PNS43: Economic Evaluation of a Community-Based Maternal and CHILD Health Service in JAPAN

Ruoyan Gai (MSc., PhD)

National Institute of Population and Social Security Research, Japan

Objectives

- Mental health problems during the postnatal period are prevalent.
- In Japan, community-based health service program have been strengthened in local authorities recently, aiming to improve all-around supports to mothers and children throughout pregnancy and the child rearing period.
- Alongside with the community-based intervention, this study aims to evaluate its cost-effectiveness at improving the postpartum mental health well-being in a local authority of Nagano Prefecture, Japan.

Methods (1)

- Maternal quality of life and mental health condition were longitudinally investigated by using EQ-5D-5L and the Edinburgh Postnatal Depression Scale (EPDS) during the postnatal period.
- Data were collected in home-visit provided by public health nurses at the first month and the regular health-check at the fourth and the seventh month after giving birth.

Methods (2)

- The effectiveness of the intervention was based on clinical evidence as measured by EPDS, and improvements in maternal quality of life were estimated by mapping EPDS to the utility scores.
- Costs were derived from the annual budget for the maternal and child health service in the local authority. Cost-effectiveness was calculated as the incremental cost per QALY gained.

Result

A total of 464 mothers who gave birth during November 2015 to April 2016 was analyzed. The EPDS score and the utility score were 4.026 (SD: 4.002) and 0.898 (SD: 0.125), respectively. Among all the models considered for the mapping, the ordinary least squares (OLS) linear model was selected because of higher accuracy (Root MAE=0.1138). Compared to that of mothers with postnatal mental disorders (EPDS scored 9 or above), the utility score of those counterparts were 0.105 QALY higher. The estimated ICER of the strengthened intervention program was 294,917.79 JPY per QALY gained.

A linkage of EPDS and EQ-5D-5L to predict QALYs of different severity of postnatal depression

Source	SS	df	MS		
Model	2.00722978	2	1.00361489	Prob > F	0.0000
Residual	9.83766332	760	.012944294	R-squared	0.1695
				Adj R-squared	0.1673
Total	11.8448931	762	.015544479	Root MSE	.11377

qaly	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
EPDS	-.0123329	.0010536	-11.71	0.000	-.0144012	-.0102647
month	.0084125	.0019963	4.21	0.000	.0044935	.0123314
_cons	.9185276	.0101859	90.18	0.000	.8985317	.9385235

Conclusions

- The strengthened community-based intervention program is highly cost-effective and leads to improved quality of life through a reduction in postnatal depression.