

Health Related Quality of Life and Associated Factors among pregnant and mothers of under five children in Kwango District, DRC

DR콩고 Kwango 지역 임산부 및 5세미만 아동을 둔 모성의
건강관련 삶의 질 관련 요인

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Abstract

Background: Improving the quality of life is a major goal in the provision of health. The study aimed to identify level of quality of life and associated factors with it among pregnant and mothers of under five children in the Kwango district of the Democratic Republic of the Congo.

Methods: A total of 1,333 pregnant women and mother of under five children age. In the total of 719 pregnant women and mother of under five children in the Kenge area and 614 in the Boko area, were selected for the study in 2017. As primary outcome, EuroQol 5Dimension was measured with respect to mobility, self-care, usual activities, pain/discomfort and anxiety/depression. Each domain was subdivided into three categories 1) no problem, 2) some problem and 3) problem if of these questions answered that there was a problem, they were defined as problematic. Descriptive statistics, chi-square test and logistic regression analysis was performed to analyze whether general and medical service-related characteristics affect quality of life.

Result: In total, 302 (22.7%) individuals reported to have at least one problem. Education, income level, perceived quality of hospital services, hospital services utilization and post-partum problem were significantly associated quality of life.

Conclusion: Official Development Assistance (ODA) projects in the Democratic Republic of Congo are required not only for the maternal health projects but also policies to raise education and income in order to improve the quality of life related to women's health.

Keywords : *Quality of Life (QoL), pregnancy, postpartum, Health Service, Social Factors*

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I. Introduction

Many countries in the world are increasingly concerned about the quality of life and recognizing that economic growth cannot guarantee the happiness of the members of the nation. In 2000, international organizations, including the Organization for Economic Co-operation and Development (OECD) and the World Health Organization (WHO) provided a variety of quality of life indicators, such as the Better Living Index, the Human Development Index, and the Canadian Index of Wellbeing. Improving the quality of life is, often, the major goal in the provision of health care (1). In terms of quality of life, WHO defines it as individuals' perceptions of the location of their lives in the value-system context in which they live (2). It defines concepts of happiness, satisfaction, positive emotions; this is a subjective well-being, and it is the ultimate goals that humans want to pursue (3).

Health related quality of life is one of indicators which reflect overall functioning of health. The EuroQol 5Dimension (EQ-5D) is a well-established and widely-used instrument for assessing health-related quality of life (4) and probably the most widely used standardized instrument used as a measure of health outcome in economic evaluations (4). It is easy to measure, and easily applied and used in various clinical situations (5). It measures items such as athletic ability, self-care, daily activities, pain/discomfort, and anxiety/depression (6).

Also, WHO defined quality of life as "an individual's perception of his/her position in life in the context of the culture and value systems in which he/she lives, and in relation to his/her goals, expectations, standards and concerns." Many factors might be associated with poor quality of life (7). Among mothers of reproductive age, socio-demographic as well as maternal health status, and service utilization might also be associated with quality of life. As importance of quality of life is emphasized, it is also defined in various ways. Early studies on quality of life mainly focused on the objective conditions of an individual,

depending on material and physical conditions, such as income, housing, and health.

Quality of life is ultimately emphasized not only regarding individual's healthy state, but also their perception of happiness and satisfaction. In order to identify the factors affecting the QOL, several studies have been conducted on vulnerable groups with serious threat to it (8). According to quality of life can have a significant impact on women experiencing rapid roles and physical changes through pregnancy, childbirth, and childcare (9). Physiological changes occurring during pregnancy, child birth and postpartum period may contribute to declines health status of women. Along with the objective of care for favorable maternal and neonatal outcome, consideration should be given to overall health related quality of life. Women in developing countries, on average (10), are very vulnerable to socioeconomic problems, and the risk of lowering the quality of life is high. Previous study recommend that comprehensive assessment of socioeconomic variables needed to assess and identify the factors determining the HRQoL during pregnancy (11). In the recent medical field, there is a growing interest in health-related quality of life of not only patients but also general women there are gender differences in health problems due to biological and psychosocial factors. Therefore, we aimed to identify prevalence of poor quality of life and its associated factors among pregnant and mothers of under five children using the EQ-5D scale in DR Congo.

II. METHODS

Study area and design

This study utilized the data collected as a part as of an endline survey executed by Yonsei Global Health Center (YGHC) in 2017. The YGHC implemented a maternal and health project supported by KOICA since 2014 to 2017 and conducted the endline survey in Kwango district of Republic

of Congo. The subjects of this survey were women of the reproductive age, the respondent was selected from the Kenge and Boko areas of Kwango, Democratic Republic of the Congo. A total of 719 in the Kenge area and 614 in the Boko area were selected for the study.

Sample size and sampling methods

Sample size was calculated using the Raosoft (Raosoft, Seattle, WA, USA). A total of 384 individuals were calculated using the 5% error limit, the 95% confidence interval and total population of 290,000. However, we surveyed 1,350 respondents in the Kwango district, then we considering their response rate and missing during collection. A total of 719 in the Kenge area and 614 in the Boko area were selected for the study. The survey area included 18 Kenge health districts and 2 Boko districts in the Kwango district. Considering the accessibility of medical facilities the study area was divided into three area; the area with in of 5 km, 5 to 15 km, and 15 km or more. Then, were selected proportionate from each area randomly.

Data collection

Visiting every respondent's residence, a face-to-face interview to complete a questionnaire was conducted by team of School of Public Health, Kinshasa University and Yonsei Global Health Center, Korea. Each interview lasted approximately an hour. Household survey was carried out by trained enumerators.

Measurement of the variables

The main outcome variable of this study is the quality of life. EQ-5D includes respondent's health with respect to five domains of functions are mobility, self-care, usual activities, pain/discomfort and anxiety/depression. Each domain was subdivided into three categories 1) no problem, 2) some problem and 3) problem among the three variables, the

some problem and problem was coded as '1', and no problem was coded '0'. Currently pregnant women were asked to select one that best describe your health today. Having some problem or problem at least in one aspect of five was coded as '1', others as '0'. In addition, the variables in this study were divided into demographic and health-related characteristics, and the demographic characteristics were, age, marital status, education level, income, religion, and health -related characteristics are hospital service satisfaction, urine test during pregnancy, experience of abortion, health problem during post-natal period, and self-related health.

Statistical analysis

SPSS statistical package (version 24.0) was used for data analysis. Descriptive statistics was used to describe the socio-demographic situation and health status of the respondents. The inferential statistical analyses including chi-square test and logistic regression analysis was performed as appropriate. Level of significance was set at 5% level for all analyses.

Ethical considerations

Ethical approval for this study was obtained from the Institutional Review Board of Wonju Campus, Yonsei University (IBR: 1041849-201705-BM-046-04) and the local government of the DRC. Informed consent was obtained from all individual participants.

III. RESULTS

Table 1 shows the characteristics of the study population. Among 1,333 participants, 576 (43.2%) respondents were in the age group of 15-29 years. Majority of the respondents, 1,218 (91.4%) were married. Of the total, 971 (72.8%) respondents had education of primary or below. Regarding

Table 1. Characteristics of the Study Population

Variables	Categories	Number	Percentage (%)
Age group	15~29	576	43.2
	30~39	421	31.6
	40~49	114	8.6
	Do not know	222	16.7
Marital status	Others	104	7.8
	Married	1218	91.4
	Missing	11	.8
Education	Primary and below	971	72.8
	Secondary and above	340	25.5
	Missing	22	1.7
Income (F.C)	Less than 20000	234	17.6
	20001~40000	183	13.7
	More than 40000	415	31.1
	Missing	501	37.6
Religion	Catholic	367	27.5
	Protestant	321	24.1
	Others	637	47.8
	Missing	8	.6
Hospital service satisfaction	Satisfied/very satisfied	1272	95.4
	Very unsatisfied/unsatisfied/neutral	47	3.5
	Missing	14	1.1
Urine test during pregnancy	Yes	936	70.2
	No	341	25.6
	Missing	56	4.2
Experience of abortion	No abortion	1106	83.0
	Abortion	227	17.0
Health problem during post-natal period	Yes	359	26.9
	No	964	72.3
	Missing	10	0.8
Self-Related Health	Excellent/ very good /good	1064	79.8
	Poor/fair	251	18.8
Quality of life	No problem	1031	77.3
	At least one problem	302	22.7

income, 234 (17.6%) respondents had average monthly income less than 20000 F.C; and 367 (27.5%) were catholic and 321 (24.1%) protestant. Majority of the respondents, 1272 (95.4%) were satisfied with the hospital service they got. Of total, 936 (70.2%) respondents reported having been tested their urine for during the most recent pregnancy. Out of the total, 359 (26.9%) had some health problems during

post-natal period and 227 (17.0%) respondents have experience of abortion. Of the total, 251 (18.8%) rated their health being poor or fair currently. Regarding the 5 dimensions of quality of life, 302 (22.7%) reported at least having one impairment.

Table 2 shows the association of explanatory variables collected in this study with quality of life. Age group,

Table 2. Socio-demographic and health services related variables by quality of life

Variables	Categories	No problem n (%)	Problem n (%)	<i>p</i>
Age group	15~29	460 (79.9)	116 (20.1)	.413
	30~39	328 (77.9)	93 (22.1)	
	40~49	85 (74.6)	29 (25.4)	
Marital status	Others	80 (76.9)	24 (23.1)	.922
	Married	942 (77.3)	276 (22.7)	
Income	Less than 20000	178 (76.1)	56 (23.9)	.074
	20001~40000	153 (83.6)	30 (16.4)	
	More than 40000	313 (75.4)	102 (24.6)	
Education	Primary and below	744(76.6)	227(23.4)	.290
	Secondary and above	274(79.4)	70(20.6)	
Religion	Catholic	290 (79.0)	77 (21.0)	.471
	Protestant	252 (78.5)	69 (21.5)	
	Others	484(76.0)	153(24.0)	
Hospital service satisfaction	Satisfied/very satisfied	991(77.9)	19 (22.1)	.003
	Very unsatisfied/unsatisfied/neutral	28(59.6)	281 (40.4)	
Health worker satisfaction	Satisfied/very satisfied	1009 (77.9)	286 (22.1)	< .001
	Very unsatisfied/unsatisfied/neutral	14 (50.0)	14 (50.0)	
Medical attending satisfaction	Satisfied/very satisfied	1000 (78.0)	282 (22.0)	< .001
	Very unsatisfied/unsatisfied/neutral	21(52.5)	19 (47.5)	
Community service satisfaction	Satisfied/very satisfied	978 (77.9)	277 (22.1)	.009
	Very unsatisfied/unsatisfied/neutral	43 (64.2)	24 (35.8)	
Urine test during ANC check up	Yes	747 (79.8)	189 (20.2)	.001
	No	242 (71.0)	99 (29.0)	
Experience of abortion	No abortion	871 (78.8)	235 (21.2)	.007
	Abortion	160 (70.5)	67 (29.5)	
Problems during post-natal period	Yes	244 (68.0)	115(32.0)	< .001
	No	779 (80.8)	185 (19.2)	
SRH	Excellent/ very good /good	886 (83.3)	178 (16.7)	< .001
	Poor/fair	133 (53.0)	118 (47.0)	

marital status, income, education, and religions were not found significantly associated with quality of life. In contrast, hospital service satisfaction, health worker satisfaction, medical attending satisfaction, and community service satisfaction were significantly associated with quality of life. Urine test during ANC checkup, experience of abortion, problems during post-natal period and Self Related Health were also significant with quality of life.

Table 3 shows crude and adjusted estimates of which factors are associated with PQL. In adjusted analysis, age

40 years and above was significantly associated with higher odds of PQL (adjusted-OR, 2.73; 95% CI, 1.29-5.77). Income over 40,000F.C and secondary and above education were associated with lower odds of reporting PQL. Religion and marital status does not show any significant association with PQL. Service satisfaction was found significantly associated with PQL in crude analysis. Due to multicollinearity, only hospital service satisfaction was included in the adjusted analysis. Unsatisfied with hospital service had higher odds of PQL (adjusted-OR 3.51, 95% CI 1.50-8.24).

Table 3. Logistic regression analysis of the factors affecting quality of life

Variables		C OR (95%CI)	A OR (95%CI)
Age group	15-29	1	1
	30-39	1.12 (0.82-1.52)	1.21 (0.78-1.89)
	40 and above	1.35 (0.84-2.16)	2.73 (1.29-5.77)**
Income	Less than 20,000	1	1
	20,001-40,000	0.62 (0.38-1.02)	0.70 (0.43-1.14)
	>40,000	1.03 (0.71-1.50)	0.53 (0.30-0.93)*
Education	Primary and below	1	1
	Secondly and above	0.85 (0.62-1.14)	0.38 (0.21-0.67)**
Marital status	Others	1	1
	Married	0.97 (0.60-1.57)	2.03 (0.73-5.61)
Religion	Catholic	1	1
	Protestant	1.03 (0.71-1.48)	0.82 (0.45-1.51)
	Others	1.19 (0.87-1.62)	1.09 (0.68-1.74)
Hospital Service satisfaction	Satisfied/very satisfied	1	1
	Very unsatisfied/unsatisfied/neutral	2.39 (1.31-4.34)**	3.51 (1.50-8.24)**
Health workers satisfaction	Satisfied/very satisfied	1	-
	Very unsatisfied/unsatisfied/neutral	3.52 (1.66-7.48)**	-
Community service satisfaction	Satisfied/very satisfied	1	-
	Very unsatisfied/unsatisfied/neutral	1.97 (1.17-3.30)*	-
Medical attending satisfaction	Satisfied/very satisfied	1	-
	Very unsatisfied/unsatisfied/neutral	3.20 (1.70-6.05)***	-
Urine test during ANC check up	No	1	1
	Yes	0.61 (0.46-0.82)**	0.55 (0.35-0.86)*
Experience of Postpartum problems	No	1	1
	Yes	1.98 (1.51-2.60)***	1.67 (1.09-2.54)*
Abortion experience	No	1	1
	Yes	1.55 (1.12-2.13)**	1.30 (0.78-2.17)
Self-rated health	Good /Very good /excellent	1	1
	Poor/fair	4.41 (3.28-5.93)***	4.16 (2.56-6.76)***
Nagelkerke R2			0.187
Hosmer and Lemeshow p value			0.914

Respondent who had tested urine test during ANC checkup were less likely to report PQL (adjusted-OR 0.55, 0.35-0.86). Experience of postpartum problems was associated with higher likelihood of PQL. Abortion experience was significantly one in crude analysis. Reporting poor/fair SRH was significantly associated with reporting PQL (Adjusted-OR, 4.16; 95% CI, 2.56-6.76).

IV. DISCUSSION

The study, the adjusted analysis, socio-demographic variables such as age, income and education; service utilization during pregnancy and experience of post-partum were significantly associated with the quality of life. In study found high poor quality of life measured based on having at least problem in one aspect of quality of life

indicators using EQ-5D.

In the study, persons with increasing age category, persons with lower education and lower income were more likely to report poor quality of life. Previous studies also reported that EQ-5D decreased with increasing category of age and with a lower income and educational attainment (12-13). Education level was associated with the quality of life. In addition, Social supports, socioeconomic status, the pregnancy being wanted were related directly to the quality of life (14). Similar with the study, previous study also reported the similar finding (15). Material living standards, housing and basic services, social connectivity and personal health as being the most important influences on quality of life were found among informal setting residents in Africa. Specifically, these changes can have a major impact on the quality of life for women who are experiencing rapid roles and physical changes through pregnancy, childbirth, and childcare (9).

This shows improvement of social status is linked with health related quality of life (16). Another study shows that significant improvements in the overall quality of life may be achieved through improvements in the urban natural environment (17).

Regarding the health condition, service utilization during pregnancy was also associated with quality of life in the study. During pregnancy, prenatal care services are mainly focused on pregnancy-related physical problems, and other aspects of care should also be priority to improve pregnant women's quality of life (18).

Similarly, experience of postpartum problems was also associated with quality of life. The study has proven that the discomfort and problems demonstrated in the 6 weeks after childbirth affected the quality of life of postpartum women (19). A review study reported that main factors associated with poorer quality of life were medically assisted reproduction, complications before or during pregnancy, obesity, nausea and vomiting, back pain, sleep difficulties, stress, anxiety, depression during pregnancy and sexual or domestic (20). The self-reported quality of life

may vary according the stage of reproductive health. The results from previous study also revealed the pattern of perceived health status women in their surrounding socio-cultural context and identified the stage of pregnancy and obstetric factors predicting health-related quality of life (21). However, improvement of socioeconomic condition, upgrading service quality and service utilization and accessing of the services during post-partum period may help promoting quality of life among women of reproductive age.

Although it is believed that the burden of support, emotional stress and depression of women in their childbearing years will affect the quality of life and health-related factors also, the fact that these variables are not taken into account will be a limitation of this paper.

Conclusively, to use the health outcomes instruments universally and to perform multi-national studies, it is suggested that cross-cultural equivalence across all translated versions and conceptual equivalence of translated instruments to the original version must be verified and the quality of life assessment need to be applied to clinical trials. Prevalence of reporting at least one problem (poor quality of life) was relatively high. Education level, income level, perceived quality of hospital services, hospital services utilization and post-partum problem were important factors influencing quality of life. Finally, ODA projects in the Democratic Republic of Congo will require not only maternal health projects but also policies to raise education level and income level in order to improve the quality of life related to women's health.

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〈국문초록〉

연구배경: 건강에 관한 삶의질을 향상시키는 것은 건강 한 삶을 영위하는데 주요한 목표 중 하나이다. 이 연구는 콩고민주공화국 Kwango 지역 임산부와 5세미만 아동을 둔 모성 사이에서 건강관련 삶의 질과 관련된 요인을 확인하는데 있다.

연구방법: 임산부 및 5세미만 아동을 둔 모성인 대상자는 총 1,333명이며, Kenge 지역 719명, Boko 지역 614명을 선정하였다. EuroQol 5Dimension(EQ-5D)은 운동능력, 자가관리, 일상생활, 통증/불편, 불안/우울을 측정하며, 각 변수 별로 1) 문제 없음, 2) 조금 문제 있음, 3) 문제 있음으로 응답하고 이중 한 문항이라도 문제가 있다고 대답한 경우 문제 있음으로 정의하였다. 일반적인 특성 및 의료서비스 관련 특성이 삶에 질에 영향을 미치는지 분석하기 위해 기술통계, 카이제곱검정, 및 로지스틱 회귀분석을 수행하였다.

연구결과: 응답자의 302(22.7%)명이 적어도 한 가지 이상 문제가 있다고 응답하였다. 로지스틱 회귀분석 결과에서 교육 수준, 소득 수준, 의료시설 서비스의 품질, 의료시설 서비스 이용 및 산후문제가 건강관련 삶의 질과 유의한 연관성을 보임을 확인하였다.

결론: 자료분석 결과, 콩고민주공화국에서의 공적개발원조(ODA)사업은 모성보건사업뿐만 아니라 여성의 건강과 관련된 삶의 질을 향상시키기 위해 소득수준 및 교육수준 향상을 위한 정책이 요구된다.

핵심어 : 삶의 질, 임산부, 산후관리, 의료 서비스, 사회적 요인