Infants' First Year Development and Familial Liability of
Attention Deficit Hyperactivity Disorder

Esther Chan BSc(Hons) MBMSc

Submitted in partial fulfilment of the requirements for the degree of Master of Clinical Psychology University of Newcastle

November 2019

Declarations

Statement of Originality

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to this copy of my thesis, when deposited in the University Library, being made available for loan and photocopying subject to the provision of the Copyright Act 1968.

FAMILIAL ADHD LIABILITY

3

Statement of Collaboration

I hereby certify that the work embodied in this

thesis has been done in collaboration with other

researchers. I have included as part of the thesis a

statement clearly outlining the extent of collaboration,

with whom and under what auspices.

Signed:

Date: 29th November, 2019

Name: Esther Chan

Signed:

Date: 29th November, 2019

Supervisor: Prof. Frini Karayanidis

Signed:

Date: 29th November, 2019

Supervisor: Dr. Linda E. Campbell

Acknowledgements

Thank you to my supervisors Prof. Frini
Karayanidis and Dr. Linda Campbell for their support
and supervision. Also thank you to staff and research
students who contributed to the broader dataset.

Thank you to my fellow Master of Clinical
Psychology 2018-2019 cohort. Without each one of you,
it would be uneasy for me to complete the clinical
training. It has been an absolute honour to work with you
all as psychologists.

Thank you to my family for the unconditional love and support to make this project happened. Mum, dad and Rebekah, you are my role models in life who have always inspired me to be a better me. To my husband, David, you are my shelter and back up. Thank you for always encouraging me to chase my dream.

Table of Contents

Declarations	2
Acknowledgements	5
Abstract1	5
Introduction1	7
Heritability and ADHD Liability1	9
Infants' Motor Ability, Language Development,	
Temperament and ADHD2	0
Cognitive Development and ADHD liability2	:4
Sensory Processing and ADHD Liability2	:7
Current Study2	9
Method	1
Participants	1

Procedures	32
Assessments and Measures	33
Bayley Scales of Infant and Toddler Deve	lopment -
Third Edition	33
Bayley Scales of Infant and Toddler Deve	lopment
Screening Test	35
First Year Inventory	35
Carey Temperament Scales	37
Infant /Toddler Sensory Profile	38
Familial ADHD Liability	40
Analysis	42
Results	44
Cognitive Functioning	45
Sensory Processing	46
Language and Motor Ability	48

Temperament	49
Correlation	49
Discussion	50
Conflict of Interest	60
Role of Funding Source	60
References	61

List of Tables

Table 1. Interpretation of Bayes Factor77
Table 2. Parents and Infants Demographics78
Table 3. Means and Standard Deviations of Infants'
Behavioural Outcomes83
Table 4. Bayesian analyses on behavioural outcomes
between infants with and without familial ADHD
liability89
Table 5. Correlations of Behavioural measures with
infants' familial ADHD liability94

List of Figures

Figure 1. Study Consort Diagram99
Figure 2. Means From The Bayley Scales Of Infant And
Toddler Development - Third Edition100
Figure 3. Means From The First Year Inventory101
Figure 4. Means From The Infant/Toddler Sensory
Profile102
Figure 5. Means From The Carey Temperament Scales
103

List of Appendices

Appendix A: Instructions to Authors for the journal
'Development and Psychopathology'104
Appendix B: BabyMinds Study Notice of University of
Newcastle Human Research Ethics Committee Approval
114
Appendix C: BLT-ID Notice of University of Newcastle
Human Research Ethics Committee Approval116
Appendix D: BabyMinds Study Notice of Hunter New
England Human Research Ethics Committee Approval
118
Appendix E: BLT-ID Notice of Hunter New England
Human Research Ethics Committee Approval121
Appendix F: BabyMinds Study Consent Form124

Appendix G: BLT-ID Consent Form126
Appendix H: BabyMinds Study Information Flyer for
Parents
Appendix I: BLT-ID Information Flyer for Parents131
Appendix J: BabyMinds Study Socio-Demographic
Questionnaire
Appendix K: BLT-ID Socio-Demographic Questionnaire
140

Manuscript formatted for the Development and
Psychopathology (see Appendix A for Instructions to
Authors for this journal)

Infants' First Year Development and Familial Liability of
Attention Deficit Hyperactivity Disorder

Esther HC Chan^a, Linda E Campbell^a, & Frini Karayanidis^{a*}

a. School of Psychology, Faculty of Science and
 Information Technology, University of Newcastle,
 Australia

*Corresponding Author:

Prof. Frini Karayanidis, School of Psychology,
University of Newcastle, University Drive, Callaghan,

NSW, 2308, Australia. Email:

frini. karayani dis @new castle.edu. au

Abstract

Infants' First Year Development and Familial Liability of
Attention Deficit Hyperactivity Disorder

Previous literature has demonstrated high heritability in Attention Deficit Hyperactivity Disorder (ADHD) and identified some early risk factors in later development of ADHD, including language ability, motor skills and temperament. Emerging evidence has further suggested the possible link between ADHD and poor cognitive functioning and sensory processing. However, little research has done on the relationship between familial ADHD liability and the expression of those early risk factors during infancy. This study explored how familial ADHD liability associated with infants' behaviours at their first year of life. Infants were categorized into ADHD and control group based on their parental history

of ADHD. Standardized assessment and parental reports were used to examine infants' cognitive functioning, sensory processing, communication, motor ability and temperament. Results indicated that there were no significant differences in behavioural outcomes between infants with and without familial ADHD liability at both 6 and 12 months of age. These results suggested that familial history of ADHD was not a good predictor to detect early differences of cognitive functioning, sensory processing, communication, motor ability and temperament in infancy. Future research is necessary to fully understand the manifestation and pathogenesis of ADHD.

Keywords: Infant, Attention Deficit Hyperactivity

Disorder, Familial Liability, Cognitive Development,

Sensory Processing