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The Impact of Local Midwife-Led Care Programme On Birth Outcomes In Singapore



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Introduction

Worldwide, obstetric interventions have been excessively used as routine prophylactic measures on all women to assure safe birth. Despite calls for restrictive use, given evidences from previous studies that safe and effective birth have been achieved with midwife-led care (MWC) with the use of lesser obstetric interventions, intervention rates remain high in high income countries. However with excessive use, not only can it introduce additional risk of complications to both mother and baby but also affect women's satisfaction and birthing experiences.

A rising focus on physiological birth and the importance of MWC in the West have led to the introduction Singapore's MWC services in KK Women's and Children's Hospital in 2010. Studies on the local MWC were however, non-existent. Healthcare professionals need to evaluate their own maternity care services to provide evidence for areas of improvement so that international standards can be achieved. The aim of this study is to assess and compare the impact of local MWC on maternal and neonatal outcomes of low-risk women with standard maternity care (SMC).

Methodology

Research design and study site

A retrospective cohort study involving medical record review was performed in a large tertiary maternity hospital in Singapore.

Sample recruited

Inclusion criteria were women aged 21-45 years old, received MWC or SMC in year 2013 to 2014 and had singleton, normal to low-risk, term pregnancy. A sample size of 368 participants were identified via consecutive sampling.

Instrument

A self-developed data collection sheet containing birth outcome measures from Begley et al. (2011) was used in this study. The content validity of the data collection sheet was established by five experts before it was pretested on twenty-seven random records that were excluded from the final sample.

Data collection

Data collection took place from 1st October 2015 to 31st January 2016. All participants were screened for eligibility using the MW clinic clinical log, hospital admission book, labour, delivery and infant records and medical records. Only participants who met the inclusion exclusion criteria were included and had their data on relevant birth outcomes extracted.

Results

Sample profile

The sample was 368 records, of which 170 and 198 were from the MWC and SMC group respectively. Both maternity care groups were comparable in terms of age, smoking status during pregnancy and parity. However, more women in the MWC group were locals, working during pregnancy and taller. A higher proportion of MWC women were also Chinese or Indian, though majority in both maternity groups were Malay.

Maternal outcomes

Episiotomy

The rates were similar for both maternity care groups. However, more MWC women (n= 88, 51.80%) received episiotomy than SMC women (n= 93, 47.00%) (p= 0.359).

Table 1: Maternal outcomes related to episiotomy between participants receiving MWC and SMC

	MWC (n= 170) n (%)	SMC (n= 198) n (%)	P value
Episiotomy			
Yes	88 (51.80%)	93 (47.00%)	0.359
No	82 (48.20%)	105 (53.00%)	

Statistically significant results are indicated in bold; p-value <0.05
Numbers in parentheses represent the number of cases with available information (MWC/SMC)

Total antenatal visits

Total antenatal visits on average were significantly higher among women from the MWC group (8.59 (SD 1.68)) than that of SMC group (6.84 (SD 2.83)) (p<0.001).

Table 2: Maternal outcomes related to total antenatal visits between participants receiving MWC and SMC

	MWC (n= 170) n (%)	SMC (n= 198) n (%)	P value
Total antenatal visits, Mean (SD)	8.59 (1.68)	6.84 (2.83)	<0.001

Statistically significant results are indicated in bold; p-value <0.05
Numbers in parentheses represent the number of cases with available information (MWC/SMC)

Total antenatal visits remained significantly higher (B= -1.61, 95% CI: -2.12 to -1.09, p<0.001) among MWC women even after adjusting for height, nationality, race and employment status.

Total duration of labour

MWC women had a shorter mean duration of labour (169/195) (8.30 hours (SD 5.72 hours)) compared to SMC group (9.51 hours (SD 5.81 hours)) (p= 0.047).

Table 3: Maternal outcomes related to total duration of labour between participants receiving MWC and SMC

	MWC (n= 170) n (%)	SMC (n= 198) n (%)	P value
Duration of labour, Hours, mean (SD) (169/195)*	8.30 (5.72)	9.51 (5.81)	0.047

Statistically significant results are indicated in bold; p-value <0.05
Numbers in parentheses represent the number of cases with available information (MWC/SMC)

Mean labour duration remained significantly shorter (B= 1.33 hours, 95% CI: 0.04 to 2.63, p=0.044) in MWC women even after adjusting for height, nationality, race and employment status.

Other maternal outcomes

No statistical significant differences were observed for labour induction, labour augmentation, intrapartum pain management, perineal trauma and postpartum hemorrhage.

Neonatal outcomes

5-minutes Apgar score <7

The overall incidences of low Apgar score at 5-minutes were uncommon in both maternity groups (169/198) and insignificant (p= 0.460).

Table 4: Neonatal outcomes related to five-minutes Apgar score <7 between participants receiving MWC and SMC

	MWC (n= 170) n (%)	SMC (n= 198) n (%)	P value
5-minutes Apgar score <7 (169/198)*			
Yes	1 (0.60%)	0 (0.00%)	0.460 [^]
No	168 (99.40%)	198 (100.00%)	

Statistically significant results are indicated in bold; p-value <0.05
Numbers in parentheses represent the number of cases with available information (MWC/SMC)
[^] Fisher's Exact p-value

Other neonatal outcomes

There were no statistical significant differences for birth status, low birth weight <2500g and neonatal admission to SCN/NICU.

Conclusion

- Present study is the first to evaluate local MWC, providing insight into its impact on birth outcomes among low-risk women
- MWC is shown to be as safe & effective as SMC, with no higher risk for adversities in low-risk women
- Obstetric intervention rates remained on the high side. Future research is vital to reinforce the need for revision of current hospital policy to reduce unnecessary interventions
- Continuous staff education on evidence-based practice are also necessary to clear misconceptions and promote awareness to latest practice guidelines
- Findings from this study support the conduct of future research on other MW-led model of care

