a positive relationship between the two variables. A coefficient of 0.523 indicates a moderate positive relationship.

3.4 Discussion

This study examined the role of marginalized women based on Bugis local wisdom in efforts to curb birth rates in Pangkep Regency. The main finding was a moderate, statistically significant positive correlation ($\varrho = 0.523$; P<0.001) between the role of marginalized women based on the values of Siri' na Pacce and fertility-related behavior among Bugis families. Respondents also reported high mean scores across the social, economic, and cultural dimensions (Table 2).

The result suggests that higher levels of women's participation based on the values of Siri' na Pacce are associated with fertility-related behavior among Bugis families. However, because the study used a cross-sectional design, this result should be interpreted as an association rather than a causal relationship, and the direction of the association cannot be determined. The high score observed in the social dimension suggests that women play an important role in family relationships, social interaction, cooperation, and household decision-making. Although the cultural dimension recorded the lowest mean score among the variables, it remained high, which indicates that cultural values continue to be perceived as relevant in family and community life.

The findings are consistent with recent research showing that women's empowerment is associated with fertility preferences and reproductive outcomes. A study using Indonesian demographic and health survey data reported that women's empowerment plays an important role in fertility preferences and outcomes.[17] Similarly, another study found that women's empowerment was related to fertility-related outcomes and contraceptive practices.[18] The present findings are also in line with

evidence from Southeast Asia indicating that family planning is associated with fertility reduction, although the relationship is influenced by different social, demographic, and health-service factors.[19,20]

Women's empowerment is closely related to contraceptive use. An analysis of data from Indonesia and other ASEAN countries found that women's empowerment indicators were associated with contraceptive use, emphasizing the importance of education, labor force participation, and decision-making in women's ability to participate in reproductive decisions.[21] In Indonesia, significant relationships have also been found between components of women's empowerment and unmet family planning needs, with work participation, knowledge, household decision-making, and asset ownership identified as relevant dimensions.[22,23] These findings are consistent with the present study, in which the social and economic dimensions of women's roles also recorded relatively high mean scores. Women's participation in household decision-making is an important dimension of reproductive empowerment.[24,25]

Women's reproductive autonomy is another important dimension. Reproductive empowerment has been described as multidimensional and as including women's ability to participate in reproductive decisions,[26] and appropriate measurement of women's empowerment in reproductive health has been highlighted as important.[7] A systematic review found positive associations between women's agency and contraceptive use in low- and middle-income countries.[27] Research from other settings also supports the importance of autonomy: female autonomy was significantly associated with modern contraceptive use among married women in northern Nigeria,[28,29] and women's autonomy was relevant to reproductive healthcare-seeking behavior.[30] Women who participate actively in family discussions may also have greater opportunities to discuss birth spacing, contraception, pregnancy, and child welfare with their spouses.[31,32]

Education may strengthen women's ability to obtain and understand reproductive health information.[33,34] Educational policies have been reported to improve women's access to family planning and health-related decision-making.[35] Educational improvement may therefore contribute to women's reproductive empowerment. In the present study, 51.6% of the respondents had completed senior high school and 32.3% had obtained a college degree (Table 1).

Most respondents were of reproductive age, had completed senior high school or higher education, and were predominantly housewives (Table 1). These characteristics suggest that the women in the study area may have a substantial role in household management and family decision-making,[36] although decision-making was not directly measured in this study. Birth spacing is an important component of reproductive health and may be influenced by women's access to family planning services and reproductive decision-making capacity.[37,38] Long-term residence, reported by most respondents (Table 1), may provide greater exposure to community networks and cultural values.

Beyond individual empowerment, the present study highlights the possible contribution of local cultural values to reproductive behavior. Siri' na Pacce contains values associated with dignity, empathy, solidarity, mutual responsibility, and social concern. Recent research demonstrates that Siri' na Pacce continues to be relevant in contemporary Bugis-Makassar society,[11,15] and research among Bugis families has shown that Siri' values remain present in family parenting and interpersonal relationships.[12,33]

Local wisdom may thus provide a cultural context through which reproductive health programs can communicate with communities. However, local wisdom should not replace evidence-based reproductive health services; rather, cultural values can complement health promotion by improving community engagement and communication.[34] The integration of cultural approaches is particularly important among marginalized communities, in which health workers, community leaders, women's groups, and families can participate in reproductive health promotion while respecting community values.[17] Recent research on reproductive empowerment emphasizes that family planning programs should respect women's autonomy and informed decision-making.[19] Culturally responsive family planning should therefore prioritize informed choice rather than simply increasing contraceptive uptake. Programs should combine contraceptive availability with education, counseling, women's empowerment, community participation, and culturally appropriate communication.[18]

Nevertheless, this study has several limitations. First, the sample size was relatively small, involving 62 respondents. Second, the research was conducted in a single regency, which limits generalizability to other cultural settings. Third, the cross-sectional design does not permit causal inference. Fourth, fertility-related behavior may be influenced by other factors that were not fully examined, including household income, education, access to reproductive health services, contraceptive availability, partner influence, and individual fertility preferences.

Future studies should involve larger populations and employ longitudinal or multivariate approaches. Future research could also examine specific dimensions of Siri' na Pacce and their relationships with contraceptive use, birth spacing, reproductive autonomy, and fertility intentions.

4. CONCLUSION

In this cross-sectional study of 62 marginalized women in Pangkep Regency, the role of marginalized women based on the values of Siri' na Pacce showed a moderate, statistically significant positive correlation with fertility-related behavior among Bugis families ($\varrho = 0.523$; $P<0.001$). These findings indicate an association rather than a causal relationship, and they support considering both women's empowerment and the local cultural context when developing community-based reproductive health and family planning interventions. Culturally responsive programs in regions such as Pangkep Regency should move beyond contraceptive availability by engaging community leaders, women's groups, and families through the values of dignity, empathy, solidarity, and mutual responsibility, while preserving women's informed choice and reproductive autonomy. Future studies should use longitudinal or multivariate approaches in larger and more diverse Bugis-Makassar populations and examine the specific dimensions of Siri' na Pacce in relation to contraceptive use, birth spacing, reproductive autonomy, and fertility intentions.

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AUTHOR CONTRIBUTIONS

Sri Handayani: Conceptualization, Methodology, Validation, Investigation, Visualization, Supervision, Project Administration, Funding Acquisition.

Ahmad Syaekhu: Conceptualization, Methodology, Software, Validation, Data Curation, Visualization, Supervision, Project Administration, Funding Acquisition.

Nur Inayah Ismaniar: Formal Analysis, Resources, Writing—Original Draft, Writing—Review & Editing.

Faradillah Paratama: Conceptualization, Validation, Investigation, Data Curation, Writing—Review & Editing, Visualization, Supervision, Funding Acquisition.

All authors read and approved the final version of the manuscript.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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ETHICS STATEMENT

The study was conducted in accordance with ethical principles governing research involving human participants. Respondents were informed about the objectives and procedures of the research and voluntarily agreed to participate by providing informed consent. Confidentiality and anonymity were maintained throughout the research process.

DATA AVAILABILITY STATEMENT

The data supporting the findings of this study are available from the corresponding author upon reasonable request. The data contain institutional information and are therefore not publicly available, in order to protect confidentiality.

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