

THE UNIVERSITY OF CALGARY

The Effects of Matching Coping Styles with  
In-Labour Coping Strategies

by

Todd Hill

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES  
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE  
DEGREE OF MASTER OF SCIENCE

PROGRAMME IN CLINICAL PSYCHOLOGY

CALGARY, ALBERTA

JUNE, 1994

© Todd Hill 1994



National Library  
of Canada

Acquisitions and  
Bibliographic Services Branch

395 Wellington Street  
Ottawa, Ontario  
K1A 0N4

Bibliothèque nationale  
du Canada

Direction des acquisitions et  
des services bibliographiques

395, rue Wellington  
Ottawa (Ontario)  
K1A 0N4

*Your file    Votre référence*

*Our file    Notre référence*

THE AUTHOR HAS GRANTED AN  
IRREVOCABLE NON-EXCLUSIVE  
LICENCE ALLOWING THE NATIONAL  
LIBRARY OF CANADA TO  
REPRODUCE, LOAN, DISTRIBUTE OR  
SELL COPIES OF HIS/HER THESIS BY  
ANY MEANS AND IN ANY FORM OR  
FORMAT, MAKING THIS THESIS  
AVAILABLE TO INTERESTED  
PERSONS.

L'AUTEUR A ACCORDE UNE LICENCE  
IRREVOCABLE ET NON EXCLUSIVE  
PERMETTANT A LA BIBLIOTHEQUE  
NATIONALE DU CANADA DE  
REPRODUIRE, PRETER, DISTRIBUER  
OU VENDRE DES COPIES DE SA  
THESE DE QUELQUE MANIERE ET  
SOUS QUELQUE FORME QUE CE SOIT  
POUR METTRE DES EXEMPLAIRES DE  
CETTE THESE A LA DISPOSITION DES  
PERSONNE INTERESSEES.

THE AUTHOR RETAINS OWNERSHIP  
OF THE COPYRIGHT IN HIS/HER  
THESIS. NEITHER THE THESIS NOR  
SUBSTANTIAL EXTRACTS FROM IT  
MAY BE PRINTED OR OTHERWISE  
REPRODUCED WITHOUT HIS/HER  
PERMISSION.

L'AUTEUR CONSERVE LA PROPRIETE  
DU DROIT D'AUTEUR QUI PROTEGE  
SA THESE. NI LA THESE NI DES  
EXTRAITS SUBSTANTIELS DE CELLE-  
CI NE DOIVENT ETRE IMPRIMES OU  
AUTREMENT REPRODUITS SANS SON  
AUTORISATION.

ISBN 0-315-99376-6

Canada

Name

Todd Hill

Dissertation Abstracts International is arranged by broad, general subject categories. Please select the one subject which most nearly describes the content of your dissertation. Enter the corresponding four-digit code in the spaces provided.

Clinical - Psychology

SUBJECT TERM

0627 UMI

SUBJECT CODE

## Subject Categories

## THE HUMANITIES AND SOCIAL SCIENCES

## COMMUNICATIONS AND THE ARTS

Architecture ..... 0729  
Art History ..... 0377  
Cinema ..... 0900  
Dance ..... 0378  
Fine Arts ..... 0357  
Information Science ..... 0723  
Journalism ..... 0391  
Library Science ..... 0399  
Mass Communications ..... 0708  
Music ..... 0413  
Speech Communication ..... 0459  
Theater ..... 0465

## EDUCATION

General ..... 0515  
Administration ..... 0514  
Adult and Continuing ..... 0516  
Agricultural ..... 0517  
Art ..... 0273  
Bilingual and Multicultural ..... 0282  
Business ..... 0688  
Community College ..... 0275  
Curriculum and Instruction ..... 0277  
Early Childhood ..... 0518  
Elementary ..... 0524  
Finance ..... 0277  
Guidance and Counseling ..... 0519  
Health ..... 0680  
Higher ..... 0745  
History of ..... 0520  
Home Economics ..... 0278  
Industrial ..... 0521  
Language and Literature ..... 0279  
Mathematics ..... 0280  
Music ..... 0522  
Philosophy of ..... 0998  
Physical ..... 0523

Psychology ..... 0525  
Reading ..... 0535  
Religious ..... 0527  
Sciences ..... 0714  
Secondary ..... 0533  
Social Sciences ..... 0534  
Sociology of ..... 0340  
Special ..... 0529  
Teacher Training ..... 0530  
Technology ..... 0710  
Tests and Measurements ..... 0288  
Vocational ..... 0747

## LANGUAGE, LITERATURE AND LINGUISTICS

Language ..... 0679  
General ..... 0289  
Ancient ..... 0290  
Linguistics ..... 0291  
Modern ..... 0291  
Literature ..... 0401  
General ..... 0294  
Classical ..... 0295  
Comparative ..... 0297  
Medieval ..... 0298  
Modern ..... 0316  
African ..... 0591  
American ..... 0305  
Asian ..... 0352  
Canadian (English) ..... 0355  
Canadian (French) ..... 0593  
English ..... 0311  
Germanic ..... 0312  
Latin American ..... 0315  
Middle Eastern ..... 0313  
Romance ..... 0314  
Slavic and East European ..... 0370

## PHILOSOPHY, RELIGION AND THEOLOGY

Philosophy ..... 0422  
Religion ..... 0318  
General ..... 0321  
Biblical Studies ..... 0319  
Clergy ..... 0320  
History of ..... 0322  
Philosophy of ..... 0469  
Theology ..... 0323

## SOCIAL SCIENCES

American Studies ..... 0324  
Anthropology ..... 0326  
Archaeology ..... 0327  
Cultural ..... 0310  
Physical ..... 0272  
Business Administration ..... 0770  
General ..... 0454  
Accounting ..... 0338  
Banking ..... 0385  
Management ..... 0501  
Marketing ..... 0503  
Canadian Studies ..... 0505  
Economics ..... 0508  
General ..... 0509  
Agricultural ..... 0510  
Commerce-Business ..... 0511  
Finance ..... 0358  
History ..... 0366  
Labor ..... 0351  
Theory ..... 0578  
Folklore ..... 0366  
Geography ..... 0351  
Gerontology ..... 0578  
History ..... 0578  
General ..... 0578

Ancient ..... 0579  
Medieval ..... 0581  
Modern ..... 0582  
Black ..... 0328  
African ..... 0331  
Asia, Australia and Oceania ..... 0332  
Canadian ..... 0334  
European ..... 0335  
Latin American ..... 0336  
Middle Eastern ..... 0333  
United States ..... 0337  
History of Science ..... 0585  
Law ..... 0398  
Political Science ..... 0615  
General ..... 0616  
International Law and Relations ..... 0617  
Public Administration ..... 0814  
Recreation ..... 0452  
Social Work ..... 0626  
Sociology ..... 0627  
General ..... 0938  
Criminology and Penology ..... 0631  
Demography ..... 0628  
Ethnic and Racial Studies ..... 0629  
Individual and Family Studies ..... 0630  
Industrial and Labor Relations ..... 0700  
Public and Social Welfare ..... 0344  
Social Structure and Development ..... 0709  
Theory and Methods ..... 0999  
Transportation ..... 0453  
Urban and Regional Planning ..... 0453  
Women's Studies ..... 0453

## THE SCIENCES AND ENGINEERING

## BIOLOGICAL SCIENCES

Agriculture ..... 0473  
General ..... 0285  
Agronomy ..... 0475  
Animal Culture and Nutrition ..... 0476  
Animal Pathology ..... 0359  
Food Science and Technology ..... 0478  
Forestry and Wildlife ..... 0479  
Plant Culture ..... 0480  
Plant Pathology ..... 0817  
Plant Physiology ..... 0777  
Range Management ..... 0746  
Wood Technology ..... 0306  
Biology ..... 0287  
General ..... 0308  
Anatomy ..... 0309  
Biostatistics ..... 0379  
Botany ..... 0329  
Cell ..... 0353  
Ecology ..... 0369  
Entomology ..... 0793  
Genetics ..... 0410  
Limnology ..... 0307  
Microbiology ..... 0317  
Molecular ..... 0416  
Neuroscience ..... 0433  
Oceanography ..... 0821  
Physiology ..... 0778  
Radiation ..... 0472  
Veterinary Science ..... 0786  
Zoology ..... 0760  
Biophysics ..... 0786  
General ..... 0760  
Medical ..... 0425

## EARTH SCIENCES

Biogeochemistry ..... 0996  
Geochemistry ..... 0996

Geodesy ..... 0370  
Geology ..... 0372  
Geophysics ..... 0373  
Hydrology ..... 0388  
Mineralogy ..... 0411  
Paleobotany ..... 0345  
Paleoecology ..... 0426  
Paleontology ..... 0418  
Paleozoology ..... 0985  
Palynology ..... 0427  
Physical Geography ..... 0368  
Physical Oceanography ..... 0415

## HEALTH AND ENVIRONMENTAL SCIENCES

Environmental Sciences ..... 0768  
Health Sciences ..... 0566  
General ..... 0300  
Audiology ..... 0992  
Chemotherapy ..... 0567  
Dentistry ..... 0350  
Education ..... 0769  
Hospital Management ..... 0758  
Human Development ..... 0982  
Immunology ..... 0564  
Medicine and Surgery ..... 0347  
Mental Health ..... 0569  
Nursing ..... 0570  
Nutrition ..... 0380  
Obstetrics and Gynecology ..... 0354  
Occupational Health and Therapy ..... 0381  
Ophthalmology ..... 0571  
Pathology ..... 0419  
Pharmacology ..... 0572  
Pharmacy ..... 0382  
Physical Therapy ..... 0573  
Public Health ..... 0574  
Radiology ..... 0575  
Recreation ..... 0460  
Speech Pathology ..... 0383  
Toxicology ..... 0386  
Home Economics ..... 0386

## PHYSICAL SCIENCES

## Pure Sciences

Chemistry ..... 0485  
General ..... 0749  
Agricultural ..... 0486  
Analytical ..... 0487  
Biochemistry ..... 0488  
Inorganic ..... 0738  
Nuclear ..... 0490  
Organic ..... 0491  
Pharmaceutical ..... 0494  
Physical ..... 0495  
Polymer ..... 0754  
Radiation ..... 0405  
Mathematics ..... 0605  
General ..... 0986  
Acoustics ..... 0606  
Astronomy and Astrophysics ..... 0608  
Atmospheric Science ..... 0748  
Atomic ..... 0607  
Electronics and Electricity ..... 0798  
Elementary Particles and High Energy ..... 0759  
Fluid and Plasma ..... 0609  
Molecular ..... 0610  
Nuclear ..... 0752  
Optics ..... 0756  
Radiation ..... 0611  
Solid State ..... 0463  
Statistics ..... 0346  
Applied Mechanics ..... 0984  
Computer Science ..... 0984

## Applied Sciences

Applied Mechanics ..... 0984  
Computer Science ..... 0984

Engineering ..... 0537  
General ..... 0538  
Aerospace ..... 0539  
Agricultural ..... 0540  
Automotive ..... 0541  
Biomedical ..... 0542  
Chemical ..... 0543  
Civil ..... 0544  
Electronics and Electrical ..... 0348  
Heat and Thermodynamics ..... 0545  
Hydraulic ..... 0546  
Industrial ..... 0547  
Marine ..... 0794  
Materials Science ..... 0548  
Mechanical ..... 0743  
Metallurgy ..... 0551  
Mining ..... 0552  
Nuclear ..... 0549  
Packaging ..... 0765  
Petroleum ..... 0554  
Sanitary and Municipal ..... 0790  
System Science ..... 0428  
Geotechnology ..... 0796  
Operations Research ..... 0795  
Plastics Technology ..... 0994  
Textile Technology ..... 0994

## PSYCHOLOGY

General ..... 0621  
Behavioral ..... 0384  
Clinical ..... 0622  
Developmental ..... 0620  
Experimental ..... 0623  
Industrial ..... 0624  
Personality ..... 0625  
Physiological ..... 0989  
Psychobiology ..... 0349  
Psychometrics ..... 0632  
Social ..... 0451



Nom \_\_\_\_\_

*Dissertation Abstracts International* est organisé en catégories de sujets. Veuillez s.v.p. choisir le sujet qui décrit le mieux votre thèse et inscrivez le code numérique approprié dans l'espace réservé ci-dessous.



SUJET

CODE DE SUJET

## Catégories par sujets

### HUMANITÉS ET SCIENCES SOCIALES

#### COMMUNICATIONS ET LES ARTS

Architecture .....	0729
Beaux-arts .....	0357
Bibliothéconomie .....	0399
Cinéma .....	0900
Communication verbale .....	0459
Communications .....	0708
Danse .....	0378
Histoire de l'art .....	0377
Journalisme .....	0391
Musique .....	0413
Sciences de l'information .....	0723
Théâtre .....	0465

#### ÉDUCATION

Généralités .....	515
Administration .....	0514
Art .....	0273
Collèges communautaires .....	0275
Commerce .....	0688
Économie domestique .....	0278
Éducation permanente .....	0516
Éducation préscolaire .....	0518
Éducation sanitaire .....	0680
Enseignement agricole .....	0517
Enseignement bilingue et multiculturel .....	0282
Enseignement industriel .....	0521
Enseignement primaire .....	0524
Enseignement professionnel .....	0747
Enseignement religieux .....	0527
Enseignement secondaire .....	0533
Enseignement spécial .....	0529
Enseignement supérieur .....	0745
Évaluation .....	0288
Finances .....	0277
Formation des enseignants .....	0530
Histoire de l'éducation .....	0520
Langues et littérature .....	0279

Lecture .....	0535
Mathématiques .....	0280
Musique .....	0522
Orientation et consultation .....	0519
Philosophie de l'éducation .....	0998
Physique .....	0523
Programmes d'études et enseignement .....	0727
Psychologie .....	0525
Sciences .....	0714
Sciences sociales .....	0534
Sociologie de l'éducation .....	0340
Technologie .....	0710

#### LANGUE, LITTÉRATURE ET LINGUISTIQUE

Langues	
Généralités .....	0679
Anciennes .....	0289
Linguistique .....	0290
Modernes .....	0291
Littérature	
Généralités .....	0401
Anciennes .....	0294
Comparée .....	0295
Médiévale .....	0297
Moderne .....	0298
Africaine .....	0316
Américaine .....	0591
Anglaise .....	0593
Asiatique .....	0305
Canadienne (Anglaise) .....	0352
Canadienne (Française) .....	0355
Germanique .....	0311
Latino-américaine .....	0312
Moyen-orientale .....	0315
Romane .....	0313
Slave et est-européenne .....	0314

#### PHILOSOPHIE, RELIGION ET

##### THÉOLOGIE

Philosophie .....	0422
Religion	
Généralités .....	0318
Clergé .....	0319
Études bibliques .....	0321
Histoire des religions .....	0320
Philosophie de la religion .....	0322
Théologie .....	0469

#### SCIENCES SOCIALES

Anthropologie	
Archéologie .....	0324
Culturelle .....	0326
Physique .....	0327
Droit .....	0398
Économie	
Généralités .....	0501
Commerce-Affaires .....	0505
Économie agricole .....	0503
Économie du travail .....	0510
Finances .....	0508
Histoire .....	0509
Théorie .....	0511
Études américaines .....	0323
Études canadiennes .....	0385
Études féministes .....	0453
Folklore .....	0358
Géographie .....	0366
Gérontologie .....	0351
Gestion des affaires	
Généralités .....	0310
Administration .....	0454
Banques .....	0770
Comptabilité .....	0272
Marketing .....	0338
Histoire	
Histoire générale .....	0578

Ancienne .....	0579
Médiévale .....	0581
Moderne .....	0582
Histoire des noirs .....	0328
Africaine .....	0331
Canadienne .....	0334
États-Unis .....	0337
Européenne .....	0335
Moyen-orientale .....	0333
Latino-américaine .....	0336
Asie, Australie et Océanie .....	0332
Histoire des sciences .....	0585
Loisirs .....	0814
Planification urbaine et régionale .....	0999
Science politique	
Généralités .....	0615
Administration publique .....	0617
Droit et relations internationales .....	0616
Sociologie	
Généralités .....	0626
Aide et bien-être social .....	0630
Criminologie et établissements pénitentiaires .....	0627
Démographie .....	0938
Études de l'individu et de la famille .....	0628
Études des relations interethniques et des relations raciales .....	0631
Structure et développement social .....	0700
Théorie et méthodes .....	0344
Travail et relations industrielles .....	0629
Transports .....	0709
Travail social .....	0452

### SCIENCES ET INGÉNIERIE

#### SCIENCES BIOLOGIQUES

Agriculture	
Généralités .....	0473
Agronomie .....	0285
Alimentation, et technologie alimentaire .....	0359
Culture .....	0479
Élevage et alimentation .....	0475
Exploitation des paturages .....	0777
Pathologie animale .....	0476
Pathologie végétale .....	0480
Physiologie végétale .....	0817
Sylviculture et faune .....	0478
Technologie du bois .....	0746
Biologie	
Généralités .....	0306
Anatomie .....	0287
Biologie (Statistiques) .....	0308
Biologie moléculaire .....	0307
Botanique .....	0309
Cellule .....	0379
Ecologie .....	0329
Entomologie .....	0353
Génétique .....	0369
Limnologie .....	0793
Microbiologie .....	0410
Neurologie .....	0317
Océanographie .....	0416
Physiologie .....	0433
Radiation .....	0821
Science vétérinaire .....	0778
Zoologie .....	0472
Biophysique	
Généralités .....	0786
Médicale .....	0760

Géologie .....	0372
Géophysique .....	0373
Hydrologie .....	0388
Minéralogie .....	0411
Océanographie physique .....	0415
Paléobotanique .....	0345
Paléoécologie .....	0426
Paléontologie .....	0418
Paléozoologie .....	0985
Palynologie .....	0427

#### SCIENCES DE LA SANTÉ ET DE L'ENVIRONNEMENT

Économie domestique .....	0386
Sciences de l'environnement .....	0768
Sciences de la santé	
Généralités .....	0566
Administration des hôpitaux .....	0769
Alimentation et nutrition .....	0570
Audiologie .....	0300
Chimiothérapie .....	0992
Dentisterie .....	0567
Développement humain .....	0758
Enseignement .....	0350
Immunologie .....	0982
Loisirs .....	0575
Médecine du travail et thérapie .....	0354
Médecine et chirurgie .....	0564
Obstétrique et gynécologie .....	0380
Ophtalmologie .....	0381
Orthophonie .....	0460
Pathologie .....	0571
Pharmacie .....	0572
Pharmacologie .....	0419
Physiothérapie .....	0382
Radiologie .....	0574
Santé mentale .....	0347
Santé publique .....	0573
Soins infirmiers .....	0569
Toxicologie .....	0383

#### SCIENCES PHYSIQUES

##### Sciences Pures

Chimie	
Généralités .....	0485
Biochimie .....	0487
Chimie agricole .....	0749
Chimie analytique .....	0486
Chimie minérale .....	0488
Chimie nucléaire .....	0738
Chimie organique .....	0490
Chimie pharmaceutique .....	0491
Physique .....	0494
Polymères .....	0495
Radiation .....	0754
Mathématiques .....	0405
Physique	
Généralités .....	0605
Acoustique .....	0986
Astronomie et astrophysique .....	0606
Électronique et électricité .....	0607
Fluides et plasma .....	0759
Météorologie .....	0608
Optique .....	0752
Particules (Physique nucléaire) .....	0798
Physique atomique .....	0748
Physique de l'état solide .....	0611
Physique moléculaire .....	0609
Physique nucléaire .....	0610
Radiation .....	0756
Statistiques .....	0463

##### Sciences Appliquées Et Technologie

Informatique .....	0984
Ingénierie	
Généralités .....	0537
Agricole .....	0539
Automobile .....	0540

Biomédicale .....	0541
Chaleur et ther modynamique .....	0348
Conditionnement (Emballage) .....	0549
Génie aérospatial .....	0538
Génie chimique .....	0542
Génie civil .....	0543
Génie électronique et électrique .....	0544
Génie industriel .....	0546
Génie mécanique .....	0548
Génie nucléaire .....	0552
Ingénierie des systèmes .....	0790
Mécanique navale .....	0547
Métallurgie .....	0743
Science des matériaux .....	0794
Technique du pétrole .....	0765
Technique minière .....	0551
Techniques sanitaires et municipales .....	0554
Technologie hydraulique .....	0545
Mécanique appliquée .....	0346
Géotechnologie .....	0428
Matériaux plastiques (Technologie) .....	0795
Recherche opérationnelle .....	0796
Textiles et tissus (Technologie) .....	0794

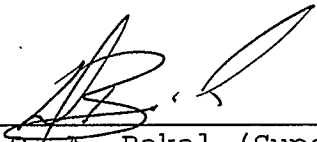
#### PSYCHOLOGIE

Généralités .....	0621
Personnalité .....	0625
Psychobiologie .....	0349
Psychologie clinique .....	0622
Psychologie du comportement .....	0384
Psychologie du développement .....	0620
Psychologie expérimentale .....	0623
Psychologie industrielle .....	0624
Psychologie physiologique .....	0989
Psychologie sociale .....	0451
Psychométrie .....	0632



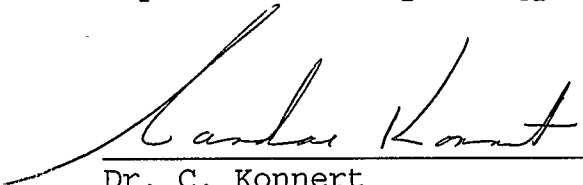
THE UNIVERSITY OF CALGARY  
FACULTY OF GRADUATE STUDIES

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "The Effects of Matching Coping Styles with In-Labour Coping Strategies" submitted by Todd Hill in partial fulfillment of the requirements for the degree of Master of Science.



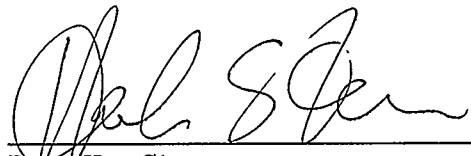
---

Dr. D. A. Bakal (Supervisor)  
Department of Psychology




---

Dr. C. Konnert  
Department of Psychology



---

Dr. H. Stam  
Department of Psychology



---

Dr. P. L. Sullivan  
Faculty of Nursing

Date

July 14, 1994

## ABSTRACT

The present study addressed issues arising from the literature on coping with the anxiety and pain of childbirth labour. The main question was whether or not the interaction of: characteristics of the labour situation (Intense pain, and long duration), predispositional coping styles (monitoring, and blunting), and labour coping behaviours would be associated with predictable differences in labour experiences.

Favourable labour experiences were conceptualized as being shorter duration, with fewer medical and delivery interventions, and less fetal distress and/or need for neonatal assistance. Predispositional coping style was indexed by scores on the Miller Behavioural Style Scale (MBSS). Labour coping behaviours were coded according to gravidae tape recorded reports from the labour environment.

The results did not support the main hypothesis; that gravidae who were predisposed to monitoring coping style, who used coping strategies while in labour would experience more favourable labours. Predispositional coping style was not predictive of labour coping behaviours. State and trait anxiety, and severity of medications were predictive of labour duration. The present results are not consistent with previous research, suggesting a need for further research into the role of coping on the childbirth experience, and a need to consider the wide variety between women's labour experiences.

### Acknowledgements

I would like to thank my supervisor Dr. D. A. Bakal, for his assistance in the completion of this thesis. I would also like to thank the members of my committee: Dr. Konnert, Dr. Stam and Dr. Sullivan. I am deeply grateful to Dr. T. Fung and Dr. S. Boon for making their statistical expertise so accessible. Special thanks to Lyn Hesson and Eileen Coughlan, whose support and assistance helped me see this project through to completion. Finally, I would like to thank all of the women who participated in this study for allowing us to share in this very special event.

## Dedication

This work is dedicated to Catherine, whose unquestioning support continues to carry me to new and exciting heights. It is also dedicated to my two children, Nathan and Nicholas. To Nathan, who has had the most positive impact on my life in just three years, and to Nicholas who represents pure potential. I love you all more than words can say.

## TABLE OF CONTENTS

APPROVAL PAGE . . . . .	ii
ABSTRACT . . . . .	iii
ACKNOWLEDGEMENTS . . . . .	iv
DEDICATION . . . . .	v
TABLE OF CONTENTS . . . . .	vi
LIST OF TABLES . . . . .	viii
INTRODUCTION . . . . .	1
The Labour Process . . . . .	7
Anxiety and Pain in Childbirth, and the Role of Childbirth Education . . . . .	10
Coping, Personal Coping Styles, and Specific Coping Strategies . . . . .	18
 METHOD . . . . .	 25
Subjects . . . . .	25
Measures . . . . .	27
Procedure . . . . .	34
RESULTS . . . . .	36
Effects of medical intervention . . . . .	37
Effects of delivery intervention . . . . .	37
Sample attrition . . . . .	38
Correlations among variables . . . . .	40
Monitors who monitored versus all others on labour outcome measures . . . . .	42

Monitors versus Blunters (MBSS) on labour outcome measures . . . . .	44
Monitors versus Blunters (latent labour coping strategies) on labour outcome measures . . . . .	44
Gravidae who were consistent between coping predisposition and coping strategies used versus those who inconsistent . . . . .	45
Predictors of labour outcome measures . . . . .	46
DISCUSSION . . . . .	54
REFERENCES . . . . .	66
APPENDIX A . . . . .	81
APPENDIX B . . . . .	96

## List of Tables

Table	Description	Page
1	Demographic Information	26
2	Descriptive Statistics for the Sample	28
3	Intrapartal Coping Strategies Coding Sheet	31
4	Sample Size for the Tests of the Main Hypotheses	39
5	Correlations Among the Variables	41
6	Stepwise Multiple Regression of Labour and Pregnancy Variables on Labour Duration	48
7	Stepwise Multiple Regression of Labour and Pregnancy Variables on Medication in Labour	49
8	Stepwise Multiple Regression of Labour and Pregnancy Variables on Severity of Delivery Intervention	51
9	Stepwise Multiple Regression of Labour and Pregnancy Variables on Fetal Distress and Neonatal Assistance	52

## Introduction

The labour experience can be extremely painful and anxiety generating for the gravida (pregnant woman) (Annie & Groer, 1991; Beck & Siegel, 1980; Connolly et al., 1978; Fox, 1979; Istvan, 1986; Lederman, Lederman, Work & McCann, 1985; Levinson & Shnider, 1979; Melzack, Taenzer, Feldman & Kinch, 1981; Pancheri et al., 1985; Reading, 1983; Spielberger & Jacobs, 1983; Wuitchik, Bakal & Lipshitz, 1989). Melzack, Taenzer, Feldman and Kinch (1985) report that labour pain has consistently received the highest possible pain ranking on the McGill Pain Questionnaire (MPQ). Labour can also result in significant increases in anxiety (Lederman, McCann, Work & Huber, 1977; Spielberger & Jacobs, 1983). Pain and anxiety in labour have been implicated in higher incidence of medical interventions in the labour process (Beck & Siegel, 1980; Istvan, 1986), and labour prolongation (Lederman, Lederman, Work & McCann, 1985; Levinson & Schnider, 1979). Not only is the labour experience a painful and anxiety generating one for the gravida, but it can also cause distress in the fetus, or neonate, especially if labour is prolonged (Lederman, Lederman, Work & McCann, 1985; Levinson & Schnider, 1979; Morishima, Pedersen & Wieczyslaw, 1978; Myers, 1975; Reading & Cox, 1985; Van Cauwenberge et al., 1987). Although research in the area of labour and delivery continues to be performed, the problems of maternal pain and anxiety, and labour dystocia continue to prevail (Istvan, 1986).

The importance of attenuating the pain and anxiety of labour has been of interest to health care providers for a number of years. In the 1940s, Grantley Dick-Read, Vygotsky and Lamaze made the notion of childbirth education for coping with pain and anxiety in labour (or psychoprophylaxis) very popular (Beck, Geden & Brouder, 1979). As current research continues to implicate pain and anxiety in effecting the labour experience, research into the impact of psychological interventions, such as childbirth education, on pain and anxiety continues to flourish (Broome & Koehler, 1986; Conway, 1984; Copstick, Hayes, Taylor & Morris, 1985; Geden, Beck, Hauge & Pohlman, 1983; Hetherington, 1990; Lindell, 1987; Scott & Rose, 1976).

The questions and concerns of childbirth educators overlap, to a great extent, with research in the area of coping strategies. In both cases, behaviours and cognitions that are used in stressful situations are identified and studied (Beck & Siegel, 1980, Geden, Beck, Hauge & Pohlman, 1983). Although the coping literature has grown quickly in the past three decades, little unanimity regarding the definition and the measurement of coping exists (Tunks & Bellissimo, 1988). However, a growing consensus is beginning to build around Lazarus and Folkman's (1984) definition which describes coping as cognitive and behavioural efforts to manage specific external or internal demands that are appraised as exceeding the resources of the individual

(Tunks & Bellisimo, 1988). Thus, coping is defined as a complex interactive process which is determined by characteristics of the situation, the coping strategy and the individual.

When researching coping, Keefe, Salley and Lefebvre (1992) suggest the need for addressing the question: "Coping with what?". The research in the area of childbirth labour, thus far, has identified two main areas, pain and anxiety, which represent the most salient stressors for gravaidae during labour (Beck & Siegel, 1980; Connolly et al. , 1978). These two areas are seen as closely related according to Melzack's (1973) gate-control model of pain. Melzack proposes that somatic input is subjected to the modulating influences of sensory - discriminative, motivational - affective, and cognitive - evaluative factors in the perception of pain. Therefore, like Lazarus and Folkman's (1984) conceptualization of coping with stressful events, Melzack's gate control model of pain describes the pain event as an interaction between characteristics of the situation (the painful stimulus), the coping strategy and the individual. Therefore, the current literature suggests that, in the pain situation, not only the sensory stimulus, but also the psychological state of the individual plays a role in determining the pain event. This research bodes well for the role of psychological intervention, or coping, in the area of labour pain.

Suls and Fletcher (1985) suggest that most strategies for coping can be grouped into either attentional or avoidant categories. Research findings suggest that both strategies can be used to reduce pain under different circumstances. It has also been suggested that people who use avoidant coping strategies fare better in short term (Suls & Fletcher, 1985) and in low intensity pain situations (McCaul & Mallot, 1984). These findings support the claim that some coping strategies are better suited for the characteristics of specific situations, or that pain experiences can be affected by the interaction between characteristics of the situation and the coping strategies used (Cioffi, 1991; Holmes & Stevenson, 1990; Keefe, Crisson, Urban & Williams, 1990; Martelli, Auerbach, Alexander & Mercuri, 1987; McCaul & Malott, 1984; Mullen & Sulz, 1982b; Sulz & Fletcher, 1985). Since labour is considered to be a long lasting, high intensity pain experience, attentional strategies would appear to be the strategies of choice for this type of situation. Thus, as was pointed out earlier, the literature suggests that characteristics of the stimulus (i.e. pain) and the psychological state (i.e. anxiety) need to be taken into account. Furthermore, the more recent literature suggests a need to consider the fit between these two factors and characteristics of the coping strategies used.

Miller (1990) believes that when choosing a specific coping strategy, an individual's predisposition toward using specific coping strategies is as important as the demands of

the situation. She proposes a model of coping which considers characteristics of the situation, the coping strategy and individual coping predisposition (Miller, 1990). She acknowledges that unique situations call for different strategies, but that people arrive at these situations with a predisposition to, or increased level of comfort with, certain coping strategies. Miller has developed a self report measure which has proven to be a good predictor of what types of coping strategies people will use in stressful or painful situations (Miller, 1987). Within Miller's framework, the strategy of choice for a gravide would only be attentional if that gravide was predisposed to using attentional strategies.

The purpose of the present study was to examine the relationships between specific coping strategies and personal coping styles in the labour situation, and the effects of these relationships on a number of labour outcome measures. The population of interest was primigravidae delivering in a hospital setting. The outcome variables were total labour duration, latent and second stage labour durations, labour pain reports, need for medications, need for delivery intervention (e.g. vacuum or forceps delivery), fetal distress and need for fetal assistance. These outcome variables were selected on the basis of prior research which indicated that ability to cope is a good predictor of labour duration, and that duration is associated with increased anxiety and pain reports, and increased fetal /neonate

complications (Lederman, Lederman, Work & McCann, 1985; Levinson & Schnider, 1979; Morishima, Pedersen & Wieczyslaw, 1978; Myers, 1975; Reading & Cox, 1985; Wuitchik, Bakal & Lipshitz, 1990).

The specific research questions that were addressed, therefore, included the following groupings of subjects to determine whether or not more positive labour outcomes would be associated with these groupings: (1) gravaidae who were predisposed to monitoring coping styles versus those predisposed to blunting coping styles, (2) gravaidae who used monitoring coping strategies while in labour versus those who used blunting coping strategies, (3) gravaidae who were consistent between their predispositional coping style and their in-labour coping strategies versus those who were inconsistent, and (4) gravaidae who were both predisposed to monitoring coping style and who used monitoring coping strategies while in labour versus all others. If it is found that levels of labour pain and anxiety are correlated with any labour outcome variables their effect will be covaried out of appropriate analyses, since it has already been established that these two variables can have a significant impact on the labour experience. (Beck & Siegel, 1980; Istvan, 1986; Lederman, Lederman, Work & McCann, 1985; Levinson & Schnider, 1979)

The literature in the areas of coping, anxiety, pain and labour seems to represent an absence of consideration for the need to consider situational demands (i.e. intensity,

duration), specific coping strategies (i.e. attentional, avoidant), and individual coping styles (i.e. monitoring, blunting) (Auerbach, 1989). The present study has been designed to evaluate whether consideration of these coping factor in the labour situation will be associated with predictable, significant differences in labour outcome experiences. Past literature in the area of coping seems to indicate that attentional coping strategies are best suited to the unique demands of the labour experience (Cioffi, 1991; McCaul & Mallot, 1984; Suls & Fletcher, 1985). Therefore, the main hypothesis is that women who are predisposed to attentional coping style, who use attentional coping strategies while in labour will have more positive labour experiences. The literature review will be aimed at: presenting labour as an appropriate area for exploring more effective coping strategies, presenting the main findings in the childbirth labour area, which have been focused mainly on the effects of maternal psychology and the effectiveness of childbirth education, and finally, presenting the applicable research in the area of coping, situation specific coping strategies and personal coping styles.

#### The Labour Process

Childbirth labour is the journey of the fetus inside the gravide from the womb through the birth canal to delivery. The uterus progresses through increasingly intense and frequent contractions which serve to push the fetus through the birth canal and eventually leads to expulsion of the

neonate. Simultaneously, the gravida's cervix progressively dilates to approximately 10 cms which is, in general, large enough to allow for delivery. This process, on average , lasts 13 hours and 3 minutes in primiparae and 10 hours and 26 minutes in multiparae (Friedman & Neff, 1987).

Clinically, the labour process is often broken down into 2 phases. Phase 1 is often broken down into 3 parts: Latent Labour, Active Labour and Transition Labour. Latent Labour is characterized by infrequent contractions of minimal severity, and by a gradual dilatation rate up to 4 cms. On average, Latent Labour lasts 6.4 hours in primiparae. One problem with using labour duration as an outcome measure is the lack of a clear definition of onset of labour. Hendricks and Quilligan (1970) demonstrated that many of the bodily changes which are expected to take place during early labour (e.g. cervical dilatation and effacement) occur well in advance of the perceived onset of labour. Thus, in order to eliminate doubt, and unnecessary intrusiveness on gravaidae, most studies rely on the method of marking the onset of labour as the beginning of regular uninterrupted contractions (on average beginning at 10 - 12 minutes apart) (Friedman & Neff, 1987).

Active Labour is defined by an increase in severity and intensity of contractions, and an increase in the rate of dilatation from 4 to 7 cms. The average length of Active Labour is 4.6 hours in primiparae. Transition Labour is characterized by very frequent and severe uterine

contractions. Transition is marked by a slower rate of cervical dilatation from 7 to 10 cms. This stage of labour is often described as the most stressful part of labour because of the strong urge to push (Wuitchik, 1987), and lasts, on average, .84 hours in primiparae. The second phase of labour, or Phase 2 labour, consists of the time from complete dilatation (10 cms) to delivery of the fetus and placenta. In primiparae, Phase 2 usually lasts 1.1 hours.

Research indicates that labour prolongation is an important problem that requires consideration. Aside from the increase in duration of pain for the gravidae, prolonged labour has also been associated with neonatal depression (low 1 and 5 minute Apgar scores), a high rate of neonatal mortality, a higher rate of long term neurologic and developmental disorders, and an increase in operative obstetrical procedures (e.g. forceps, vacuum and cesarean deliveries and increased use of sedative and analgesic medications) (Crandon, 1979; Friedman & Neff, 1987; Morishima, Pedersen, Mieczyslaw, 1978; Van Cauwenberge et al, 1987). During the latter stages of labour there are additional factors which can be detrimental to fetal well being such as powerful and frequent uterine contractions, compression of the fetal head, and stretching and ultimately compression of the fetal cord (Friedman & Neff, 1987). Neonatal levels of prolactin, free cortisol and cortisone (which have all been linked to stress) have been found in

significantly greater amounts in neonates who have experienced prolonged labour (Van Cauwenberge et al., 1987).

### Anxiety and Pain in Childbirth, and the Role of Childbirth Education

The impact of maternal psychology on the labour experience has been speculated about, observed and researched from as early as the Old Testament right up to the present (Istvan, 1986). The work of such men as Dick-Read, Velvovsky and Lamaze resulted in the development of Childbirth Education classes designed to cater to the psychology of the gravida (Beck, Geden & Brouder, 1979). Current programs consist of three main components: the didactic, physiotherapeutic and the psychotherapeutic components (Conway, 1984). Didactic refers to the instruction of the anatomy, physiology and psychology of the childbearing process. This component is believed to reduce the fear-tension-pain syndrome hypothesized by Dick-Read (Beck, Geden & Brouder, 1979; Conway, 1984). The physiotherapeutic component consists of instruction in breathing and relaxation strategies. Again, these strategies are believed to create a state that is incompatible with anxiety, which is believed to be a significant contributor to the severity of labour pain (Beck, Geden & Brouder, 1979; Conway, 1984). The psychotherapeutic component refers to a focus on the quality of relationship and support offered by the birth partner, often the father (Conway, 1984). The assumption being made by childbirth educators is that the

difficulties of childbearing are exacerbated by negative emotions, mainly anxiety, and that by supplying the gravida with psychological intervention strategies the labour experience will be rendered less aversive (Beck, Geden & Brouder, 1979; Conway, 1984).

The assumption that anxiety has a negative impact on the labour experience has been tested in a number of ways. The first of three main distinctions often found in labour and anxiety research is between nonhuman and human research studies. This distinction is important because nonhuman studies allow a degree of intrusiveness which could not ethically be achieved in human research (Istvan, 1986). Myers (1975) placed catheters into the femoral arteries of maternal rhesus monkeys and their fetuses and found that exposing them to stressors (e.g. loud noises) resulted in fetal asphyxia (insufficient oxygen intake), and that vital signs returned to normal once stressors were removed. In a later study, Morishima, Pedersen & Mieczyslaw (1978) also catheterized both maternal and fetal rhesus monkeys in order to monitor maternal and fetal heart rate, pH levels, and blood pressure. They found that by exposing the mother to stressors (e.g. bright lights) significant rises occurred in maternal blood pressure and heart rate, and that arterial oxygenation decreased. In a study by Bleicher (1962), exposing whelping dogs to stressors resulted in long delays between litter mates. Bleicher observed that labour would discontinue altogether during prolonged exposure to

stressors and would resume once they were removed. These studies indicate that fetal adversity can be a direct in utero experience, or can be the result of labour prolongation.

Regardless of how clear these findings appear to be, their results can only be generalized to the human experience with two important caveats. First, research looking at the unique properties of maternal endocrinology in maternal sheep and rodent populations indicate some critical differences between nonhuman and human population (Istvan, 1986). For example, fetal increases in cortisol are critical predictors of the onset of labour in sheep and rats, but no such increase has been documented in humans or other primates (Fuchs & Fuchs, 1984). Second, many researchers have arrived at the conclusion that humans are the only appropriate subjects for the study of the impact of stress on the labour experience. With these caveats in mind, however, the results of labour research in nonhuman populations indicate that stress and anxiety can have negative consequences for the labour experience (Istvan, 1986)

Early human research investigating the impact of maternal anxiety was complicated by non-standardized anxiety measures, nonstandardized labour outcome measures and retrospective reporting (Crammond, 1954; Istvan, 1986; Scott & Thompson, 1956). In fact, only recently has research in this area begun to focus on specific outcome measures such

as total and phase specific duration, fetal heart rate abnormalities and maternal pain reports (Lederman, Lederman, Work & McCann, 1979; Melzack, Taenzer, Feldman & Kinch, 1981; Wuitchik, Bakal & Lipshitz, 1989). A number of studies have been performed in which anxiety is measured antenatally in which the sample is divided into two groups; normal and abnormal labours. The results from most of these studies suggest that maternal anxiety tends to be associated with more aversive labour experiences (Davids & Devault, 1962; Kapp, Hornstein & Graham, 1963; McDonald & Christacos, 1963). Although, due to studies that have been plagued by such shortcomings as retrospective reporting, nonstandardized assessment of dependent variables (e.g. "problem labour", "difficult labour") and a high degree of null findings, the results from these studies can only be seen as tenuous (Istvan, 1986), although intuitively compelling.

The second distinction often made in labour and anxiety research is between state and trait anxiety. Spielberger and Jacobs (1983) noted that measures of trait anxiety, such as the Manifest Anxiety Scale and the Institute for Personality and Ability Testing Anxiety Self Analysis Form, both of which were widely used in early research, might be ill suited for measuring the relatively acute changes in anxiety level that can occur throughout pregnancy. In fact, Lubin, Gardner and Roth (1975) found that anxiety measured by a relatively state-sensitive anxiety measure, the Anxiety

Adjective Check List, was lower during the second trimester of pregnancy and higher during the first and final trimesters. Currently, one of the most commonly used instruments for distinguishing between state and trait anxiety is Spielberger, Gorsuch & Lushene's (1970) State Trait Anxiety Inventory (STAI) (Istvan, 1986). This self report measure categorizes people's responses by making the distinction between responses which reflect the perception of a situation as threatening (state anxiety), versus responses which reflect the tendency to perceive a wide range of objectively nondangerous situations as threatening (trait anxiety).

Edwards & Jones (cited in Istvan, 1986) included the STAI in a study designed to assess anxiety throughout pregnancy and its impact on the labour experience. Their data suggest that trait anxiety had no impact on the labour experience, but that the pattern of state anxiety decreasing throughout pregnancy and then increasing shortly before childbirth was associated with normal labours and vice versa for women who experienced obstetric complications. Gorsuch and Key's (1974) findings indicated that although trait anxiety had no discernible impact on the labour experience, elevations in state anxiety in the first trimester were associated with obstetric complications, whereas state anxiety elevations in the second trimester were associated with normal deliveries. These differences in patterns, however, are not readily interpretable and have not been

replicated in other research (Istvan, 1986). More recently, Beck et al. (1980) found, however, that although trait and state anxiety in pregnancy were unrelated to labour events, state anxiety assessed upon admission to the delivery room was a significant predictor of labour length. These results seem to indicate that individual state anxiety at, or around, the time of admission may be important in determining later labour experiences. In fact, a study performed by Wuitchik, Bakal and Lipshitz (1989) indicated that a woman's tendency to be distressed in latent labour significantly contributed to the prediction of later labour length.

The third distinction that is beginning to be made in the literature with increasing frequency is that of pregnancy specific, versus other, anxiety. Lederman's (1985) Pregnancy Self Evaluation Inventory (PSEI) has proven to be successful at predicting critical components of the labour experience (Lederman, Lederman, Work & McCann, 1985; Wuitchik, Hesson & Bakal, 1990). The argument made by Lederman (1984) is that the unique experience of pregnancy for the primipara, and the accompanying specific concerns may be too specific to be accurately assessed by a generic state or trait anxiety measure. Some of the issues that Lederman (1984) mentions include: fear for the safety and well being of self and baby, whether or not the pregnancy is wanted, and whether or not the gravida has a strong support network (Lederman, 1984). In fact the 'fear for the safety

of self and baby' subscale of the PSEI has indicated some effectiveness in predicting labour duration (Lederman, Lederman, Work & McCann, 1985; Wuitchik, Hesson & Bakal, 1989)

The assumption in much of the aforementioned research has been that a gravide woman's anxiety would somehow impact on her physiological responses and result in longer, more difficult labours. Dimsdale and Moss (1980) opened the door for affirming this assumption by linking catecholamine secretion with increased anxiety states. Lederman, Lederman, Work & McCann (1985) found that increased levels of plasma catecholamines were associated with: increased reports of anxiety, decreased uterine activity and longer labour durations. These results appear to support the assumption that a gravide's psychological state can impact on the quality of the labour experience. This would suggest that attending to and intervening with maternal psychological state during childbirth is a worthwhile and important venture.

Childbirth educators have clearly established certain benefits associated with the reduction in anxiety attributed to childbirth training. First of all, studies have indicated that women who have received some kind of childbirth education are less likely to use medications, and are more likely to experience spontaneous deliveries (Hetherington, 1990). Kondas and Scetnicka (1972) performed a study in which gravaideae were assigned either to regular

psychoprophylaxis classes or to systematic desensitization classes. They found that both classes experienced reduced anxiety while in labour. Further studies have identified many childbirth education factors which have been associated with decreased anxiety in labour, including: provision of information, description of labour (didactic components), relaxation training (physiotherapeutic component) (Beck & Siegel, 1980), and partner support (psychotherapeutic component) (Copstick, Hayes, Taylor, & Morris, 1985).

Childbirth educators are not only involved in reducing anxiety, but are, perhaps ultimately, interested in reducing the pain of childbirth. Melzack, Taenzer, Feldman and Kinch (1981) found that current training procedures have statistically significant effects on labour pain, but that the pain reduction is relatively small which indicates a need for further development of childbirth training procedures. Therefore, the research supports the claim that childbirth education can have a positive influence on the labour experience, in terms of both pain and anxiety, but that the mechanisms by which this training actually works are poorly understood (Beck & Hall, 1978, Beck & Siegel, 1980, Lindell, 1987) Therefore, there is consensus as to the need for further research (Melzack, Taenzer, Feldman & Kinch, 1981).

Although the original intent of pioneers in the field of psychoprophylaxis was total elimination of the pain of childbirth, current programs emphasize aiding women in

attenuating the stress and pain of childbirth (Conway, 1984). In response to Keefe, Salley, & Lefebvre's (1992) question "Coping with what?", then, at least in the labour context, the response must include anxiety and pain. Next, what is meant by coping will be defined, and the literature with regards to success in the areas of coping with anxiety and pain will be reviewed.

### Coping, Personal Coping Styles, and Specific Coping Strategies

Lazarus and Folkman (1984) describe coping as the efforts and strategies used to master stress. Stress is a collective term for events where environmental demands, internal demands, or both, tax or exceed the adaptive resources of the individual, social or tissue system. These researchers also introduced the idea of primary and secondary appraisal as an evaluative process which takes place continuously, and which describes the tendency to evaluate the significance or meaning of our environment. They suggest that to understand coping, it is essential to consider the changing character of what a person thinks and does during the unfolding of specific person-environment encounters (Monat & Lazarus, 1991). Thus, as in the anxiety and pain literature, the stressful situation is believed to be determined by both characteristics of the situation and the psychology of the perceiver. Monat and Lazarus (1991) believe that appraisal and coping have an impact on the three components of stress: physiological, psychological and

social. An experiment performed by Bloom Houston, Holmes & Burish (1977) lends support to the notion that appraisal and coping can have an impact on the physiological aspects of stress. They encouraged subjects who had been threatened with shock to redefine the stimulus as being an interesting physiological experience rather than as a painful one. Thus, they were encouraging the subjects to appraise the situation as either benign or challenging rather than threatening. Subjects' attempts were successful in that they were able to reduce autonomically measured stress levels. Further studies have supported the claims that coping training can result in significant reductions in the amount of anxiety (psychological stress) and pain a person experiences in many health care settings (Keefe, Salley & Lefebvre, 1992; Ludwick-Rosenthal & Neufeld, 1988). Thus, the research has demonstrated the potential utility for coping strategies in the labour environment.

Holmes and Stephenson (1990) define coping strategies as the cognitive and / or behavioural responses that individuals use to lessen the impact of stressful life events, such as childbirth labour. Although various classifications of coping strategies exist (Keefe, Crisson, Urban & Williams, 1990; Lazarus & Folkman, 1984; Moos & Billings, 1982), Suls and Fletcher (1985) suggest that most strategies can be broadly categorized as being either attentional or avoidant. They describe attentional coping strategies as cognitions and / or behaviours which serve to

focus attention directly on the source of stress (e.g. information seeking, reappraisal), and avoidant coping strategies as cognitions or behaviours which serve to divert attention away from the source of stress (e.g. distraction, denial).

Lazarus and Folkman (1984) explain the usefulness of each of both the attentional and the avoidant coping strategies in the Cognitive Appraisal model. They propose that persons may need to use avoidant coping strategies when initially confronted with a stressful situation because attention at first might be overwhelming, but that with time the person may be best able to actively and successfully confront the stressful situation cognitively and / or instrumentally.

Suls and Fletcher (1985) tested this hypothesis in a meta analysis by comparing studies of the effects of attentional / avoidant strategies on both short term stressors and long term stressors. Their findings are in accordance with Lazarus and Folkman's model that in the short term avoidant strategies seem to be beneficial, but that in the long term attentional strategies seem most beneficial.

McCaul and Malott (1984) reviewed a series of studies and found that distraction was most effective for pain that was relatively mild, and that attentional strategies were more effective for pain of much higher intensities. Holmes and Stevenson (1990) tested acute pain versus chronic pain sufferers and found that avoidant strategies were more adaptive in the former population, and that attentional were

more adaptive in the latter. As was indicated earlier, Melzack et al. (1981) have consistently found that labour pain receives the highest possible rankings on the MPQ, and Friedman and Neff (1987) have found that the duration of average labour lasts over 13 hours, which falls well within Suls and Fletcher's (1985) criteria for long term stressor. The current research appears to suggest that the characteristics of the labour situation (i.e. long duration, high intensity) call for the attributes of attentional coping strategies.

However, Miller (1980, 1987, 1989, 1990, 1991) and Auerbach (1989) have proposed that when considering coping strategies, researchers must also take into account the individual's personal tendencies, predisposition or style. Miller has developed a self report instrument, the Miller Behavioural Style Scale (MBSS) (1987) to assess the extent to which an individual endorses information monitoring (attentional) versus information blunting (avoidant) coping strategies. According to Miller, the extent to which a person endorses strategies on the MBSS indicates his / her disposition or personal coping style. Miller describes a monitor as someone who prefers to seek out information in the face of threat, and a blunter as someone who prefers to ignore, avoid or 'tune out' threat relevant information. In a study performed by Miller and Mangan (1983) women about to undergo a colposcopy (an aversive gynecological diagnostic procedure) were grouped according to their responses on the

MBSS. Half of each group was then given the usual information, the other half was given more information than what is usually offered. Results indicate that patients' level of psychophysiological arousal was reduced when the level of preparatory information was consistent with their individual coping style (Miller & Mangan, 1983). These results were supported by a study conducted by Martelli, Auerbach, Alexander and Mercuri (1987) in which it was also found that outcomes were improved for people who were able to use a coping strategy which they seemed most comfortable with. Thus, what Miller (1990) is suggesting is a situational demands by specific coping strategies by predispositional coping style interaction.

According to a number of researchers, (Leventhal, Leventhal, Shacham & Easterling, 1989; McCaul & Mallot, 1984; Melzack, Taenzer, Feldman & Kinch, 1981; Mullen & Suls, 1982a; Suls & Fletcher, 1985) labour falls into the category of high intensity pain of long duration, indicating a potentially good match with attentional (monitoring) coping techniques. As was stated previously, studies have also indicated the importance of matching personal coping style to strategies used (Martelli, Auerbach, Alexander and Mercuri, 1987; Miller & Mangan, 1983). Weisenberg and Caspi (1989) used the MBSS to assess whether gravidae who monitored or blunted had different labour experiences and found that women who monitored reported less pain. However, according to Miller's model, their study only addressed part

of the personal coping style by specific coping strategy by situational demands hypothesis. Weisenberg and Caspi (1989) reported that women who scored as high monitors experienced less pain, thus testing the situational demands (of labour) by personal coping style (monitoring / attentional) hypothesis, but they did not establish whether these monitors were actually using attentional coping strategies while in labour. Therefore, they could not assess whether women who were predisposed to using attentional coping strategies actually used their preferred coping style while in labour, nor did they assess whether such a match resulted in even more favourable outcomes. Current research (Auerbach, 1989; Martelli, Auerbach, Alexander & Mercuri, 1987; Miller & Mangan, 1983) suggests that a good match between preferred coping style and the coping strategies used needs to be attained in order to achieve the best coping results. Thus, the research seems to suggest that attentional coping strategies are preferred for long term, intense pain situations, like labour, and that women who are predisposed to using attentional coping strategies who make use of that type of strategy while in labour would be more likely to have more positive labour experiences.

The main objective of the present study is to determine whether women who are predisposed to monitoring coping style who also use monitoring coping strategies in labour will have more positive labour experiences than others. In the

course of meeting this objective, five questions are addressed:

- (1) Do women who score high on MBSS monitoring have more favourable labour experiences than those who score high on blunting?
- (2) Do women who report using monitoring coping strategies in labour have more favourable labour experiences than those who report using distraction?
- (3) Do women who report consistency between their predispositional coping style and their in-labour coping strategies have more favourable labour experiences than those are inconsistent?
- (4) Do women who score high on MBSS monitoring and who report using monitoring techniques while in labour have more favourable labour experiences than other women in the sample?
- (5) Which, if any, of the antenatal and intrapartal measures contribute significantly to predicting positive labour experiences?

## Methods

### Subjects

Fifty primigravidae (first time pregnant women) were recruited through the Childbirth Education Program at the Rockyview General Hospital and five through obstetricians. This number represents approximately 15% of all primigravidae approached concerning participation in the present study. Approximately 92% of the primigravidae who deliver at this facility receive childbirth education training. All women were primigravid and thought themselves to be at low obstetric risk at the time of recruitment. Criteria for exclusion from this study included; inability to speak English, major uterine surgery, recurrent urinary infection, bleeding, malpresentation (i.e. breech), multiple pregnancy (i.e. twins), hypertension, heart disease, asthma, renal disease, diabetes, CNS disorder, and epilepsy.

The mean age of the sample was 28.27 years, with a range from 20 to 35 years. Demographic characteristics are presented in Table 1. The average gestational age was 40 weeks, with a range from 37 to 42 weeks, which fell into the normal range (Friedman & Neff, 1987). Of the entire sample, 7 (13%) women remained unmedicated throughout labour, 6 (11%) made use of nitrous oxide, 34 (62%) had I.M. Demerol and / or morphine, and 5 (9%) had epidural analgesia. None of the women, however, had received any medication at the time of intrapartal assessment. Of the entire sample, 32 (58%) experienced spontaneous births, 13 (23%) required vacuum extraction, 7 (13%) required emergency cesarean sections, and 2

Table 1.  
Demographic Information

Variable	Mean	S.D.	Range	N	Percent
Age (years)	28.27	3.67	20 - 35	55	n/a
Maternal weight (kgs.)	78.29	10.04	58.90 - 99.50	50	n/a
Maternal height (cms)	162.38	6.85	134.60 - 172.50	51	n/a
Maternal weight/height ratio	.481	.06	-	49	n/a
Education Level					
Some high school				3	2%
High school graduate				11	21%
Some post secondary education				26	49%
Post secondary degree / diploma				15	28%
Marital Status					
Single				4	7%
Married / common-law				51	93%
Fetal Position					
Occiput posterior				5	10%
Occiput anterior				50	90%
Medications					
No medications				7	13%
Nitrous oxide				6	11%
I.M. Demerol / morphine				34	62%
Epidural				5	9%
Missing				3	5%
Delivery					
Spontaneous				32	58%
Vacuum / forceps				13	23%
Cesarean section (elective)				2	4%
Cesarean section (emergency)				7	13%
Unknown				1	2%
Induced				9	16%
Not induced				46	84%

(4%) experienced elective cesarean sections. Nine women, or 16% of the sample experienced induced labours (oxytocin alone or oxytocin and ruptured membranes). All of these values are almost identical to those reported for a sample of 2706 low-risk primigravidae giving birth at the Rockyview General Hospital during the period between March 1991 and February 1993 (SAPAP Bulletin, 1993).

The data from the women in the present study did not differ from established norms on measures of trait anxiety (STAI), pregnancy specific anxiety (PSEI), monitoring - blunting (MBSS), labour pain reports (PPI), duration (latent, onset to 10 cms, onset to delivery), presence or absence of fetal distress and fetal assistance (Egger, 1990; Friedman & Neff, 1987; Lederman, Lederman, Work & McCann, 1985; Miller, 1987). Descriptive statistics are presented in Table 2.

### Measures

The data collected from each gravida in this study included a combination of questionnaire, verbal report and hospital records. The questionnaires used and the interview questions asked are reproduced in Appendix A. They include the State Trait Anxiety Inventory (STAI - Trait subscale only), the Pregnancy Self Evaluation Inventory (PSEI) , the Miller Behavioral Style Scale (MBSS) , the Present Pain Intensity scale (PPI), a visual numerical rating scale for

Table 2.

## Descriptive Statistics for the Sample

Variable	Mean	SD	Range
STAI	33.81	6.40	24 - 48
PSEI (fear for safety of self and baby)	16.60	3.80	10 - 26
MBSS	4.56	4.26	-5 - 11
PPI	2.74	.96	1 - 5
Anxiety (intrapartal - state)	49.59	26.63	0 - 100
Duration - latent (minutes)	481.08	335.24	90 - 1710
Duration - onset to 10 cms (minutes)	653.00	439.99	110 - 2040
Duration - onset to delivery (minutes)	702.75	421.40	130 - 1900
			% present
Presence of fetal distress			42.59
Presence of need for fetal assistance			16.98

the measurement of latent labour anxiety, and three questions concerning coping which were asked between contractions during latent labour. Responses to latent labour interview questions were tape recorded and later transcribed.

Personal coping style: Miller's (1987) Miller Behavioral Style Scale (MBSS) was used to evaluate the level to which gravidae endorsed monitoring or blunting coping strategies. The MBSS divides individuals into monitors (those who are disposed toward seeking threat relevant information) and blunters (those who are disposed to distracting from threat relevant information). This is accomplished by asking respondents to endorse a number of coping strategies which are offered for four written descriptions of naturalistic threatening situations. It compares favourably with other measures of attentional - avoidant coping because it has demonstrated good predictive validity in a number of applied situations (Miller, 1987; Miller, Brody & Summerton, 1988). The MBSS has been found to be unrelated to demographic variables and to trait measures such as anxiety, repression-sensitization, depression and type - A (Miller & Mangan, 1983). The MBSS has also demonstrated good ability to discriminate between people who use monitoring and blunting coping strategies in stressful situations ( $\alpha = .79$ ,  $p < .01$ ) (Miller & Mangan, 1983).

Specific coping strategies - latent labour: A think aloud technique was used to collect women's thoughts about coping in labour. Women were asked the following three questions: "What are you thinking about during contractions?", "What are you thinking about between contractions?", and "What are you doing to cope with the pain?" Each of these questions was followed up with the query, "Anything else?". Genest & Turk (1981) claim that this type of cognitive self report may be the only technique available to establish certain facts that are inaccessible to other forms of measurement (e.g. catastrophizing thoughts, labour specific coping strategies). Responses were tape recorded and transcribed for coding by two graduate students.

Coping strategies and thoughts which corresponded with Miller's (1980) definition of monitoring and blunting were derived from the transcriptions, and then compiled into a coding sheet which was comprised of the four most common monitoring and the four most common blunting strategies (Table 3). Each transcription was then scored to determine to what extent each of the eight strategies was used. Scoring was performed independently by two graduate students to allow for assessment of inter rater agreement. Inter-rater agreement (percentage of transcripts scored identically) was 89%. Trait anxiety: Spielberger, Gorsuch and Lushene's (1970) State - Trait Anxiety Inventory (STAI) was used as an antenatal self report measure of trait anxiety. The twenty items which comprise the trait component

Table 3

## Intrapartal Coping Strategies Coding Sheet

- I'm thinking about what is going to come next, the delivery, the baby, what we're going to name the baby, whether it's a boy or a girl, etc. (MONITORING)
- I'm thinking about pleasant memories, other times or places. (BLUNTING)
- I'm just resting, or sleeping. I'm not thinking about anything. (BLUNTING)
- I'm thinking about how dilatated I am. I'm listening to the fetal monitor machine. I'm thinking about how far apart the contractions are. (MONITORING)
- I'm paying attention to pain and trying to respond to them (e.g. I'm paying attention to the contraction, how it feels as it intensifies, when they peak, when they begin to subside, and am trying to ride them out). (MONITORING)
- I am focusing on something outside of my body (e.g. that point on the wall, the picture on that card that my sister sent). (BLUNTING)
- I am focusing on my breathing and tuning everything else out. I am doing this to distract attention away from the pain and / or how the contraction feels. (BLUNTING)
- I am using relaxation or imagery techniques in conjunction with somatic signals (e.g. I am visualizing my cervix dilating with each contraction, or I am allowing the relaxation that occurs after a contraction to seep through my whole body). (Monitoring)

of Spielberger's scale assess the degree to which a person endorses items which indicate a predisposition to perceive a wide range of objectively nondangerous situations as threatening (Spielberger & Jacobs, 1983). Test retest reliabilities range from .73 to .86 (Spielberger, Gorsuch & Lushene, 1970), and several studies have demonstrated high concurrent validity with other measures of trait anxiety (Cattell & Scheier, 1981).

Pregnancy specific anxiety: The 'Fear for the Safety of Self and Baby' subscale of Lederman et al's (1979) Pregnancy Self Evaluation Inventory (PSEI) was used as a measure of pregnancy specific concerns. The ten items which comprise this subscale assess a gravide's anxiety over her own safety, and the safety and well being of the neonate during and after delivery. The reliability for this subscale has been demonstrated to be good ( $\alpha$ ) = .75 (Lederman et al, 1985; Wuitchik, 1987). 'Fear for safety of self and baby' has also been shown to be predictive of labor duration (Lederman et al, 1985; Wuitchik, Hesson & Bakal, 1990).

#### Labour outcome measures

Duration: The duration of the latent and active phases, plus the duration between onset of labor and ten centimeters, and onset of labor and delivery provided a set of continuous dependent measures. Latent labor was defined as the time from first regular contractions to the time that dilatation reached 4 cms. Contractions were considered regular when

they were consistent and 10 to 12 minutes apart. Active labor duration was defined as the length of time between 4 and 10 cms dilatation. All labour duration information was collected by post partum chart review.

Latent labor pain report: The Present Pain Intensity scale (PPI; Melzack, 1983) was used as a measure of self reported pain during latent labour. The PPI consists of six descriptors: no pain, mild, discomforting, distressing horrible and excruciating which indicate increases in both affective as well as tactile intensity. The PPI has consistently demonstrated well documented validity (Melzack, 1973), and is quick to administer.

Latent labour anxiety: A numerical rating scale (from 0 to 100) was used as a measure of latent labour anxiety. This scale was used to assess the level of anxiety that a gravide experienced during latent labour assessment. The left end of the scale represented 0 anxiety, or no anxiety at all, and the right end of the scale represented 100 anxiety, or anxiety as bad as it can be. This measure is an adaptation of a 101 point Numeric Rating Scale (NRS - 101) for pain which has been demonstrated to be more effective than a number of other pain measures when measuring pain in clinical situations (Jensen, Karoly & Braver, 1986). State anxiety in labour has been demonstrated to be a good predictor of labour length (Beck et al, 1980; Lederman, Lederman, Work and McCann, 1985, Wuitchik, Bakal & Lipshitz,

1989). The numeric anxiety rating scale administered was chosen largely on the basis of unobtrusiveness.

Strength of analgesic medications: Reports of what medications were used was collected, postnatally from labour charts. Severity was evaluated from least severe to most severe as follows: no medications, nitrous oxide, morphine / demerol, and epidural anesthesia.

Severity of delivery intervention: Reports of delivery intervention were collected, postnatally from labour charts. Severity of delivery intervention was evaluated from least severe to most severe as follows: spontaneous delivery, vacuum / forceps extraction, and emergency cesarean section.

Fetal distress: Fetal distress was assessed solely on the basis of fetal heart rate abnormalities. Late decelerations, occurring 30 - 60 seconds after the peak of a contraction, are often indicative of fetal hypoxia (deficiency of oxygen reaching the tissues of the body) (Parer, 1993). Labor room monitoring of fetal heart rate occurs regularly throughout labour and fetal distress is indicated as either present or absent in the delivery charts.

Fetal assistance: Fetal assistance was also measured according to delivery chart reports as being either present or absent. The types of fetal assistance included were: medication, resuscitation and incubation.

#### Procedure

Fifty five primigravidae were recruited through Childbirth Education classes. Fifteen percent of the women

in these classes chose to participate. All women were informed that research was being conducted on coping styles and breathing patterns in labour. They were also told that participation would include three components i) filling out questionnaires antenatally, ii) a latent labour assessment and brief interview and, iii) a postnatal chart review. Formal informed consent was obtained from each subject prior to any assessment being conducted (see consent forms, Appendix C). Subjects were also reassured that they could withdraw at any time, and that all information was to remain confidential and in files available only to the principle investigators.

The antenatal measures included the STAI - trait, the PSEI and the MBSS. The antenatal measures were administered by the same experimenter who was present during latent labour. The interviewer arrived at the hospital as soon as possible after primigravidae admissions. The experimenter administered the numerical rating scale for anxiety, the PPI, asked the subject three brief questions concerning coping strategies and tape recorded their responses. Subjects were also asked to wear Respitrace bands around the chest and abdomen through one contraction as part of a larger, related research project.

## Results

The main hypothesis, that the grouping of women predisposed to monitoring coping style who used monitoring coping strategies while in labour versus all others would have more positive labour experiences was not supported by the data in the present study. The secondary groupings: (1) women who were predisposed to using monitoring coping style versus those who were predisposed to blunting coping styles, (2) women who reported using monitoring coping strategies while in labour versus those who reported using avoidant coping strategies, and (3) women whose coping styles and coping strategies used were consistent versus those who were inconsistent; and the associated hypotheses that they would have more positive labour experiences were also not supported by the data from the present study. The pregnancy and labour variables that were predictive of more favourable labour experiences are presented later in this section.

Prior to analyses, the data were examined for accuracy of data entry, missing values and fit between their distributions and the appropriate assumptions. All duration measures were found to be significantly skewed according to the formula  $z = (S_c - 0) / S_e$ , (skew coefficient minus zero divided by standard error of skew) (Tabachnik & Fidell, 1989). To improve the skewness in the duration variables, these scores were transformed by taking their square root (Tabachnik & Fidell, 1989). Preliminary analyses were run to evaluate the impact of psychological variables on degree of

medication used and severity of delivery intervention, and the impact of these two variables on labour outcome measures (e.g. duration, fetal distress, fetal assistance) was also assessed.

#### Effects of medical intervention

A series of oneway anovas and chi squares was run which indicated that levels of severity of medication were not associated with significantly longer durations, trait anxiety, pregnancy specific anxiety, greater levels of intrapartal anxiety or intrapartal pain reports. Significant differences were found, however, between levels of severity of medications and degree of delivery intervention  $F(3,29) = 3.33$ ,  $p < .04$ , presence of fetal distress  $\chi^2(3, N = 52) = 9.82$ ,  $p < .03$ , and need for fetal assistance  $\chi^2(3, N = 51) = 8.86$ ,  $p < .04$ . These chi square results should be interpreted with caution, however, given the low number of cases per cell (Howell, 1987).

#### Effects of delivery intervention

Of the entire sample, 32 deliveries were spontaneous births, 13 were either vacuum or forceps extraction, 3 were elective cesarean section (due to being past due), and 7 were emergency cesarean sections (due to failure to progress in labour, or to cephalopelvic disproportion). A series of oneway anovas and chi squares was run which indicated that levels of degree of delivery intervention were not associated with trait anxiety, pregnancy specific anxiety, monitoring-blunting, intrapartal anxiety, intrapartal pain

reports, or need for fetal assistance. Levels of severity of delivery intervention were, however, associated with significantly longer durations (from onset to 10 cms)  $F(29) = 8.33$ ,  $p < .01$ , and presence of fetal distress  $\chi^2(3, N = 54) = 9.33$ ,  $p < .03$ ). Again, the chi square results should be interpreted with caution.

#### Sample attrition

Of the women in the sample, three women had elective cesarean section deliveries, four women did not contact the experimenter, and the experimenter was unable to attend labour for seven women. These circumstances resulted in the collection of intrapartal measures for 41 women. Further, seven women were dilatated past 4 cms at the time of intrapartal assessment and interview, their data were excluded from any analyses which included intrapartal measures of pain, anxiety, and / or specific coping strategies. T-tests indicated that women whose labours had been induced (due to being past their due date) experienced significantly shorter labour durations  $t(42) = 2.36$ ,  $p < .02$ , and scored significantly lower on trait anxiety  $t(48) = 1.94$ ,  $p < .02$ . Their data were excluded from analyses which included any measures of duration and / or trait anxiety measures. The resulting sample sizes for the analyses used to test the main hypotheses are presented in Table 4.

Table 4.

Sample Size for the Tests of the Main Hypotheses

Hypothesis #1 - Gravidae who are predisposed to monitoring coping style will have more positive labour experiences.

Total, n = 22

MBSS - Monitors, n = 10

MBSS - Blunters, n = 12

Hypothesis #2 - Gravidae who used monitoring coping strategies while in labour will have more favourable labour experiences.

Total, n = 22

Labour - Monitors, n = 7

Labour - Blunters, n = 15

Hypothesis #3 - Gravidae who were consistent between their coping style predisposition and the strategies used while in labour would have more positive labour experiences.

Total, n = 22

Consistent, n = 13

Inconsistent, n = 9

Hypothesis #4 - Gravidae who are predisposed to monitoring coping styles who use monitoring coping strategies while in labour will have more positive labour experiences.

Total, n = 22

Monitors who monitored, n = 4

All others, n = 18

### Correlations among variables

Table 5 shows the zero order correlations between the variables. The measures of duration were highly intercorrelated, and therefore, onset to ten cms was used as the sole measure of duration in any further analyses. Trait anxiety measured during pregnancy was significantly negatively correlated with labour duration (onset to ten cms),  $r = -.44$ ,  $p < .05$ . Although latent labour self reported pain and latent labour anxiety were highly correlated,  $r = .64$ ,  $p < .001$ , only latent labour anxiety was also correlated with duration measures (onset to 10 cms),  $r = .53$ ,  $p < .01$ . Since presence of fetal distress and need for neonatal assistance were both categorical variables, a phi test of association was run which indicated that primigravidae whose fetuses were assessed as experiencing distress were significantly more likely to require post partal assistance  $\phi^2(1, N = 53) = .33$ ,  $p < .02$ . Both of these measures were, however, assessed individually for point biserial correlations with other variables, and only duration (onset to 10 cms) was significantly correlated with need for fetal assistance,  $r = .37$ ,  $p < .05$ . Although certain antenatal characteristics of the primigravidae (i.e. trait anxiety), and intrapartal psychological characteristics (self reported anxiety) were significantly correlated with labour outcome measures, measures of

Table 5.  
Correlations Among the Variables

	STAI	SELFAB	MBSS	ANX	PPI
STAI	-	0.32	0.26	-0.08	-0.19
SELFAB		-	0.03	-0.24	0.09
MBSS			-	-0.07	-0.01
ANX				-	0.64 ***
ON-10	-0.44*	0.03	-0.27	0.53 **	0.37 *
ON-DEL	-0.43*	0.06	-0.28	0.44 *	0.35
LATNT	-0.42*	-0.11	-0.13	0.38 *	0.38 *
FETDIST	-0.22	-0.30	-0.05	0.07	0.02
FETASS	-0.12	-0.28	-0.06	0.13	-0.11
	ON-10	ON-DEL	LATNT	FETDIST	FETASS
ON-10	-	0.99 ***	0.86 ***	0.18	0.37 *
ON-DEL		-	0.80 ***	0.07	0.14
LATNT			-	0.33	0.46 *
FETDIST				-	0.24

\* p<.05  
 \*\* p<.01  
 \*\*\* p<.001

MBSS = monitoring/blunting predispositional coping style  
 STAI = trait anxiety  
 SELFAB = pregnancy specific anxiety  
 ANX = labour anxiety  
 ON-10 = duration - onset to 10 cms  
 ON-DEL = duration - onset to delivery  
 LATNT = duration - onset to 4cms  
 FETDIST = fetal distress  
 FETASS = fetal assistance

dispositional coping styles (MBSS) and intrapartal coping strategies (latent labour reports) were not. In fact, these measures of monitoring and blunting coping strategies were correlated with none of the demographic, independent or dependent variables with the exception of MBSS monitoring with maternal age  $r(52) = 0.41$ ,  $p < .004$ .

A phi test of association was run to assess the degree to which predisposition to monitor was associated with actual use of monitoring coping strategies while in labour. No significant degree of association was observed between these two measures.

Four main sets of analyses were run to address whether women who were predisposed to using monitoring strategies who actually made use of these strategies while in labour, had more favourable labour experiences, and whether: the predisposition to use monitoring coping style, the use of monitoring strategies while in labour, or being consistent between predisposition and coping strategies used resulted in more favourable labour experiences. Finally, the measures which did predict more positive labour experiences were determined.

#### Monitors who monitored versus all others on labour outcome measures

The present set of analyses consists of SPSS ANCOVA analysis of duration, SPSS T-TEST for analyses of latent labour pain and anxiety, and SPSS CHI SQUARE for analyses of fetal distress and need for assistance. Gravidae were

grouped as either monitors or blunterns on the antenatal measure MBSS, and then assessed using 'Think Aloud' techniques while in labour.

In the first analysis, gravidae who had been classified as monitors who monitored while in labour were compared to all other gravidae on duration using a oneway analysis of covariance (ANCOVA). Since the groupings were established a priori, a oneway design is used where gravidae were assigned group membership and compared using a hand calculated error term from a factorial ANOVA (Keppel & Zedeck, 1989). Since state and trait anxiety, and intrapartal pain reports were significantly correlated with duration and have been found to contribute to duration in past research (Beck et al., 1980; Istvan, 1986), these variables are covaried out of the duration analyses. No significant difference is demonstrated between these two groups on duration. In the second pair of analyses, gravidae who had been classified as monitors who had monitored while in labour are compared to all others on measures of intrapartal pain and anxiety using univariate t-tests. No significant differences are evident between these two groups on the intrapartal measures. In the third pair of analyses, these same groups were compared on likelihood of the presence of fetal distress, or need for neonatal assistance using chi square tests. No significant differences are observed between these two groups on either of these dependent measures.

Monitors versus Blunters (MBSS) on labour outcome measures

The second set of analyses consists of the identical procedures performed in the previous set of analyses, although the grouping has changed. In the present set, gravidae who were predisposed to monitoring are compared to those were predisposed to blunting (according to scores on the MBSS) on the labour outcome measures.

In the first analysis here, gravidae who had been classified as monitors are compared to those classified as blunters on duration using a oneway analysis of covariance (ANCOVA). No significant difference is found between these two groups.

In the second pair of analyses, gravidae who had been classified as monitors are compared to gravidae classified as blunters on measures of intrapartal pain and anxiety using univariate t-tests. No significant differences are found between these two groups on the intrapartal measures. In the third pair of analyses, these same groups are compared on likelihood of the presence of fetal distress, or need for neonatal assistance using chi square tests. No significant differences are observed between these two groups on either of these dependent measures.

Monitors versus Blunters (latent labour coping strategies) on labour outcome measures

The third set of analyses consists of the identical procedures performed in the previous two sets of analyses, although, again, the grouping changed. In the present set,

gravidae who used monitoring coping strategies while in labour are compared to those who used blunting coping strategies while in labour on the labour outcome measures.

In the first analysis here, gravidae who had been classified as monitors are compared to those classified (using latent labour coping interview data) as blunters on duration using a oneway analysis of covariance (ANCOVA). No significant difference is found between these two groups.

In the second pair of analyses, gravidae who had been classified as monitors are compared to women classified as blunters on measures of intrapartal pain and anxiety using univariate t-tests. No significant differences are found between these two groups on the intrapartal measures. In the third pair of analyses, these same groups are compared on likelihood of the presence of fetal distress, or need for neonatal assistance using chi square tests. No significant differences are observed between these two groups on either of these dependent measures.

Gravidae who were consistent between coping predisposition and coping strategies used versus those who inconsistent

The final set of analyses consists of the identical procedures performed in the preceding sets of analyses, although the grouping was changed. In the present set, women who were consistent between their coping style and coping strategies used are compared to those who were inconsistent between coping style and strategies used on the labour outcome measures.

In the first analysis here, consistent gravidae are compared to inconsistent gravidae on duration using a oneway analysis of covariance (ANCOVA). No significant difference is evident between these two groups.

In the second pair of analyses, consistent gravidae are compared to inconsistent gravidae on measures of intrapartal pain and anxiety using univariate t-tests. No significant differences are found between these two groups on the intrapartal measures. In the third pair of analyses, these same groups are compared on likelihood of the presence of fetal distress, or need for neonatal assistance using chi square tests. No significant differences are observed between these two groups on either

#### Predictors of labour outcome measures

Each of the psychological (STAI, PSEI, MBSS, latent labour anxiety report) and pain (PPI) variables, plus the labour variables which are believed to have an impact on labour outcome (i.e. type of medications used, delivery interventions, presence of fetal distress) is entered into regression equations to assess which predicted labour outcomes. A stepwise method of entry on SPSSx REGRESSION is used for five regression equations. The five labour outcome measures which were designated as dependent measures are; duration, severity of medication, delivery intervention, presence of fetal distress and need for neonatal assistance.

#### Duration

Table 6 displays the unstandardized regression coefficients ( $B$ ), intercept ( $I$ ), standardized regression coefficients ( $\beta$ ), semipartial correlations ( $sr^2$ ),  $R$ ,  $R^2$ , and adjusted  $R^2$  for the duration stepwise regression.  $R$  is significantly different from zero at the end of each step. After 3 steps, with all IVs in the equation,  $R = .75$ ,  $F(3, 20) = 7.24$ ,  $p < .003$ .

After the first step, with intrapartal anxiety in the equation,  $R^2 = .25$ ,  $F(1, 20) = 6.34$ ,  $p < .03$ . After the second step, with severity of medications in the equation,  $R^2 = .41$ ,  $F(2, 20) = 6.30$ ,  $p < .01$ . Addition of trait anxiety to the equation results in  $R^2 = .56$ . The adjusted  $R^2 = .48$ , indicating that low trait anxiety, more severe medications and high state anxiety account for 48 percent of the variance in labour duration.

#### Severity of medications

Table 7 contains the regression information for the severity of medications stepwise regression equation.  $R$  is significantly different from zero at the end of each step. After 3 steps, with all IVs in the equation,  $R = .78$ ,  $F(3, 20) = 8.84$ ,  $p < .001$ .

Table 6.

Stepwise Multiple Regression of Labour and Pregnancy  
Variables on Labour Duration.

	B	I	$\beta$	sr <sup>2</sup>
<hr/>				
Step 1				
State Anx	.14	19.01	.50	.50
Step 2				
Meds	3.48	14.56	.40	.46
Step 3				
STAI - Trait	-.39	28.50	-.39	-.50
<hr/>				
	R	R <sup>2</sup>	adjR <sup>2</sup>	
Step 1	.50	.25	.21	
Step 2	.64	.41	.35	
Step 3	.75	.56	.48	

Table 7.

Stepwise Multiple Regression of Labour and Pregnancy  
Variables on Severity of Medication in Labour.

	B	I	$\beta$	$sr^2$
<hr/>				
Step 1				
Montran	-.5	2.00	-.5	-.49
Step 2				
Delivery	.86	1.76	.51	.51
Step 3				
Duration	.04	0.78	.33	.32
<hr/>				
	R	$R^2$	$adjR^2$	
Step 1	.50	.24	.20	
Step 2	.71	.51	.45	
Step 3	.78	.61	.54	

After the first step, with monitoring coping strategy in the equation,  $R^2 = .24$ ,  $F(1,20) = 6.15$ ,  $p < .03$ . After the second step, with delivery intervention in the equation,  $R^2 = .51$ ,  $F(2,20) = 9.20$ ,  $p < .002$ . Addition of duration to the equation results in  $R^2 = .61$ . The adjusted  $R^2 = .54$ , indicating that monitoring coping strategy, delivery intervention and duration account for 54 percent of the variance in severity of medication in labour.

#### Delivery intervention

Table 8 contains the regression information for the severity of delivery intervention stepwise regression equation.  $R$  is significantly different from zero at the end of the first step,  $R = .47$ ,  $F(1, 20) = 5.29$ ,  $p < .04$ .

After the first step, with severity of medications in the equation,  $R^2 = .22$ . The adjusted  $R^2 = .18$  indicating that severity of medications accounts for 18 percent of the variance in severity of delivery intervention.

#### Fetal distress and Neonatal assistance

For the two labour outcome measures, presence of fetal distress and need for fetal assistance, only one IV each entered into the equation. Therefore, the information for both of these formulae are presented in Table 9.  $R$  is significantly different from zero at the end of the first step for both fetal distress  $R = .45$ ,  $F(1, 20) = 4.75$ ,  $p < .05$ , and fetal assistance  $R = .46$ ,  $F(1, 20) = 5.07$ ,  $p < .04$ ,

Table 8.

Stepwise Multiple Regression of Labour and Pregnancy Variables on Severity of Delivery Intervention.

	B	I	$\beta$	sr <sup>2</sup>
Step 1				
Medications				
	.28	-0.08	.47	.47
	R	R <sup>2</sup>	adjR <sup>2</sup>	
Step 1	.47	.22	.18	

Table 9. .

Stepwise Multiple Regression of Labour and Pregnancy  
Variables on Fetal Distress and Neonatal Assistance.

	B	I	$\beta$	sr <sup>2</sup>
<hr/>				
Fetal Distress				
Step 1				
Delivery	.43	0.14	.45	.45
Fetal Assistance				
Step 1				
Delivery	.29	5.29	.46	.46
	R	R <sup>2</sup>	adjR <sup>2</sup>	
<hr/>				
Fetal Distress				
Step 1	.45	.20	.16	
Fetal Assistance				
Step 1	.46	.21	.17	

After the first step, with severity of delivery intervention in both equations, for fetal distress,  $R^2 = .20$ , and for fetal distress  $R^2 = .21$ . For fetal distress, the adjusted  $R^2 = .16$ , and for fetal assistance,  $R^2 = .17$  indicating that severity of delivery intervention accounts for 16 percent of the variance in fetal distress and for 17 percent of the variance in need for fetal assistance.

## Discussion

The main objective of the present study was to determine whether women who were categorized as being predisposed to a monitoring coping style who actually used monitoring coping strategies in labour would have more positive labour experiences. Other questions of interest included whether the following groupings were associated with more favourable labour outcomes: (1) women predisposed to a monitoring coping style versus those predisposed to a blunting coping style, (2) women who reported using monitoring coping strategies while in labour versus women who reported using avoidant coping strategies, and (3) women who were consistent between their coping disposition and coping that they used in labour versus those who were inconsistent. The specific questions addressed in analyses included whether any of these groupings were associated with shorter, less painful labours, fewer medications, fewer interventions, less fetal distress, and less postnatal assistance. Other questions included whether women who reported being predisposed to a monitoring coping style were more likely to use monitoring coping strategies while in labour, and which of the antenatal or latent labour variables collected were associated with more positive labour experiences.

The women who were predisposed to a monitoring coping style who actually used monitoring coping strategies in labour did not appear to experience more favourable labours than other women. Women who: (1) were categorized as being

predisposed to monitoring coping style, (2) were reported to have used monitoring coping strategies while in labour, and (3) were reported to be consistent between their coping style predisposition and intrapartal coping strategy report, did not differ from others on any of the labour outcome measures. Another finding from the present study indicates that women who reported being predisposed to a monitoring coping style were no more likely than other women to use monitoring coping strategies while in labour. The present data also suggest that, of the antenatal and partal measures collected, state anxiety, severity of medications and trait anxiety were significantly predictive of labour duration. It was also found that using monitoring coping strategies while in labour, severity of delivery intervention and labour duration were predictive of severity of medication. Severity of delivery intervention was significantly predicted by severity of medications. Finally, severity of delivery intervention accounted for significant proportions of the variance in fetal distress and need for neonatal assistance.

The finding that women who reported being predisposed to monitoring and actually used monitoring coping strategies while in labour did not have better labour experiences than other women is not consistent with previous research. Past studies (Auerbach, 1989; Martelli, Auerbach, Alexander & Mercuri, 1987; McCaul & Malott, 1984; Miller, 1990; Miller, Combs & Krus, 1991; Miller & Magnan, 1983) have suggested that finding a good match between situational demands,

personal coping preferences and actual strategies used results in more favourable outcome experiences. Miller and Magnan (1983) conducted a study with women who were about to undergo an aversive diagnostic procedure for gynecological cancer. Results from this study indicated that coping style predisposition interacted with, and positively modified the impact of coping strategy used. McCaul and Malott's (1984) review of the literature supports the use of attentional strategies for situations of intense pain (i.e. childbirth labour), and Suls and Fletcher's (1985) work supports the use of attentional strategies for long duration pain experiences. The present results, however, indicate no significant benefits to the combination of being predisposed to a monitoring coping style and using monitoring coping strategies while in labour.

Three important factors could be involved in the explanation of the discrepancy between past findings and the present results. Firstly, labour may represent an exception to the personal predisposition by coping strategies used by situational demands hypothesis in that the situational demands represent an immensely varied set of experiences between different women. Although labour can be an extremely long and painful experience for some women, it can also be a very short pain experience for others. In fact, Melzack et al. (1984) pointed out that the single most significant aspect of women's labour pain experiences is the vast amount of variance observed. Given the observed variance in labour

experiences in the present data (from 1.8 hours to 34 hours duration, and from mild to excruciating pain reports), the situational demands component of Miller's hypothesis may represent too varied an event for uniformly evaluating situational demands. Which would suggest that one type of coping might not be adequate for such a wide range of possible experiences. In fact, Aruthuzik (1991) and Tunks and Bellisimo (1988) suggest that a wide range of coping styles be presented to prepare people for a variety of eventualities. Furthermore, Suls and Fletcher (1985) point out that attentional and avoidant strategies need not be antithetical. In fact, they make the argument that sensory attention could be conceptualized as emotional avoidance which indicates the potential need for measuring not only attention / avoidance coping, but also sensory / emotional focus in future research.

Secondly, with regards to Leventhal, Leventhal, Shacham and Easterling's (1989) work, the discrepancy between present and past results could be due to differences in the measurement of attentional coping strategies. Leventhal et al.'s (1989) interventions appear to reflect a more sensory type of attentional coping strategy. For example, a sample of the interventions used in their study include such phrases as "I want you to pay close attention to specific aspects of your contractions", and "you should pay close attention to how they (the contractions) feel". This type of instruction seems to reflect the type of attentional coping

strategy endorsed by Morgan and Pollock (1977), who performed a study on long distance runners and found that those runners who paid attention to somatic cues while running experienced less pain and demonstrated lower oxygen consumption than runners who dissociated their thoughts away from somatic cues. On the other hand, Miller's (1987) definition of attentional coping predisposition describes a tendency to focus more on the availability of threat relevant information and whether information can be used to exert control over the environment. This distinction may be signaling the need to further distinguish attentional strategies into sensory and informational attention in future research.

This last point, that according to Miller, people with attentional coping tendencies prefer to attend to situations so that they can exert control over an aversive event represents the third main suggested explanation for the discrepancy in findings. Many experts in the field of childbirth labour propose that control over the labour process may be an inappropriate goal. For example, Brewin and Bradley (1982) and Hodnett and Abel (1986) have found that trying to assert control over the labour experience can result in greater degree of discomfort and higher likelihood of having labour artificially induced or augmented. These studies would indicate that if information monitoring is going to be evaluated, a measure of desire to control should also be included. In the present study, the degree to which

women used monitoring coping strategies while in labour significantly predicted severity of medical interventions, which may represent a manifestation of their need to control the situation. In fact, Miller (1987) has found similar behaviours (higher needs for medical interventions) on the part of high monitors and hypothesized that they may be due to a higher need for control. The present findings build on the previous suggestion that what is meant by attentional coping needs to be looked at more closely, suggesting the need to further discriminate attentional coping strategies along a dimension of need for control.

The finding that women who were consistent between their coping disposition and the coping that they used in labour did not result in more favourable labour experiences, again was not congruent with previous findings (Auerbach, 1989; Miller & Magnan, 1983). By using information from both the MBSS and the latent labour interviews in the present study, it was possible to assess whether or not the 'personal coping predisposition' by 'coping strategy used' interaction was an effective way to conceptualize the labour experience. The results indicate that unlike the women in Miller and Magnan's (1983) study, the women in the present study did not appear to benefit from a match between their personal coping style predisposition and the reported behaviours in labour. In fact, the present results suggest that women did not use the coping strategies to correspond with their coping style predisposition as measured by the MBSS.

The present findings indicate that women who are predisposed to using either monitoring or blunting coping styles are no more likely to use their preferred coping style while in labour than are other women. This result is a direct contradiction with Miller's (1987) findings, that the MBSS has good predictive validity. These results could be explained by the unique set of circumstances that labour represents. On one level labour is a much anticipated and hoped for experience that can produce positive affect, and therefore no need for coping. On another level, it can represent an excruciatingly painful experience that represents a threat to maternal and fetal well being, and maternal identity (Lederman, 1984). Thus, unlike other stressful pain events, labour is associated with positive affect that may alter coping behaviours in important, and as yet undetermined ways. Another explanation, however, is that the method for assessing monitoring coping strategies in the present study was ineffective in measuring the construct being measured by Miller's MBSS. Therefore, the current data suggest a need for closer evaluation of how gravidae cope while in labour, perhaps using a combination of questionnaire, interview and behavioural accounts in the assessment.

The result that women who reported being predisposed to a monitoring coping style did not experience more positive labour experiences was not consistent with studies by Leventhal et al. (1985) and by Weisenberg and Caspi (1989).

Weisenberg and Caspi (1989) found that monitoring was associated with lower labour pain ratings. However, they also found that high monitoring was associated with higher educational status, a correlation that was not replicated in the present study. On the other hand, maternal age was significantly correlated with MBSS monitoring in the present sample, but was not reported in Weisenberg and Caspi's (1989) sample, nor in any of Miller's studies. Given that Weisenberg and Caspi's (1989) research, however, was developed to assess cultural influences on the pain of childbirth in the Middle East, perhaps they were finding a specific subpopulation of women (daughters of North American, European and Middle Eastern women,  $N = 83$ ) that was not replicated in the present study (Canadian women,  $N = 55$ ). Weisenberg and Caspi (1989) also created their groups by performing a median split, whereas in the present study the method for group assignment followed Miller's (1987) suggested method by performing a mean split. Another difference between the two studies is that the MBSS was administered antenatally in the present study and postnatally in the Weisenberg and Caspi (1989) study. Thus, many differences between samples and administration of the MBSS between the two studies could be taken into account in explaining the discrepancy in results. This discrepancy indicates the need for adherence to a standardized scoring procedure for the MBSS, and the need for administration that

allows for access to larger samples to lessen the danger of measuring specific subpopulations.

The finding that women who reported using monitoring coping strategies while in labour did not have more positive labour experiences than other women is not consistent with the work of Leventhal et al. (1985). The present findings call into question the conclusions arrived at by Weisenberg and Caspi (1989) who used the sensory monitoring model proposed by Leventhal et al. (1985) to explain their information monitoring findings. As was stated earlier, the two concepts; sensory monitoring and information monitoring may not be representing the same conceptual construct. In fact, no studies have been reported to date which assess to what extent, if any, sensory monitoring can be evaluated using the MBSS information monitoring questionnaire. If the MBSS is to be used as a measure of sensory monitoring in future research, it's ability to reliably measure this construct should be further evaluated.

As in previous studies (Lederman, Lederman, Work & McCann, 1985; Beck et al., 1980; Wuitchik, Bakal & Lipshitz, 1989), latent labour state anxiety was predictive of labour duration, as was severity of medications and low trait anxiety. The low trait anxiety result appears to be counter intuitive, and yet reflects theory supported by Janis' (1958, 1983) research. Janis (1958, 1983) suggests that, for any given situation, an optimal level of anxiety exists. The assumption is that if anxiety reporting is too low,

repression is taking place, and if it is too high, anxiety will interfere with coping ability. Whether or not this is the mechanism which is impacting the present results is impossible to determine, but this argument presents an interesting solution to the unexpected finding and suggests a need to consider measures of repression or under reporting of anxiety in future research.

Some limitations to the present findings should be noted. First, the small number of subjects who participated increases the probability of Type II errors, or decreases the power. Secondly, many of the comparisons were hampered by unequal n's, although this does not represent a serious problem with the use of oneway, between subjects ANCOVAs. Thirdly, although the women do not differ from established norms on any of the measures, they do represent a well educated population of women from a relatively high SES sector of the city. Higher levels of education and higher standards of living may have had an impact on these women's data. Finally, the in-labour assessment of coping strategies, although theoretically sound, may not possess solid psychometric properties, and, in fact, evaluating the psychometric properties of this instrument may not be valid, given that the responses came from this particular grouping of women.

In closing, the present study represents an inconsistency with previous findings that seem to suggest that being predisposed to a monitoring coping style and

using monitoring coping strategies while in labour represented an optimal labour state. The results indicate that not only may this not be true, but also that matching coping predisposition and coping strategies used may not represent a favoured state for the labour experience either. The large interindividual variance in labour experiences could explain the former discrepancy in that finding one coping strategy that would be best suited for an experience that manifests itself in such a wide variety of ways may be an unrealistic goal. The latter discrepancy could be explained by the fact that the labour experience is such a unique one that women find themselves using coping strategies that they may have never considered before, or that the positive expectations associated with childbirth may create a coping system that is not available in other pain situations. The present null findings could also be explained by a small sample size, unequal n's, an overly educated and affluent sample or inappropriate latent labour measures.

Nonetheless, the present findings do raise some interesting and important questions. For example, should childbirth education research be aimed at finding the right set of coping strategies to offer to expectant women, or should it be focused on offering as many coping strategies as possible. A related question would be, given that women may not use either types of coping strategies (attentional or avoidant) that they, or anyone else can predict, would

having coping coaches in labour be more effective and adaptive than teaching women strategies that they may not use. This type of model was used in the Leventhal et al. (1989) study where women weren't asked what type of strategy they used, but were assigned to labour teams who were coaching the use of either attentional (in one group) or avoidant (in the other group) coping strategies. In summary, as Geden, Beck, Anderson, Kennish & Mueller-Heinze (1986) have already suggested, future research needs to evaluate what benefits, if any, result from the use of specific coping strategies while in labour. What the present study contributes to that suggestion is that within either of attentional or avoidant coping strategies the finer distinctions of sensory monitoring, informational needs and need for control need to be considered, and that the designation of a generic account of situational demands may be inappropriate for a situation, like labour, that is characterized by such a vast variety of experiences.

## References .

- Albers, L. L., & Katz, V. L. (1991). Birth setting for low-risk pregnancies: An analysis of the current literature. Journal of Nurse-Midwifery, 36(4), 215 -220.
- Annie, C. L., & Groer, M. (1991). Childbirth Stress: An immunologic study. Journal of Gynecologic and Neonatal Nursing, 20(5), 391 - 396.
- Arathuzik, M. D. (1991). The appraisal of pain and coping in cancer patients. Western Journal of Nursing Research, 13(6), 714 - 731.
- Auerbach, S. M. (1989). Stress management and coping research in the health care setting: An overview and methodological commentary. Journal of Consulting and Clinical Psychology, 57(3), 1 -8.
- Beck, N. C., Geden, E. A., & Brouder, G. T. (1979). Preparation for labour: A historical perspective. Psychosomatic Medicine, 41(3), 243 - 258.
- Beck, N. C., & Hall, D. (1978). Natural childbirth: A review and analysis. Obstetrics and Gynecology, 52(3), 371 - 379.
- Beck, N. C., & Siegel, L. J. (1980). Preparation for childbirth and contemporary research on pain, anxiety, and stress reduction: A review and critique. Psychosomatic Medicine, 42(4), 429 - 447.
- Beck, N. C., Siegel, L. J., Davidson, N. P., Kormeier, S., Breitenstein, A., & Hall, D. G. (1980). The prediction of pregnancy outcome: Maternal preparation, anxiety and

attitudinal sets. Journal of Psychosomatic Research, 24, 343 - 351.

Billings, A. G., & Moos, R. (1981). The role of coping responses and social resources in attenuating the stress of life events. Journal of Behavioral Medicine, 4, 139 - 157.

Bleicher, N. (1962). Behavior of the bitch during parturition. Journal of the American Veterinary Medicine Academy.

Bloom, L. J., Houston, B. K., Holmes, D. S., & Burish, T. G. (1977). The effectiveness of attentional diversion and situational redefinition for reducing stress due to nonambiguous threat. Journal of Research in Personality, 11, 83 - 94.

Bonica, J. J., & Chadwick, H. (1989). Labour pain. In P. D. Wall & R. Melzack (Eds.), Textbook of Pain, 2nd. ed. London: Churchill Livingstone.

Brewin, C., & Bradley, C. (1982). Perceived control and the experience of childbirth. British Journal of Clinical Psychology, 21, 263 - 269.

Broome, M. E., & Koehler, C. (1986). Childbirth education: A review of effects on the woman and her family. Family and Community Health, 9(1), 33 - 44.

Cattell, R. B., & Scheier, I. H. (1981). The meaning and measurement of neuroticism and anxiety. New York: Ronald Press.

- Cioffi, D. (1991). Beyond attentional strategies: A cognitive-perceptual model of somatic interpretation. Psychological Bulletin, 109(1), 25 - 41.
- Connolly, A. M., Pancheri, P., Lucchetti, A., Salmaggi, L., Guerrieri, D., Francalancia, M., Bartolesci, A., & Zichella, L. (1978). Labor as a psychosomatic condition: A study on the influence of personality on self-reported anxiety and pain. In L. Carenza, P. Pancheri, & L. Zichella, (Eds.), Clinical Psychoneuroendocrinology in Reproduction. Academic Press: London.
- Conway, C. (1984). Psychophysical preparations for childbirth. In K. Weiss, (Ed.), Women's health care: a guide to alternatives. Reston: Reston, Va. 1984.
- Copstick, S. M., Hayes, R. W., Taylor, K. E., & Morris (1985). A test of a common assumption regarding the use of antenatal training during labour.. Journal of Psychosomatic Research, 29, 215 - 218.
- Crammond, W. (1954). Psychological aspects of uterine dysfunction. Lancet, 2, 1241 - 1245.
- Crandon, A. J. (1979). Maternal anxiety and obstetric complications. Journal of Psychosomatic Research, 23, 109 - 111.
- Crowe, K., & von Baeyer, C. (1989). Predictors of positive childbirth experience. Birth, 16(2), 59 - 63.
- Davenport-Slack, B., & Boylan, C. (1974). Psychological correlates of childbirth pain. Psychosomatic Medicine, 36(3), 215 - 223.

- Davids, A., & DeVault, S (1962) Maternal anxiety during pregnancy and childbirth abnormalities. Psychosomatic Medicine, 24, 464 - 470.
- Dimsdale, J., & Moss, J. (1980). Short term catecholamine response to psychological stress. Psychosomatic Medicine, 42, 493 - 497.
- Egger, L. A. (1989). The role of somatic awareness in anxiety and depression. Unpublished master's thesis, University of Calgary, Calgary.
- Folkman, S., & Lazarus, R. S. (1988). Coping as a mediator of emotion. Journal of Personality and Social Psychology, 54(3), 466 - 475.
- Fox, H. A. (1979). The effects of catecholamines and drug treatment on the fetus and newborn. Birth and Family Journal, 6(3), 157 - 174.
- Friedman, E. A., & Neff, R. K. (1987). Labor and delivery: Impact on offspring. Boston: PSG Publishing.
- Fuchs, A. R., & Fuchs, F. (1984). Endocrinology of term and preterm labor. In F. Fuchs & P. G. Stubblefield (Eds.). Preterm birth: Causes, prevention and management. New York: McMillan.
- Geden, E. A., Beck, N. C., Anderson, J. A., Kennish, M. E., & Mueller-Heinze, M. (1986). Effects of cognitive and pharmacologic strategies on analogued labor pain. Nursing Research, 35(5), 301 - 306.

- Geden, E. A., Beck, N., Hauge, G., & Pohlman, S. (1983). Self-report and psychophysiological effects of five pain-coping strategies. Nursing Research, 33(5), 260 - 265.
- Genest, M., & Turk, D. (1981). Think-aloud approaches to cognitive assessment. In T. V. Merluzzi, C. Glass, & M. Genest (Eds.). Cognitive Assessment. Guilford Press: New York.
- Gorsuch, R. L., & Key, M. K. (1974). Abnormalities of pregnancy as a function of anxiety and life stress. Psychosomatic Medicine, 36, 352 - 362.
- Hendricks, C. H., & Quilligan, E. F. (1970). Cardiac output during labor. American Journal of Obstetrics and Gynecology, 71, 953.
- Hetherington, S. E. (1990). A controlled study on the effect of childbirth classes on obstetric outcomes. Birth, 17(2), 86 - 90.
- Hodnett, E. D., & Abel, S. (1986). Person-environment interaction as a determinant of labor length variables. Health Care for Women International, 7, 345 - 356.
- Hodnett, E. D., & Osborn, R. W. (1989). A randomized trial of the effects of monitrice support during labor: Mothers' views two to four weeks postpartum. Birth, 16(4), 177 - 184.
- Holmes, J. A., & Stevenson, C. A. (1990). Differential effects of avoidant and attentional coping strategies on adaptation to chronic and recent-onset pain. Health Psychology, 9(5), 577 - 584.

- Huttel, F. A., Mitchell, I., Fischer, W. M., & Meyer, A. E. (1972). A quantitative evaluation of psychoprophylaxis in childbirth. Journal of Psychosomatic Research, 16, 81 - 92.
- Istvan, J. (1986). Stress, anxiety and birth outcomes: A critical review of the evidence. Psychological Bulletin, 100(3), 331 - 348.
- Janis, I. L. (1958). Psychological Stress: Psychoanalytic and Behavioral Studies of Surgical Patients. New York: Wiley.
- Janis, I. L. (1983). Preventing pathogenic denial by means of stress inoculation. In S. Breznitz (Ed.), The Denial of Stress. New York: International Universities Press.
- Jensen, M. P., Karoly, P., & Braver, S. (1986). The measurement of clinical pain intensity: A comparison of six methods. Pain, 27, 117 - 126.
- Kapp, F. T., Hornstein, S., & Graham, V. T. (1963). Some psychologic factors in prolonged labor due to inefficient uterine action, Comprehensive Psychiatry, 4, 9 - 18.
- Keefe, F. J., Crisson, J., Urban, B. J., & Williams, D. A. (1990). Analyzing chronic lower back pain: The relative contribution of pain coping strategies. Pain, 40, 293 - 301.
- Keefe, F. J., Salley, A. N., & Lefebvre, J. C. (1992). Coping with pain: conceptual concerns and future directions. Pain, 51, 131 - 134.

- Keppel, G., & Zedeck, S. (1989). Data Analysis for Research Designs: Analysis of Variance and Multiple Regression/Correlation Approaches. W. H. Freeman and Co.: New York.
- Kondas, O., & Scetnicka, B. (1972). Systematic desensitization as a method of preparation for childbirth. Journal of Behavior Therapy and Experimental Psychiatry, 3, 51 - 54.
- Kyman, W. (1991). Maternal satisfaction with the birth experience. Journal of Social Behavior and Personality, 6(1), 57 - 70.
- Lazarus, R. S., & Folkman, S. (1984). Coping and adaptation. In W. D. Gentry (Ed.), The handbook of behavioural
- Lederman, R. P. (1984). Psychosocial Adaptation in Pregnancy: Assessments of Seven Dimensions of Maternal Development. Prentice-Hall: New Jersey.
- medicine. New York: Guilford.
- Lederman, R. P., Lederman, E., Work, B. A., & McCann, D. S. (1978). The relationship of maternal anxiety, plasma catecholamines, and plasma cortisol to progress in labor. American Journal of Obstetrics and Gynecology, 132(5), 495 - 500.
- Lederman, R. P., Lederman, E., Work, B. A., & McCann, D. S. (1979). Relationship of psychological factors in pregnancy to progress in labor. Nursing Research, 28(2), 94 - 97.

- Lederman, R. P., Lederman, E., Work, B. A., & McCann, D. S. (1981). Maternal psychological and physiologic correlates of fetal-newborn health status. American Journal of Obstetrics and Gynecology, 132(8), 956 - 958.
- Lederman, R. P., Lederman, E., Work, B. A., & McCann, D. S. (1985). Anxiety and epinephrine in multiparous women in labor: Relationship to duration of labor and fetal heart rate pattern. American Journal of Obstetrics and Gynecology, 153(8), 870 - 876.
- Lederman, R. P., McCann, D. S., Work, B. A., & Huber, M. J. (1977). Endogenous plasma epinephrine and norepinephrine in last-trimester pregnancy and labor. American Journal of Obstetrics and Gynecology, 129(5), 5 - 8.
- Leventhal, E. A., Leventhal, H., Shacham, S., & Easterling, D. V. (1989). Active coping reduces reports of pain from childbirth. Journal of Consulting and Clinical Psychology, 57(3), 365 - 371.
- Levinson, G., & Shnider, S. M. (1979). Catecholamines: The effects of maternal fear and its treatment on uterine function and circulation. Birth and Family Journal, 6(3), 167 - 174.
- Lindell, S. G. (1987). Education for childbirth: A time for change. Journal of Gynecologic and Neonatal Nursing, 18, 108 - 112.
- Lubin, B., Gardener, S. H., & Roth, A. (1975). Mood and somatic symptoms during pregnancy. Psychosomatic Medicine, 37, 136 - 146.

Ludwick-Rosenthal, R., & Neufeld, R. W. J. (1988).

Stress management during noxious medical procedures: An evaluative review of outcome studies. Psychological Bulletin, 104(3), 326 - 342.

Martelli, M. F., Auerbach, S. M., Alexander, J., & Mercuri, L. G. (1987). Stress management in the health care setting: Matching interventions with patient coping styles. Journal of Consulting and Clinical Psychology, 55(2), 201 - 207.

McCaul, K. D., & Malott, J. M. (1984). Distraction and coping with pain. Psychological Bulletin, 95(3), 516 - 533.

McDonald, R. L., & Christakos, A. C. (1963). Relationship of emotional adjustment during pregnancy to obstetric complications, American Journal of Obstetrics and Gynecology, 86, 341 - 348.

Melzack, R. (1973). The Puzzle of Pain. Great Britain: Penguin.

Melzack, R. (1990). The tragedy of needless pain. Scientific American, 262(2), 27 - 33.

Melzack, R., Kinch, R., Dobkin, P., Lebrun, M., & Taenzer, P. (1984). Severity of labour pain: Influence of physical as well as psychologic variables. Canadian Medical Association Journal, 130, 579 - 584.

Melzack, R., Taenzer, P., Feldman, P., & Kinch, R. A. (1981). Labour is still painful after prepared childbirth

training. Canadian Medical Association Journal, 125, 357 - 363.

Miller, S. M. (1980) When is a little information a dangerous thing? Coping with stressful life-events by monitoring vs. blunting. In S. Levine and H. Ursin (Eds.), Coping and Health. New York: Plenum Press.

Miller, S. M. (1987) Monitoring and blunting: Validation of a questionnaire to assess styles of information-seeking under threat. Journal of Personality and Social Psychology, 52, 345 - 353.

Miller, S. M. (1989). Cognitive informational styles in the process of coping with threat and frustration. Advanced Behavioral Research and Therapy, 11, 223 - 234.

Miller, S. M. (1990). To see or not to see: Cognitive informational styles in the coping process. In M. Rosenbaum (Ed.) Learned Resourcefulness in Coping Skills, Self Regulation, and Adaptive Behavior. New York: Spring Press.

Miller, S. M. (1991). Monitoring and blunting in the face of threat: Implications for adaptation and health. In L. Montada, S. H. Filipp, & M. J. Lerner (Eds.). Life Crises and Experiences of Loss in Adulthood. New Jersey: Erlbaum Press.

Miller, S. M., Brody, D.S., & Summerton, J. S. (1988). Styles of coping with threat: Implications for health. Journal of Personality and Social Psychology, 54, 142 - 148.

- Miller, S. M., Combs, C., & Kruus, L. (1991). Tuning in and tuning out: Confronting the effects of confrontation. In H. W. Krohns (Ed.). Attention and Avoidance: Strategies in Coping with Aversiveness. New York: Springer.
- Miller, S. M., Combs, C., & Stoddard, E. (1989). Information, coping and control in patients undergoing surgery and stressful medical procedures. In A. Steptoe & A. Appels (Eds.), Stress, personal control and health. Chichester, England: Wiley.
- Miller, S. M., & Magnan, C. E. (1983). The interacting effects of information and coping style in adapting to gynecologic stress: Should the doctor tell all? Journal of Personality and Social Psychology, 45, 223 - 236.
- Monat, A., & Lazarus, R. S. (Eds.). (1991). Stress and coping: An anthology (3rd ed.). Columbia University Press: New York.
- Moos, R. H., Billings, A. G. (1982). Conceptualizing and measuring coping resources and processes. In L. Goldberger and S. Breznitz (Eds.). Handbook of Stress. Free Press: New York.
- Morgan, W. P., & Pollock, M. L. (1977). Psychologic characterization of the elite distance runner. Annals of the New York Academy of Sciences, 301, 382 - 403.
- Morishima, H. O., Pedersen, H., & Mieczyslaw, F. (1978). The influence of maternal psychological stress on the fetus. American Journal of Obstetrics and Gynecology, 131, 286 - 290.

- Mullen, B., & Suls, J. (1982a). The effectiveness of attention and rejection as coping styles: A meta-analysis of temporal differences. Journal of Psychosomatic Research, 26(1), 43 - 49.
- Mullen, B., & Suls, J. (1982b). "Know thyself": Stressful life changes and the ameliorative effect of private self-consciousness. Journal of Experimental Social Psychology, 18, 43 - 55.
- Myers, R. E. (1975). Maternal psychological stress and fetal asphyxia: A study in the monkey. American Journal of Obstetrics and Gynecology, 122(1), 47 - 58.
- O'Driscoll, K., Foley, M., & MacDonald, D. (1984). Active management of labor as an alternative to cesarean section for dystocia. Obstetrics and Gynecology, 63(4), 485 - 490.
- Pancheri, P., Zichella, L., Fraioli, F., Carilli, L., Perrone, G., Biondi, M., Fabbri, A., Santoro, A., & Moretti, C. (1985). ACTH, beta-endorphin and met-enkephalin: Peripheral modifications during the stress of human labor. Psychoneuroendocrinology, 10(3), 289 - 301.
- Parer, J. (1993). Diagnosis and management of fetal asphyxia. In S. Shnider & G. Levinson (Eds.), Anesthesia for Obstetrics, 3rd Ed. Baltimore: Williams and Wilkins. 19 -28.
- Price, D. D., Harkins, S. W., & Baker, C. (1987). Sensory-affective relationships among different types of clinical and experimental pain. Pain, 28(3), 297 - 307.

- Reading, A. E. (1983). The influence of maternal anxiety on the course and outcome of pregnancy: A review. Health Psychology, 2(2), 187 - 202.
- Reading, A. E., & Cox, D. N. (1985). Psychosocial predictors of labor pain. Pain, 22, 309 - 315.
- Reading, A. E., Cox, D. N., Sledmere, C. M., & Campbell, S. (1984). Psychological changes over the course of pregnancy: A study of attitudes toward the fetus / neonate. Health Psychology, 3(3), 211 - 221.
- Scott, E. M., & Thompson, A. M. (1956). A psychological investigation of primigravidae. Journal of Obstetrics and Gynecology of the British Empire, 63, 502 - 508.
- Scott, J. R. & Rose, N. B. (1976). Effect of psychoprophylaxis (Lamaze preparation) on labour and delivery in primiparas. New England Journal of Medicine, 294, 1205 - 1207.
- Scott, L. E., & Clum, G. A. (1984). Examining the interaction effects of coping style and brief interventions in the treatment of postsurgical pain. Pain, 20, 279 - 291.
- Southern Alberta Perinatal Audit Program (SAPAP) Bulletin, April 1993, pp. 1 - 10.
- Spielberger, C. D., & Jacobs, G. A. (1983). Emotional reactions to the stress of pregnancy and obstetric complications. In L. Cavenza, P. Pancher, & L. Zichella (Eds.), Clinical Psychoendocrinology in Reproduction. London: Academic Press.

- Spielberger, C. D., Gorsuch, R. L., & Lushene, R. E. (1970). Test Manual for the State-Trait Anxiety Inventory. Palo Alto, CA Consulting Psychologists Press.
- Suls, J., & Fletcher, B. (1985). The relative efficacy of avoidant and nonavoidant coping strategies: A meta-analysis. Health Psychology, 4(3), 249 - 288.
- Tabachnik, B. G., & Fidell, L. S. (1989). Using Multivariate Statistics. (2nd. Ed.). San Francisco: Harper & Row.
- Tunks, E., & Bellissimo, A. (1988). Coping with the coping concept: A brief comment. Pain, 34, 171 - 174.
- VanCauwenberge, J. R., Hustin, J., Demey-Ponsart, E., Sulon, J., Reuter, A., Lambotte, R., & Franchimont, P. (1987). Changes in fetal and maternal blood levels of prolactin, cortisol, and cortisone during eutocic and dystocic childbirth. Hormone Research, 25, 125 -131.
- Weisenberg, M., & Caspi, Z. (1989). Cultural and educational influences on pain of childbirth. Journal of Pain and Symptom Management, 4(1), 13 - 19.
- Wuitchik, M. I. (1987). Pain, cognitive activity and childbirth. Unpublished doctoral dissertation, University of Calgary, Calgary.
- Wuitchik, M. I., Bakal, D. A., & Lipshitz, J. (1989). The clinical significance of pain and cognitive activity in latent labor. Obstetrics and Gynecology, 73(1), 35 - 42.
- Wuitchik, M. I., Bakal, D. A., & Lipshitz, J. (1990). Relationships between pain, cognitive activity and epidural analgesia during labor. Pain, 41, 125 - 132.

Wuitchik, M. I., Hesson, K., & Bakal, D. A. (1990).

Perinatal predictors of pain and distress during labor.

Birth, 17(4), 186 - 191.

Appendix A  
Antenatal Questionnaires and  
Intrapartal Data Sheet

## Prenatal Self Evaluation Questionnaire II

The statements below have been made by expectant women to describe themselves. Read each statement and decide Which response best describes your feelings. Then circle the appropriate letter next to each statement.

	(4)	(3)	(2)	(1)
	Very	Moder-	Some-	Not
	Much	ately	what	at
	<u>So</u>	<u>So</u>	<u>So</u>	<u>All</u>
1. This is a good time for me to be pregnant.	A	B	C	D
2. I like to watch other parents and children together.	A	B	C	D
3. I can tolerate the discomforts I've had during pregnancy.	A	B	C	D
4. My husband and I talk about the coming baby.	A	B	C	D
5. My husband has been critical of me during the pregnancy.	A	B	C	D
6. I feel that rearing children is rewarding.	A	B	C	D
7. I feel it is necessary to know a lot about labor.	A	B	C	D
8. I can cope well with pain.	A	B	C	D
9. It's hard for me to get used to the changes brought about by pregnancy.	A	B	C	D
10. My husband is understanding (calms me) when I get upset.	A	B	C	D
11. I can perform well under stress.	A	B	C	D

	(4)	(3)	(2)	(1)
	Very	Moder-	Some-	Not
	Much	ately	what	at
	<u>So</u>	<u>So</u>	<u>So</u>	<u>All</u>
12. I think that labor and delivery will progress normally.	A	B	C	D
13. There is little I can do to prepare for labor.	A	B	C	D
14. My mother shows interest in the coming baby.	A	B	C	D
15. I have confidence in my ability to maintain composure in most situations.	A	B	C	D
16. I am worried that the baby will be abnormal.	A	B	C	D
17. I think the worst whenever I get a pain.	A	B	C	D
18. Realizing that labor has to end will help me maintain control in labor.	A	B	C	D
19. I look forward to caring for the baby.	A	B	C	D
20. My mother is happy about my pregnancy.	A	B	C	D
21. My mother offers helpful suggestions.	A	B	C	D

	(4)	(3)	(2)	(1)
	Very	Moder-	Some-	Not
	Much	ately	what	at
	<u>So</u>	<u>So</u>	<u>So</u>	<u>All</u>
22. I have enjoyed this pregnancy.	A	B	C	D
23. My husband is interested in discussing the pregnancy with me.	A	B	C	D
24. I have a good idea of what to expect during labor and delivery.	A	B	C	D
25. I understand how to work with the contractions in labor.	A	B	C	D
26. I look forward to childbirth.	A	B	C	D
27. I suspect the doctors and nurses will be indifferent to my concerns in labor.	A	B	C	D
28. It's easy to talk to my mother about my problems.	A	B	C	D
29. I have doubts about being a good mother.	A	B	C	D
30. I dwell on the problems the baby might have.	A	B	C	D
31. My mother looks forward to this grandchild.	A	B	C	D
32. I am glad I'm pregnant.	A	B	C	D

	(4)	(3)	(2)	(1)
	Very	Moder-	Some-	Not
	Much	ately	what	at
	<u>So</u>	<u>So</u>	<u>So</u>	<u>All</u>
33. I like having children around me.	A	B	C	D
34. It will be hard for me to balance childcare with my other commitments and activities.	A	B	C	D
35. My husband helps me at home when I need it.	A	B	C	D
36. I find it hard to talk to my husband about any changes in sex drive during this pregnancy.	A	B	C	D
37. I feel good when I'm with my mother.	A	B	C	D
38. I am preparing myself to do well in labor.	A	B	C	D
39. I feel sure that I will lose control in labor.	A	B	C	D
40. I can count on my husband's support in labor.	A	B	C	D
41. I am afraid that I will be harmed during delivery.	A	B	C	D
42. I feel that babies aren't much fun to care for.	A	B	C	D

	(4)	(3)	(2)	(1)
	Very	Moder-	Some-	Not
	Much	ately	what	at
	<u>So</u>	<u>So</u>	<u>So</u>	<u>All</u>
43. My husband feels that I burden him with my feelings and problems.	A	B	C	D
44. When we get together my mother and I tend to argue.	A	B	C	D
45. It will be difficult for me to give enough attention to a baby.	A	B	C	D
46. I think the baby will be a burden on me.	A	B	C	D
47. I feel prepared for what happens in labor.	A	B	C	D
48. I know some things I can do to help myself in labor.	A	B	C	D
49. When the time comes in labor, I'll be able to push even if it's painful.	A	B	C	D
50. I think about the type of mother I want to be.	A	B	C	D
51. I am anxious about complications occurring in labor.	A	B	C	D
52. I feel that the stress in labor will be too much for me to handle.	A	B	C	D

	(4)	(3)	(2)	(1)
	Very	Moder-	Some-	Not
	Much	ately	what	at
	<u>So</u>	<u>So</u>	<u>So</u>	<u>All</u>
53. I think I can bear the discomfort of labor.	A	B	C	D
54. I am concerned that caring for a baby will leave me little time for myself.	A	B	C	D
55. My mother reassures me when I have doubts about myself.	A	B	C	D
56. I feel well informed about labor.	A	B	C	D
57. I am worried that something will go wrong during labor.	A	B	C	D
58. It's difficult for me to accept this pregnancy.	A	B	C	D
59. My mother encourages me to do things in my own way.	A	B	C	D
60. I think my husband would say we have made a satisfactory sexual adjustment during this pregnancy.	A	B	C	D
61. This has been an easy pregnancy so far.	A	B	C	D
62. I wish I wasn't having the baby now.	A	B	C	D

	(4)	(3)	(2)	(1)
	Very	Moder-	Some-	Not
	Much	ately	what	at
	<u>So</u>	<u>So</u>	<u>So</u>	<u>All</u>
63. I worry that I will lose the baby in labor.	A	B	C	D
64. If I lose control in labor it will be hard for me to regain it.	A	B	C	D
65. My mother criticizes my decisions.	A	B	C	D
66. I'm having a problem adjusting to this pregnancy.	A	B	C	D
67. I am worried that my baby may not like me.	A	B	C	D
68. I focus on all the terrible things that could happen in labor.	A	B	C	D
69. This pregnancy has been a source of frustration to me.	A	B	C	D
70. I can count on my husband to share in the care of the baby.	A	B	C	D
71. I am confident in having a normal childbirth.	A	B	C	D
72. I feel that childbirth is a natural, exciting event.	A	B	C	D
73. I feel I already love the baby.	A	B	C	D

	(4)	(3)	(2)	(1)
	Very	Moder-	Some-	Not
	Much	ately	what	at
	<u>So</u>	<u>So</u>	<u>So</u>	<u>All</u>
74. I have found this pregnancy gratifying.	A	B	C	D
75. I believe I can be a good mother.	A	B	C	D
76. I have regrets about being pregnant at this time.	A	B	C	D
77. I find many things about pregnancy disagreeable.	A	B	C	D
78. I feel I will enjoy the baby.	A	B	C	D
79. I am happy about this pregnancy.	A	B	C	D

**Miller Behavioral Style Scale**

1. Vividly imagine that you are afraid of the dentist and have to get some dental work done. Which of the following would you do? Check all of the statements that might apply to you.

☐ I would ask the dentist exactly what he was going to do.  
☐ I would take a tranquilizer or have a drink before going.  
☐ I would try to think about pleasant memories.  
☐ I would want the dentist to tell me when I would feel pain.  
☐ I would try to sleep.  
☐ I would watch all of the dentist's movements and listen for the sound of the drill.  
☐ I would watch the flow of water from my mouth to see if it contained blood.  
☐ I would do mental puzzles in my mind.

2. Vividly imagine that you are being held hostage by a group of armed terrorists in a public building. Which of the following would you do? Check all of the statements that might apply to you.

☐ I would sit by myself and have as many daydreams and  
☐ I would stay alert and try to keep myself from falling asleep.  
☐ I would exchange life stories with the other hostages.  
☐ If there was a radio present, I would stay near it and listen to the bulletins about what the police were doing.  
☐ I would watch every movement of my captors and keep an eye on their weapons.  
☐ I would try to sleep as much as possible.  
☐ I would think about how nice it's going to be when I get home.  
☐ I would make sure I knew where every possible exit was.

3. Vividly imagine that, due to a large drop in sales, it is rumored that several people in your department at work will be laid off. Your supervisor has turned in an evaluation of your work for the past year. The decision about lay-offs has been made and will be announced in several days. Check all of the statements that might apply to you.

- \_\_\_ I would talk to my fellow workers to see if they knew anything about what the supervisor's evaluation of me said.
- \_\_\_ I would review the list of duties for my present job and try to figure out if I had fulfilled them all.
- \_\_\_ I would go to the movies to take my mind off things.
- \_\_\_ I would try to remember any arguments or disagreements I might have had with the supervisor that would have lowered
- \_\_\_ I would push all thoughts of being laid off out of my mind.
- \_\_\_ I would tell my spouse that I would rather not discuss my chances of being laid off.
- \_\_\_ I would try to think which employees in my department the supervisor might have thought had done the worst job.
- \_\_\_ I would continue doing my work as though nothing special was happening.

4. Vividly imagine that you are on an airplane, thirty minutes After a short time the pilot announces that nothing is wrong, although the rest of the ride may be rough. You, however, are not convinced that all is well. Check all of the statements that might apply to you.

- \_\_\_ I would carefully read the information provided about safety features in the plane and make sure I knew where the emergency exits were.
- \_\_\_ I would make small talk with the passenger beside me.
- \_\_\_ I would watch the end of the movie, even if I had seen it before.
- \_\_\_ I would call for the stewardess and ask her exactly what the problem was.
- \_\_\_ I would order a drink or tranquilizer from the stewardess.
- \_\_\_ I would listen carefully to the engines for unusual noises and would watch the crew to see if their behavior was out of the ordinary.
- \_\_\_ I would talk to the passenger beside me about what might be wrong.
- \_\_\_ I would settle down and read a book or magazine or write a letter.

### Trait Anxiety Inventory

A number of statements which people have used to describe themselves are given below. Read each statement carefully and then circle the appropriate response to indicate how you generally feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

	ALMOST			ALMOST
	NEVER	SOMETIMES	OFTEN	ALWAYS
1. I feel pleasant.	1	2	3	4
2. I tire quickly.	1	2	3	4
3. I feel like crying.	1	2	3	4
4. I wish I could be as happy as others seem to be.	1	2	3	4
5. I am losing out on things because I can't make up my mind soon enough.	1	2	3	4
6. I feel rested.	1	2	3	4
7. I am "calm, cool and collected".	1	2	3	4
8. I feel that difficulties are piling up so that I cannot overcome them.	1	2	3	4
9. I worry too much over something that doesn't really matter.	1	2	3	4

	ALMOST NEVER	SOMETIMES	OFTEN	ALWAYS
10.I am happy.	1	2	3	4
11.I am inclined to take things hard.	1	2	3	4
12.I lack self-confidence.	1	2	3	4
13.I feel secure.	1	2	3	4
14.I try to avoid facing a crisis or difficulty.	1	2	3	4
15.I feel blue.	1	2	3	4
16.I am content.	1	2	3	4
17. Some unimportant thought runs through my mind and bothers me.	1	2	3	4
18.I take disappointments so keenly that I can't put them out of my mind.	1	2	3	4
19.I am a steady person.	1	2	3	4
20.I get in a state of tension or turmoil as I think over my recent concerns and interests.	1	2	3	4

### Intrapartal Data Sheet

Women will be asked to respond verbally to the following questions:

What are you thinking about during contractions? Anything else?

What are you thinking about between contractions? Anything else?

What are you doing to cope with the pain? Anything else?

### Present Pain Intensity Scale

Please tell which adjective best describes the pain you are currently experiencing.

No-Pain   Mild   Discomforting   Distressing   Horrible   Excruciating

### Anxiety

---

0	100
no anxiety	anxiety
at all	as bad as
	it can be

Appendix B  
Consent Form

**Research Project: Respiratory Patterns and Coping in Latent Labor**

**Investigators: Dr. D. Bakal, Lyn Hesson M.Sc., & Todd Hill B.A.**

**Funding Agency: University of Calgary**

This consent form, which has been given to you, is only part of the process of informed consent. It should give you the basic idea of what our research project is about and what your participation will involve. If you would like more detail about something mentioned here or information not included here, you should feel free to ask. Please take the time to read this carefully and understand any accompanying information.

The purpose of this research is to develop an understanding of how women breathe during labor and the impact of breathing patterns on such factors as amount of pain and distress experienced. We are also interested in determining whether there is any relationship between such factors as coping style, expectations about labor, fears and concerns about childbirth, and the way women breathe during labor.

Your participation in this research will occur in two stages. First, you will be asked to complete a package of questionnaires (at home), which will be mailed back to the investigators prior to delivery. Second, very early in your labour Lyn Hesson will come to the labour unit to measure your breathing and ask you a couple of questions about what you are thinking and any pain you might be experiencing. Questions will be asked between contractions and your responses will be tape recorded.

Your breathing will be measured by means of two elastic bands that encircle ribcage and abdomen. The expansion and contraction of the bands gives us information about how deeply and rapidly you are breathing. The bands are not uncomfortable and have been used before with pregnant women. While the bands are attached you will be asked to remain on the bed. Both the measurement of breathing and the questions will take about a half hour of your time. While this is not a part of routine care at the Rockyview, it will in no way interfere with the hospital's regular procedures.

We will also require access to your medical record in order to obtain information about obstetric factors. All information collected in the course of your participation will be kept strictly confidential. Only Dr. Bakal, Lyn Hesson and Todd Hill will have access to this information.

Your participation in this study will help us to learn more about the importance of breathing in helping women cope in labor. As you know, prenatal educators believe that breathing style is important during labor and we hope to determine the characteristics of breathing which are most often associated with a positive experience. In addition, we hope to determine the relationship of individual coping style, expectations about labor, and fears and concerns about childbirth to breathing in labor. Your participation will help us identify any particular issues or concerns that prenatal educators might give additional attention to in classes, thus improving care for both yourself in future pregnancies and for women in general.

All participants will receive a written summary of the research findings.

Your signature on this form indicates that you have understood to your satisfaction the information regarding your participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the investigators, sponsors or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time without jeopardizing your health care. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation. If you have further questions concerning matters related to this research, please contact:

Todd Hill 220-4963

Lyn Hesson 220-4963

Dr. Bakal 220-4971

If you have any questions concerning your rights as a possible participant in this research, please contact the Office of Research Services, the University of Calgary at 220-6354, or Dr. Peitchinis, Chairperson, Research Committee, Calgary District Hospital Group at 541-2273.

\_\_\_\_\_  
(name)

\_\_\_\_\_  
(signature)

\_\_\_\_\_  
(name of witness)

\_\_\_\_\_  
(signature of witness)

\_\_\_\_\_  
(date)