

Gestational surrogacy practice and risk experiences of gestational surrogates in Thailand

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the degree of

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under the supervision of Professor Elizabeth Sullivan and
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Certificate of original authorship

I, Jutharat Attawet, certify that this thesis is submitted in fulfilment of the requirements for the award of Doctor of Philosophy in the Faculty of Health at the University of Technology Sydney. I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree, except as fully acknowledged within the text.

I also certify that this submission is my own work, except to the extent that assistance from others in the project's design and conception, and style, presentation and linguistic expression is acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

This research was supported by an Australian Government Research Training Program Scholarship.

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Supervisor statement

I confirm that, to the best of my knowledge, the work of this PhD thesis represents the original research work of the candidate. She is the first author and responsible for at least 80% of the work of each study (Chapters 4 to 6). The research was carried out and the thesis was prepared under my direct supervision. The contributions made to the research by me, the co-supervisor, and the members of the advisory team were consistent with normal supervisory and advisory practice. Other external contributions to the research are acknowledged.

I confirm that the co-authors of the three studies, Professor Cindy Farquhar, Dr. Vanessa Jordan, Dr. Karin Hammarberg, Dr. Zhuoyang Li, and Chief Executive Officer Louise Johnson have agreed to the submission of the nominated studies as part of this PhD thesis.

Signed

Elizabeth Anne Sullivan

Date.....

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Statement of contributions for works of joint authorship within this thesis

This thesis by compilation contains published work and work that has been submitted or accepted for publication or is currently under peer review (Chapters Four, Five, and Six). I hereby declare that I have been primarily responsible for determining the research questions, managing data collection, analysing the data, and drafting the manuscripts. The contributions of my supervisors Professor Elizabeth Sullivan and Associate Professor Alex Wang, the advisor Dr. Jane Walker, and co-authors Professor Cindy Farquhar, Dr. Vanessa Jordan, Dr. Karin Hammarberg, Dr. Zhuoyang Li, and Chief Executive Officer Louise Johnson to the three studies was consistent with normal supervisory and advisory practice involving data synthesis, interpretation, and manuscript editing.

I take full responsibility for the accuracy of the information and findings presented in this PhD thesis.

Peer reviewed publications

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Signed

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Date

Table of contents

Certificate of original authorship	i
Supervisor statement	ii
Acknowledgements.....	iii
Statement of contributions for works of joint authorship within this thesis	v
Table of contents.....	viii
List of figures.....	xiv
List of tables.....	xv
List of appendices	xvi
Abbreviations.....	xvii
Abstract.....	xx
Chapter 1: Introduction.....	1
1.1 Background.....	1
1.2 Thesis motivation.....	3
1.3 Aims.....	8
1.4 Research questions.....	8
1.5 Significance of this PhD thesis	9
1.6 Structure of this PhD thesis.....	9
1.7 Format.....	10
1.8 Chapter summary.....	11
1.9 References.....	12
Chapter 2: Background and literature review	17
2.1 Chapter introduction	17
2.2 Background.....	17

2.2.1 History of surrogacy: From traditional surrogacy to gestational surrogacy arrangements	18
2.2.2 Altruistic versus commercial surrogacy arrangements	20
2.2.3 The movement of the commercial surrogacy business in Southeast Asia	25
2.2.4 Surrogacy regulations	30
2.3 Literature review	38
2.3.1 Data sources	38
2.3.2 Data selection and analysis	38
2.3.3 Current research	40
2.3.4 Gaps in the literature	47
2.4 Rationale of this PhD thesis	49
Study 1—Research question: What are the risks encountered by gestational surrogates in the process of gestational surrogacy and the related arrangements in Thailand?	49
Study 2—Research question: What are the differences in surrogate pregnancy and live birth outcomes between SET and MET among gestational surrogates?	50
Study 3—Research question: What is the CLBR among gestational surrogates in altruistic surrogacy arrangements?	50
2.5 Chapter summary	51
2.6 References	52
Chapter 3: Research design, methodology and methods	65
3.1 Chapter introduction	65
3.2 Research design	65
3.3 Multimethodology	65
3.4 Research methods	68
3.5 Study 1	68
3.5.1 Study design	68
3.5.2 Setting and samples	69

3.5.3 Sampling considerations and recruitment	69
3.5.4 Sampling procedure and sample size	70
3.5.5 Data collection	71
3.5.6 Data analysis	73
3.5.7 Ethical considerations	74
3.5.8 Data storage and management	77
3.6 Study 2	77
3.6.1 Study design.....	78
3.6.2 Protocol and registration	78
3.6.3 Data collection	78
3.6.4 Study selection	79
3.6.5 Extraction and quality assessment	79
3.6.6 Data analysis	80
3.6.7 Ethical approval	80
3.7 Study 3	80
3.7.1 Study design.....	80
3.7.2 Data collection	81
3.7.3 Outcome measures	81
3.7.4 Data analysis	82
3.7.5 Ethical approval	82
3.8 Chapter summary	82
3.9 References.....	83
 Chapter 4: ‘Womb for work’ experiences of Thai women and gestational surrogacy practice in Thailand	 87
4.1 Chapter introduction	88
4.2 Abstract.....	88
4.3 Introduction.....	89

4.4 Aim	92
4.5 Materials and methods	92
4.5.1 Data analysis	93
4.5.2 Ethical consideration.....	93
4.6 Results.....	93
4.6.1 The trend of gestational surrogacy arrangements in Thailand	94
4.6.2 The business model of gestational surrogacy arrangements in Thailand.....	97
4.6.3 Risk experiences of gestational surrogates emerging from the surrogacy business model	100
4.7 Discussion.....	104
4.8 Conclusion	109
4.9 Acknowledgements.....	109
4.10 Disclosure Statement	109
4.11 References.....	110
 Chapter 5: Pregnancy and birth outcomes of single versus multiple embryo transfer in gestational surrogacy arrangements: a systematic review and meta-analysis	 114
5.1 Chapter introduction	115
5.2 Abstract.....	115
5.3 Introduction.....	116
5.4 Aim	119
5.5 Materials and methods	119
5.5.1 Protocol and registration	119
5.5.2 Search strategy	119
5.5.3 Study selection.....	119
5.5.4 Extraction and quality assessment	120
5.5.5 Outcome measures	120
5.5.6 Measures of treatment effect.....	121

5.5.7 Unit of analysis issues.....	121
5.5.8 Assessment of heterogeneity.....	121
5.5.9 Data synthesis	121
5.5.10 Sensitivity analysis.....	121
5.6 Results.....	122
5.6.1 Search result.....	122
5.6.2 Clinical pregnancy rates.....	124
5.6.3 Live delivery rates.....	125
5.6.4 Multiple delivery.....	126
5.6.5 Adverse outcomes: miscarriage, preterm birth and low birthweight	127
5.7 Discussion.....	127
5.8 Conclusions.....	131
5.9 Acknowledgements.....	132
5.10 Disclosure statement	132
5.11 References.....	133
 Chapter 6: Cumulative live birth rates among Gestational surrogates in altruistic surrogacy arrangements	 141
6.1 Chapter introduction	142
6.2 Abstract.....	142
6.3 Introduction.....	143
6.4 Aim	144
6.5 Materials and methods	144
6.5.1 Data source.....	144
6.5.2 Study population and follow-up.....	145
6.5.3 Outcome measures	145
6.5.4 Statistical analysis	145
6.5.5 Ethical approval	146

6.6 Results.....	146
6.6.1 Demographic and treatment characteristics of the study population	146
6.6.2 Live Birth Rates	148
6.6.3 Perinatal Outcomes following Altruistic Surrogacy Arrangements.....	150
6.7 Discussion.....	152
6.8 Conclusion	155
6.9 Acknowledgement	155
6.10 Disclosure statement	155
6.11 References.....	156
Chapter 7: Discussion, Recommendations and Conclusion.....	163
7.1 Chapter introduction	163
7.2 Discussion.....	163
7.2.1 Womb for work.....	164
7.2.2 Encapsulated risks through commitment to obligation.....	165
7.2.3 Unsafe MET practice	166
7.2.4 The success of altruistic surrogacy use and SET practice.....	167
7.3 Strengths and limitations of this thesis	169
7.4 Recommendations.....	170
7.4.1 Recommendation one: Reconsideration of commercial surrogacy legislations.....	170
7.4.2 Recommendation two: Establishment of an educational programme for prospective surrogates	173
7.4.3 Recommendation three: Regulation of SET practice in surrogacy arrangements....	175
7.4.4 Recommendation four: Promoting the use of altruistic surrogacy arrangements	176
7.5 Directions for future research	181
7.6 Conclusion	182
7.7 References.....	183
Appendices.....	191

List of figures

Figure 1: Thesis motivation

Figure 2: Summary of the evolution of commercial surrogacy arrangements in South and Southeast Asia

Figure 3: Results of the search strategy

Figure 4: PRISMA Flow chart of the literature search and selection process

Figure 5: The comparison of clinical pregnancy per gestational surrogate cycle between one SET and MET

Figure 6: The comparison of live delivery per gestational surrogate cycle between one SET and MET

Figure 7: The comparison of multiple delivery per live delivery between one SET and one MET

Figure 8: CLBR among gestational surrogates

List of tables

Table 1: International perspectives on the legality of surrogacy

Table 2: Demonstration of surrogacy law in South Asia

Table 3: Types of multimethod designs

Table 4: The differences between thematic analysis approaches

Table 5: Changing destinations for reproductive tourism in Southeast Asia

Table 6: Gestational surrogate's demographics

Table 7: The process of commercial surrogacy arrangements in Thailand

Table 8: The business model for commercial surrogacy in Thailand

Table 9: Characteristics of included studies

Table 10: Demographic characteristic of participants in altruistic surrogacy arrangements in Victoria, Australia between 2009 and 2016 (at the initiate cycle for intended parents and the first ET cycles of gestational surrogates)

Table 11: Number of embryo transfer cycles by treatment type and procedure and stage of embryo development for gestational surrogates

Table 12: Pregnancy outcomes per cycle and CLBR per gestational surrogate

Table 13: Perinatal outcomes following altruistic surrogacy arrangements

Table 14: The recommendation to consider when promoting altruistic surrogates in Thailand

List of appendices

Appendix 1: Primary studies on surrogacy arrangements and outcomes

Appendix 2: Other peer-reviewed literature about surrogacy arrangements and outcomes

Appendix 3: Qualitative study tools

Appendix 4: Abstract publication, conference at ASRM 2020 Scientific Congress & Expo Goes Virtue

Appendix 5: Poster presentation at ARSM 2020 Scientific Congress & Expo Goes Virtue

Appendix 6: Published article by Human Fertility: ‘Womb for work’ experiences of Thai women and gestational surrogacy practice in Thailand

Appendix 7: Abstract publication for oral presentation at IFFS World Congress, China

Appendix 8: Published article by Human Fertility: Pregnancy and birth outcomes of single versus multiple embryo transfer in gestational surrogacy arrangements: a systematic review and meta-analysis

Appendix 9: Abstract publication, conference at ESHRE Virtual 36th Annual Meeting

Appendix 10: Poster presentation at ESHRE Virtual 36th Annual Meeting

Appendix 11: Published article by Human Fertility: Cumulative live birth rates among gestational surrogates in altruistic surrogacy arrangements

Abbreviations

ACT	Australian Capital Territory
ANZARD	Australia and New Zealand Assisted Reproduction Database
ART	Assisted Reproductive Technology
ASRM	American Society for Reproductive Medicine
CARTR	Canadian Assisted Reproductive Technologies Register
CDC	Centers for Disease Control and Prevention
CFAS	Canadian Fertility & Andrology Society
CI	Confidence Interval
CINAHL	Cumulative Index to Nursing and Allied Health Literature
CLBR	Cumulative Live Birth Rate
CREC	Central Research Ethics Committee in Thailand
D&C	Dilation and Curettage
DVT	Deep Vein Thrombosis
ESHRE	European Society of Human Reproduction and Embryology
eSET	Elective Single Embryo Transfer
FET	Frozen-thawed Embryo Transfer
FSA	Fertility Society of Australia
GCP	Good Clinical Practice

GRS	Graduate Research School
HFEA	Human Fertilisation and Embryology Authority
HIV	Human Immunodeficiency Virus
HREC	Human Research Ethics Committees
ICMART	International Committee for Monitoring Assisted Reproductive Technologies
ICSI	Intracytoplasmic Sperm Injection
IFFS	International Federation of Fertility Societies
IVF	In vitro fertilisation
JOINT SOGC	Joint Society of Obstetricians and Gynaecologists of Canada
JSOG	The Japan Society of Obstetrics and Gynaecology
QLD	Queensland
MET	Multiple Embryo Transfer
MeSH	Medical Subject Headings
MOPH	Ministry of Public Health in Thailand
NASS	National ART Surveillance System
NHMRC	National Health and Medical Research Council
NOS	The Newcastle-Ottawa Scale
NPESU	National Perinatal Epidemiology and Statistics Unit
NSW	New South Wales
NT	Northern Territory

PGS	Preimplantation Genetic Screening
PGT	Preimplantation Genetic Testing
PGT-A	Preimplantation Genetic Testing for Aneuploidy
PICO	Population, Intervention, Comparison and Outcome
RANZOG	The Royal Australian and New Zealand College of Obstetricians and Gynaecologists
RevMan	Review Manager
RR	Risk Ratio
RTCOCG	The Royal Thai College of Obstetricians and Gynaecologists
SA	South Australia
SART	Society for Assisted Reproductive Technology
SET	Single Embryo Transfer
TAS	Tasmania
UK	United Kingdom
US	United States
UTS	University of Technology Sydney
VARTA	Victorian Assisted Reproductive Treatment Authority
VIC	Victoria
WA	Western Australia
WHO	World Health Organization

Abstract

Background: Gestational surrogacy is an assisted reproductive technology (ART) treatment available to help infertile or childless couples, gay couples, individuals, and people in later life to have children. Gestational surrogacy arrangements have become popular, although the treatment is controversial, particularly because of the risks to gestational surrogates, especially those involved in commercial surrogacy. The objective of this PhD thesis is to provide evidence to inform the development of surrogacy practices, policies, and regulations by investigating gestational surrogates' risk experiences, and advocate for practices promoting their health and safety.

Materials and methods: The thesis comprises three exhaustive studies utilising multiple methods to answer research questions from different perspectives. Data were collected as interviews with previous Thai gestational surrogates, a review of published articles, and extractions from the Victorian Assisted Reproductive Treatment Authority (VARTA).

Results: The findings show that commercial surrogacy is an adaptive enterprise with business thriving in many locations, while gestational surrogates face risks involving transnational gestational surrogacy, and incentives for multiple embryo transfer (MET) and higher risk procedures such as embryo transfer from Human Immunodeficiency Virus (HIV) positive couples, posing risks such as multiple births or communicable disease transmission, and unsupportive pregnancies. The thesis findings advocate for single embryo transfer (SET) and altruistic surrogacy practices for gestational surrogates to promote their health and optimise ART outcomes. The findings indicated that MET in gestational surrogacy cases had a much higher multiple birth rate than SET in altruistic surrogacy practice. Additionally, SET in altruistic surrogacy practice showed cumulative live birth rates (CLBRs) up to 50% in six cycles, reflecting the successful rate of ART.

Conclusions: From a public health perspective, SET practice should be universally regulated in surrogacy practice and altruistic surrogacy should be promoted to safeguard surrogates' health along with maximising overall ART outcomes. Commercial surrogacy regulations, especially in Thailand, should also be (re)considered/(re)framed to protect gestational surrogates against the risks from the current business model. The health of gestational surrogates should be promoted by implementing an educational programme for potential gestational surrogates as a part of the surrogacy process to improve their understanding, and their rights in surrogacy treatment should be advocated.